

From The Desk Of

Michael J. Fournier



May 20, 2018

Attachment

to

Fournier to Burgess 5-20-18

Re. Case No. 17-F-0598: Application of North Side Energy Center, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article 10 of the Public Service Law for Construction of a Solar Electric Generating Facility Located in the Towns of Massena, Brasher, and Norfolk, St. Lawrence County.

This attachment includes all the articles referred to in DMM submission, "Fournier to Burgess 5-20-18." Articles are attached in "footnote sequence," clearly marked with a bold stamp at the top of each article. (Thus the first article corresponds with footnote 5. The second with footnote 6. Etc.)

Fournier to Burgess 5-20-18, footnote 5

NEW YORK STATE DEPARTMENT OF AGRICULTURE AND MARKETS

Guidelines for Agricultural Mitigation for Solar Energy Projects

The following guidelines apply to the construction, restoration, and follow-up monitoring of solar energy projects impacting agricultural land. Depending on the size of the project, the project sponsor should hire an Environmental Monitor to oversee the construction, restoration and follow-up monitoring in agricultural fields. The Environmental Monitor should be on site whenever construction or restoration work is occurring on agricultural land and should coordinate with the New York State Department of Agriculture and Markets (Ag. and Markets) to develop an appropriate schedule for inspections to assure that the goals of these guidelines are being met. The Environmental Monitor should maintain regular contact with the affected farmers and Ag. and Markets concerning farm resources and management matters pertinent to the agricultural operations and the site-specific implementation of these guidelines.

Siting Goals

Project sponsors should avoid the installation of solar arrays on the most valuable or productive farmland. The following is the order of importance for solar array avoidance:

Active Rotational Farmland (most important):

- comprised of Prime Farmland Soils
- comprised of Prime Farmland Soils (if drained)
- comprised of Soils of Statewide Importance

Permanent Hayland:

- comprised of Prime Farmland Soils
- comprised of Prime Farmland Soils (if drained)
- comprised of Soils of Statewide Importance

Improved Pasture:

- comprised of Prime Farmland Soils
- comprised of Prime Farmland Soils (if drained)
- comprised of Soils of Statewide Importance

Unimproved Pasture:

- comprised of Prime Farmland Soils
- comprised of Prime Farmland Soils (if drained)
- comprised of Soils of Statewide Importance

FACT SHEET

UNDERSTANDING SOLAR INSTALLATIONS IN AGRICULTURAL DISTRICTS



NY-Sun

Navigate the development of solar projects, also known as photovoltaic or PV, in accordance with local and New York State agricultural policies.

Many local governments are implementing strategies to review solar installations within their community by updating their comprehensive plan and adopting zoning requirements for the siting, installation, and decommissioning of large-scale solar arrays. To protect productive farmland, municipalities should consider siting the non-farm solar energy projects on less productive land. There is a distinction between farm-related solar systems, and solar systems built on agricultural land that primarily serve off-site uses.

What is an agricultural district?

New York State's Agriculture and Markets Law provides a bottoms-up approach for the protection of viable farmland by including land within an Agricultural District. Landowners petition the County Legislature to include their land into an Agricultural District, affected municipalities are notified, a public hearing is held, and the County Legislature creates or modifies an Agricultural District by adding or removing land from the District. Farm operations located within an Agricultural District are provided certain protections, such as limited protection from eminent domain and condemnation; unreasonably restrictive local rules, regulations, laws, and ordinances; agricultural assessment; protection from private nuisance lawsuits; and other benefits.

What is an agricultural assessment?

An agricultural assessment is an assessed value placed on eligible land that is used for agricultural production, based on the land's ability to produce a crop. The taxes paid on the property by the owner are based on the agricultural assessment.

Land inside and outside of an agricultural district is eligible for an agricultural assessment. To qualify, farmers must produce crops, livestock, or livestock products on seven plus acres of land and have an average gross sales of \$10,000 in the prior two years. Land that is used in agricultural production that has less than seven acres in production must have an average gross sales of \$50,000 in the prior two years.

Additionally, a land owner receiving an agricultural assessment inside an agricultural district annually commits the land to an agricultural use for the next five years, or eight years if located outside of an agricultural district. Farmland outside agricultural districts are generally not eligible for other agricultural district benefits and protections.

What protections do agricultural districts offer farm-related solar?

The Department of Agriculture and Markets considers solar panel systems to be "on-farm" equipment when they are designed, installed, and operated so that the anticipated annual total amounts of electrical energy generated do not exceed the anticipated annual total electrical needs of the farm by more than 110 percent. If a local government classifies solar equipment as structures or buildings, they are deemed on-farm buildings. As on-farm equipment or buildings, the installation of solar panel systems are protected under the Agricultural Districts Law.

To ensure that the electrical output of solar equipment does not exceed the 110-percent threshold, an initial energy assessment may be required to separate farm-related energy consumption from other uses.

Further, if the solar equipment is connected by remote net metering, multiple meters must be combined to determine the electrical needs of on-farm equipment.

What laws are generally considered reasonable for on-farm solar?

Reasonable regulations for solar development include:

- A streamlined site plan review process that involves a shorter review period and fewer submission requirements.
- A building/zoning permit and compliance with the State's Fire Prevention and Building Code requirements.

What laws are generally considered "overly restrictive" for on-farm solar?

"Overly restrictive" regulations for solar development include:

- Extensive site plan regulations.
- Special use permit regulations.
- Nonconforming use requirements.
- Height restrictions and excessive setbacks from buildings and property lines.
- A Full Environmental Assessment Form (on-farm solar development is considered a Type II action in the State Environmental Quality Review (SEQR) process, which does not require EAF preparation).
- Visual impact assessments.
- Prohibiting the construction of on-farm, solar generated electricity to offset the energy demands of the farm.

FACT SHEET

USING SPECIAL USE PERMITS AND SITE PLAN REGULATIONS TO ALLOW LARGE-SCALE SOLAR INSTALLATIONS WHILE PROTECTING FARMLAND



This document describes two land-use tools New York State municipalities commonly use to site large-scale solar energy systems in agricultural areas: special-use permits and site plan regulations. The purpose is to provide guidance and step-by-step instructions for municipalities to support solar energy development that addresses the short- and long-term needs of farmers while also ensuring their most valuable and productive farmland remains in operation.

Municipalities are encouraged to proactively prepare for solar energy development. To assist their efforts, the New York State Energy and Research Authority (NYSERDA) offers free technical assistance to municipalities on land-use tools, including how to update municipal planning and zoning for solar energy systems. To request assistance, visit nyserda.ny.gov/solarguidebook or contact solarhelp@nyserda.ny.gov.

Introduction

New York State has committed to generating 50% of its electricity from renewable energy sources by 2030, increasing the demand for land used for solar energy generation. Some municipalities expressed concern about the pace and extent of solar development in their communities and have requested guidance and assistance. NYSERDA is pleased to provide this document in response.

NYSERDA administers the NY-Sun Program, which helps customers across the State adopt clean, renewable sources of energy. NY-Sun provides financial incentives for the installation of solar (also known as photovoltaic or PV) energy systems that convert sunlight into electricity.

A relatively new kind of solar project, community solar, has emerged as an efficient and affordable way for all New Yorkers to gain access to clean energy. Community solar allows individuals (including renters and others who cannot install a system on their own roof) to purchase individual panels or some fraction of the electricity a large-scale solar energy system generates. These customers receive credits for this electricity on their monthly utility bills. A community solar project benefits a community and its residents in several ways. Community solar customers—which may include municipalities, businesses, and residents—save money on their utility bills. Taxing jurisdictions can benefit from additional revenue through payment-in-lieu-of-tax (PILOT) agreements. Farmers generate revenue by leasing parts of their land. At the same time, given the passive nature of a solar energy system, a solar project does not create increased demands on municipal services and infrastructure.

Community solar projects are much larger than residential rooftop projects and are typically ground-mounted in rural areas, sometimes on agricultural land. A typical 2 MW AC community solar project will require about 10 acres of land. However, solar development is significantly constrained by several factors, including utility infrastructure, the locational cost of electricity, zoning policies and state policies. With some exceptions, the vast majority of municipalities in the State are unlikely to see more than 20 acres of solar development in the near future.

There may be some potential for agricultural uses on the same site as solar energy systems, including grazing livestock. Planting wildflowers for pollinator purposes on marginal or abandoned agricultural land can also provide some added benefit. In addition, the underlying land could be returned to agricultural use if properly restored at the end of the solar energy system lifecycle. A balanced approach that allows solar development and adequately preserves agricultural land is necessary.

Selecting a Land-Use Tool

In municipalities where large-scale solar energy systems are being considered, there are several land-use tools available to accommodate them in agricultural areas, including overlay zones, floating zones, special-use permits, site plan regulations, and environmental review requirements. The two land-use tools addressed here, special-use permits and site plan regulations, are the most commonly used for solar in New York State.

For information on navigating the development of solar projects in State-certified agricultural districts, see the NY-Sun Fact Sheet [“Understanding Solar Installations in Agricultural Districts.”](#)

Special-Use Permits

Special-use permits may be used to impose conditions that mitigate adverse impacts on the most valuable or productive agricultural land. Zoning traditionally singles out land uses that are allowed in designated zoning districts on the condition that they are compatible with the surrounding neighborhood. These are called conditional uses and are allowed by the issuance of a special-use permit. The zoning code sets forth the specific standards under which the use will be permitted.

Steps: Municipalities can designate large-scale solar energy systems as a conditionally permitted use in agricultural zones and create a special permit process to carefully examine the impact before granting approval if the project meets certain conditions. These conditions (or

Site Plan Regulations: Summary of Steps

1. Determine new site plan approval standards to minimize the impact of large-scale solar on appropriate land. (Consult the Current Land Use and Soil Types section for minimum standards and the remaining guidance for additional requirements.)
2. Based on the selected additional site plan requirements, determine what additional submission information will be required to determine compliance and identify mitigation opportunities.
3. Amend the site plan regulations to include new approval standards with submittal specifications.
4. Amend the zoning code (if applicable) to specify that the development of any large-scale solar project triggers a site plan review.

Determining Approval Standards

When using the land-use tools previously described, municipalities may include conditions that protect their most valuable and productive agricultural land. For an inventory of potential mitigating conditions, municipalities should refer to the Department of Agriculture and Markets' [Guidelines for Agricultural Mitigation for Solar Energy Projects](#). These guidelines include details on the following standards.

- **Current Land Use and Soil Types**, such as avoiding installation of solar arrays on the most valuable or productive farmland (provided in the order of importance of current use: active rotational farmland, permanent hayland, improved pasture, unimproved pasture, other support lands, fallow/inactive farmland), especially when containing prime farmland soils or soils of statewide importance.
- **Siting Goals**, such as minimizing adverse impacts to fencing and watering systems; minimizing impacts to normal farming operations by locating structures for overhead collection lines in nonagricultural areas and along field edges; avoiding dividing larger fields into smaller fields, which are more difficult to farm; eliminating the need for cut and fill and reducing the risk of creating drainage problems by locating access roads, which cross

agricultural fields, along ridge tops and by following field contours; limiting the permanent width of access roads in agricultural fields to no more than 16 feet to minimize the loss of agricultural land; and avoiding existing drainage and erosion control structures.

- **Construction Requirements**, such as ensuring the surface of access roads is level with the adjacent agricultural field surface; installing culverts and waterbars to maintain natural drainage patterns; stripping all topsoil from agricultural areas used for vehicle and equipment traffic, parking, and equipment laydown and storage areas; stockpiling topsoil stripped from work areas; burying interconnected cables at a specified depth; removing excess subsoil and rock from the site; constructing temporary or permanent fences around work areas to prevent livestock access; and picking up and properly disposing of pieces of wire, bolts, and other unused metal objects.
- **Restoration Requirements**, such as decompacting disturbed agricultural areas; regrading access roads to allow for farm equipment crossing and to restore original surface drainage patterns; seeding restored agricultural areas with the seed mix specified by the landowner; repairing all surface or subsurface drainage structures damaged during construction; and, following restoration, remove all construction debris from the site.
- **Two-Year Monitoring and Remediation Immediately Following Restoration**, including mitigation of topsoil deficiency and trench settling with imported topsoil consistent with the quality of topsoil on the affected site; and determination of the appropriate rehabilitation measures if the subsequent crop productivity within affected areas is less than that of the adjacent unaffected agricultural land.
- **Decommissioning**, including removal of all above-ground structures and restoration of areas previously used for agricultural production, according to recommendations by the landowner, the Soil and Water Conservation District, and the Department of Agriculture and Markets; removal of concrete piers, footers, or other supports to a depth of 48 inches below the soil surface; and removal of access roads, unless otherwise specified by the landowner.

Acknowledgments

NYSERDA created this document in consultation with the Pace University Land Use Law Center and the New York State Department of Agriculture and Markets.



STATE OF NEW JERSEY

DEPARTMENT OF AGRICULTURE

STATE AGRICULTURE DEVELOPMENT COMMITTEE

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AMP for the Construction, Installation, Operation or Maintenance of Solar Energy Generation Facilities, Structures and Equipment on Commercial Farms

This is a courtesy copy of the AMP text. Should there be any discrepancies between this text and the official version, the official version will govern.

(a) As used in this section, the following words and terms shall have the following meanings, unless the context clearly indicates otherwise:

"Ambient sound level" means that measured value, which represents the summation of the sound from all of the discrete sources affecting a given site at a given time.

"Board" means the county agriculture development board established pursuant to N.J.S.A. 4:1C-14 or a subregional agriculture retention board established pursuant to N.J.S.A. 4:1C-17.

"Commercial farm" means: 1. A farm management unit of no less than five acres producing agricultural or horticultural products worth \$ 2,500 or more annually, and satisfying the eligibility criteria for differential property taxation pursuant to the Farmland Assessment Act of 1964, N.J.S.A. 54:4-23.1 et seq.; or 2. A farm management unit less than five acres, producing agricultural or horticultural products worth \$ 50,000 or more annually and otherwise satisfying the eligibility criteria for differential property taxation pursuant to the Farmland Assessment Act of 1964, N.J.S.A. 54:4-23.1 et seq.

"Committee" means the State Agriculture Development Committee (SADC) established pursuant to N.J.S.A. 4:1C-4.

"Conservation plan" means a site-specific plan that prescribes land treatment and related conservation and natural resources management measures that are deemed to be necessary, practical and reasonable for the conservation, protection and development of natural resources, the maintenance and enhancement of agricultural or horticultural productivity, and the control and prevention of non-point source pollution.

"dBA" means the sound level as measured using the "A" weighting network with a sound level meter.

"dBZ" means the sound level as measured using the "Z" weighting network with an octave band sound level meter.

"Decibel" means the practical unit of measurement for sound pressure level as defined in N.J.A.C. 7:29.

"Geotextile fabrics" means permeable, woven and non-woven fabrics that allow for water infiltration into the underlying soil.

"L90" means the sound level exceeded for 90 percent of the duration of a measurement period.

"Lmin" means the minimum sound level measured during a measurement period.

"New Jersey Field Office Technical Guide (NJ-FOTG)" means the USDA-NRCS technical reference, which is incorporated herein by reference, as amended and supplemented, customized for the State of New Jersey, prescribing practices and standards for the conservation and management of soil, water and related natural resources, which is available at http://efotg.nrcs.usda.gov/efotg_locator.aspx?map=NJ.

"Occupied area" means the total contiguous or noncontiguous area(s) supporting the solar energy generation facilities and related infrastructure. The total area calculation shall include land devoted to the solar energy generation facilities; nonfarm roadways; roadway or utility easements accessing the solar generation facilities; any areas of the farm used for

underground piping or wiring to transmit solar energy or heat where the piping or wiring is less than three feet from the surface; and any other buildings or site amenities deemed necessary for the production of solar energy on the farm.

"Octave band sound level meter" means an instrument that conforms to ANSI S1.4-1983 or its successors and ANSI S1.11-1986 or its successors.

"Operator" means the person or entity that installs, owns or controls the solar energy generation facilities, structures and equipment.

"Owner" means the owner of record of the commercial farm.

"Prime farmlands" means lands so defined by the USDA Natural Resources Conservation Service.

"Setback" means the distance measured from the nearest vertical component within the occupied area, including, but not limited to, solar arrays, inverters and fencing.

"Site plan" means a plot plan that includes the following:

1. Property lines and physical dimensions of the commercial farm;
2. Location, configuration and size of the occupied area measured in square feet and acres;
3. Method of mounting, system height and generating capacity (in alternating current) of the solar energy generation facilities;
4. Computed distances for setbacks and screening where required;
5. Proposed new roadways and existing roadways to access the facilities;
6. Use of concrete, asphalt, gravel, geotextile fabrics and the nature and extent of any site disturbances within the occupied area;
7. A copy of the USDA, Natural Resources Conservation Service soil map that uses the most current Soil Survey Geographic (SSURGO) database with a summary of the soil mapping units and designation of prime farmlands for the entire property;
8. A copy of the conservation plan that was approved by the soil conservation district, which is referenced in this section;
9. A copy of the farmland assessment form approved by the local tax assessor for the commercial farm; and
10. A copy of the analysis demonstrating that the solar energy generation system has been designed to comply with the sound standards in (j) below.

"Solar energy" means electricity or heat that is generated through a system that employs solar radiation.

"Solar energy generation facilities" means all the components of a solar energy generation system, including, but not limited to, structures and equipment, photovoltaic panels and films, arrays, collectors, piping, footings, supports, mounting and stabilization devices, inverters, pumps, transformers, electrical distribution and transmission wires, utility poles and other on-farm infrastructure necessary to operate and maintain the system for the generation of power or heat.

"Sound level meter" means an instrument that conforms to ANSI S1.4-1983 or its successors.

"System height" means the highest point of any component of the solar energy generation facilities, structures and equipment at any point in time, as measured from the ground beneath that point.

"Vegetative screen" means the planting of deciduous and non-deciduous trees, shrubs, grasses and other vegetation to serve as a visual screen to obstruct the view of the solar energy generation facilities.

(b) The owner or operator of a commercial farm who is engaged in the construction, installation, operation or maintenance of a solar energy generation facility for purposes of generating solar energy, and is seeking the benefits and protections of the Right to Farm Act, shall comply with the provisions of this section and relevant or applicable State and Federal rules and regulations including, but not limited to, the following:

1. The Right to Farm Act, N.J.S.A. 4:1C-9;
2. The Farmland Assessment Act of 1964, N.J.S.A. 54:4-23.1 et seq.;
3. The Pinelands Protection Act, N.J.S.A. 13:18A-1 et seq., and the standards of P.L. 1979, c. 111, and the Comprehensive Management Plan for the Pinelands Area adopted pursuant to P.L. 1979, c. 111 for any lands located in the Pinelands Area;

4. The Coastal Area Facilities Review Act, N.J.S.A. 13:19-1 et seq., and the New Jersey Department of Environmental Protection Coastal Zone Management rules at N.J.A.C. 7:7E;

5. The Highlands Water Protection and Planning Act, N.J.S.A. 13:20-1 et seq.;

6. The Freshwater Wetlands Protection Act, N.J.S.A. 13:9B-1 et seq.; and

7. The State Uniform Construction Code, N.J.A.C. 5:23.

(c) The interconnection of the solar energy generation facilities to the electrical transmission or distribution system is subject to any applicable requirements of the Federal or State government.

(d) An owner or operator of a commercial farm who is seeking right-to-farm protection for the construction, installation, operation or maintenance of a solar energy generation facility shall provide a site plan to the board or committee upon request.

(e) Solar energy generation facilities shall not be constructed or installed on prime farmlands to the maximum extent physically and financially practicable.

(f) The mounting of solar photovoltaic panels, collectors or films constructed, installed and operated on the farm shall be done in the following manner:

1. To minimize adverse impacts on the productivity of the soil, the preferred installation shall be as follows:

i. On buildings or facilities;

ii. On the ground by a screw, piling or similar system that does not require a concrete footing or other permanent mounting; or

iii. Where the occupied area does not exceed one acre on the ground using gravel within contained structures, concrete block or similar materials for the purpose of providing ballast for mounting the solar energy generation facilities; or

2. In the event that the method in (f)1 above, of mounting the solar photovoltaic panels, collectors or films, are not practicable, then written justification shall be provided by a licensed professional engineer responsible for designing the installation of the solar photovoltaic panels, collectors or films that a permanent ground mounting is necessary to conform with Federal or State laws, rules or regulations and that the permanent mounting requires footings, concrete or other permanent methods.

(g) Ground-mounted solar energy generation facilities shall be constructed in compliance with the following system height, setback and screening standards:

1.

| Mounting | System Height | Size of Occupied Area | Minimum Setback To an Adjacent Residence Existing at the Time of System Installation and Not Located on the Commercial Farm | Minimum Seback To Property Line or Public Roadway Right of Way | Required Screening |
|----------|-------------------------------------|--------------------------------------|---|--|--------------------|
| Ground | Up to two feet | Up to one acre | 200 feet | 100 feet | Not Required |
| Ground | Greater than two feet up to 10 feet | Up to one acre | 300 feet | 150 feet | Not Required |
| Ground | Up to 10 feet | Greater than one acre up to 10 acres | 300 feet | 150 feet | Required |
| | | | 400 feet | 300 feet | Not Required |
| Ground | Greater than 10 feet up to 20 feet | Up to 10 acres | 300 feet | 300 feet | Required |
| | | | 500 feet | 400 feet | Not Required |

2. Solar energy generation facilities shall not exceed a maximum system height of 20 feet.

3. Solar energy generation facilities shall be located in a manner that minimizes views of the facilities from public roadways and existing residences not located on the commercial farm, by utilizing existing visual barriers including, but not limited to,

Considerations for Transferring Agricultural Land to Solar Panel Energy Production

Fournier to Burgess 5-20-18, footnote 10

The decision to transfer land use from agricultural production to solar panel electrical production (solar farms) should be made by careful examination of immediate and long-term potential risks and benefits. Currently, the transition seems a logical and profitable venture since payments made by contractors are much greater than revenue received from farmland rental. However, one must also consider that the transfer of land from agricultural use may also result in additional tax liability, greater insurance requirements, personal injury/liability issues, potential future environmental mitigation, and even the inability to transfer lands into other uses.

This article will briefly address: 1) General Economic & Resource Considerations; 2) General Land Maintenance; 3) Tax Implications; 4) Comparison of Commercial vs Agricultural Land Environmental Concerns; 5) Wildlife Impacts; 6) Proximity to Airports; 7) Fire Safety; 8) Drainage, Stormwater & Soil Quality Considerations; 9) Vegetative Buffer Zones; 10) Weed, Shrub & Tree Maintenance; 11) Evaluation of the Contract; 12) Farmland Preservation Programs; and, 13) Future Considerations.

GENERAL ECONOMIC & RESOURCE CONSIDERATIONS

Within Craven County, NC, agricultural farm sales since 2007 (field crop and livestock production only) ranged from \$40-\$70 million annually depending upon price of commodities and yield. According to an economic study by NCSU in 2008, jobs and services supporting this industry added over \$312 million to the local economy. However, the number of farmlands converted to other uses over the past 15 years has exceeded a twenty square mile area. This directly effects farmers and the local economy. Thus, any additional loss of farmland will adversely affect the agricultural economy.

In contrast, landowner income may be significantly higher from solar farm income compared to agricultural rental income. Additionally, transition of farmland to commercial property increases tax revenue for the county. Too, some increase in jobs is likely during construction and may remain for maintenance, depending upon contractual agreements. Assuming the solar farm's usefulness remains until full term of contract (usually 15-20 years), income and taxes generated could add value to the landowner and county.

In addition to personal and governmental revenue, one must also consider one of the goals for establishing solar panels is to provide energy production

to lessen the reliance upon energy sources that are considered a negative impact upon the environment or are available in limited quantity. However, energy production from solar farms is not equal for all locations. Too, current federal or state mandates and tax incentives that make this technology feasible may not exist in the future. Lastly, technology changes rapidly. Thus, carefully examine the transition. Past solar and wind farm production has experienced this situation and many sites were abandoned rather than upgraded.

Also consider that the goal of those developing solar farms is to make a profit. Farmland within Craven County, NC is valued between \$2,500-\$4,000 per acre. Yet companies are willing to pay upward to \$800-\$1000/ac per year for twenty years. This is a much, much higher payment to the landowner than the company would make should they simply decide to purchase the farm. Thus, it begs the question as to why a company would choose to pay a much higher rate to a landowner rather than purchase the farm to realize a higher profit. Logically, this decision does not appear to be the most profitable choice for the developing company. As such, there is more than profit to consider when transitioning farmland to solar farms.

Perhaps the most troubling issue involving solar farm establishment is to consider the possibility that the solar farm is abandoned within the first few years. If this occurs, what risks or financial obligation will the landowner face? Can the solar farm actually be decommissioned with ease and low cost? Will the farm be limited in use due to environmental, wetland or even contractual limitation? These types of consideration must be examined prior to converting land from agricultural use to solar farms.

What happens when the company abandons the land?

TAX IMPLICATIONS

Under the current North Carolina tax system, agricultural land is eligible to be taxed based upon farm use. This system, known as Present Use Value (PUV), defers commercial tax rates on agricultural lands as long as the use of the land remains agricultural. This protects farmland by taxing the land at a lower rate rather than commercial/development value. However, when land enrolled in the PUV system is converted to non-agricultural uses, three years of taxes are due, with interest, based upon the commercial value of the land. Thus, one must be prepared to pay these taxes and interest should land be transferred from agricultural use.

Conversely, if the landowner wishes to maintain the land in the PUV system, then agricultural production and solar production must be maintained simultaneously. While this is permitted, to be done successfully requires establishment of some type of agricultural production that is compatible with solar farm use. Typically, development of a pasture production either for grazing or harvest has been established. However, this also adds additional

management and costs. As such, depending upon the size of the parcel of land and the landowner's personal desires, this may or may not be a consideration. (Click [HERE](#) to read an editorial supporting this type of venture.

Additional tax implications, tax credits, estimated commercial values and information is available [HERE](#).

COMPARISON OF COMMERCIAL VERSES AGRICULTURAL ENVIRONMENTAL CONCERNS

Land classification may impact land use. Many current farms are lands that were considered wetlands that were cleared decades ago when this activity was allowed. As land currently in agricultural use, it is protected as a "previously cleared wetland" (PC) and farmers are allowed to continue farming the land. Under current regulations, PC farmland will be permitted to change from agricultural to commercial use. However, future conversion from a solar farm established on PC farmland to non-agricultural uses will be regulated by various agencies and environmental regulations. In worst case scenario, solar farms established on PC farmland may not be permitted to other uses without wetland mitigation. PC farmlands, may, however, be eligible to convert back into agricultural production depending upon soil hydrology.

Conversion of PC farmlands may also impact farm program participation for the current tenant farmer. If an entire farm is not placed into solar energy production, then the remaining portion of the farm still in agricultural production must meet requirements set forth in the 2014 Farm Bill. Currently, a farmer tending any farm or portion of farm that is not in compliance with all wetland provisions jeopardizes federal farm support programs for all lands tended and may face fines and penalties. This could result in thousands to hundreds of thousands of dollars loss to the farmer, depending upon the size of the farming operation and value of crops produced. Currently, the USDA Farm Service Agency, the USDA Natural Resource and Conservation Service, and the Army Corps of Engineers coordinates to make these wetland and compliance determination. All

landowners are encouraged to examine the land classification and status prior to conversion of land from agricultural production to avoid potential liability and regulatory actions.

In addition to potential wetland ramifications, some farms may be near rivers or streams with restrictive land uses. As example, the Neuse Rules and associated legislation established a 50-foot vegetative buffer requirement along the Neuse River and tributaries of the river (Blue line streams). If land currently utilized as agricultural production lies within this buffer, the land is

allowed to continue in agricultural production. However, if removed from agricultural production, no alternative land use is permitted.

Another scenario, and admittedly perhaps the worst case scenario, involves abandonment of the solar farm. Solar farms left idle not only decrease land value, abandonment also subjects the land to provisions of the Clean Water Act. Thus, if land is left idle for long and the land also has a wetland hydrology, reclaiming the land may be difficult, if not impossible. Should this occur, within Eastern Coastal Carolina, land use would be regulated by the EPA, the Corps of Engineers and the Coastal Area Management Act.

These examples are provided to emphasize the need to examine environmental rules and regulations prior to establishment of a solar farm. Generally speaking, farmlands that are not classified as PC or do not have portions of the farmland with wetland hydrology do not fall under many regulations restricting land use. For these farmlands, simply consider that historically, environmental rules have not become less restrictive, but more restrictive.

GENERAL LAND MAINTENANCE

Often, with the inclusion of a land rental agreement, a farmer actively maintains ditch banks by removing unwanted vegetation or soil; grades roads or paths; mows near wooded areas; or, provides other general farm maintenance. As a solar farm, these tasks fall back to the landowner. If no equipment is owned to perform these tasks, equipment will need to be purchased to maintain the farm. Alternatively, these tasks may be contracted.

Farmland maintenance will especially be critical shortly after development or for land that has a permanent stream in order to protect against erosion or flooding concerns. Removal from agricultural land use does not exempt the landowner from soil or stream maintenance that might otherwise impact water flow or degrade soil or water quality.

Many soils within Craven County, NC are either very coarse sand or soils that drain poorly. Both of these situations may result in topsoil either shifting, sinking or eroding near the base of equipment. Slight shifts in solar panels will alter the degree of tilt required for the unit to function properly or even may cause a fire hazard (See Fire Safety). Thus, replacement of eroded topsoil should be a priority, especially between the time after completion of the construction and establishment of a permanent ground cover.

Flooding is another issue that should be examined. Storm events within this area historically cause flooding for some areas. Maps showing the flood plains are available for review at <http://www.ncfloodmaps.com/>. However, also consider that continued development and increased impervious surface

modifies this map data. Thus, some variance is likely due to a changing environment, increased development and water management (or lack thereof).

One should also consider that Eastern NC is at risk for frequent tropical storm systems. Trees and debris will fall into the area. As farmland, the farmer tending the land normally assumes the responsibilities and cost of cleanup. In some cases, the farmer may qualify for financial assistance for cleaning up the debris. Commercial property may or may not qualify for such and it will be the responsibility of the landowner to clean up debris.

WEED, SHRUB & TREE MAINTENANCE

Left alone without cultivation and management, farmlands will progress from a mixture of weeds to small shrubs and eventually forest. Thus, weed, shrub and small tree maintenance must be considered. Either the landowner will need to provide for this effort or contract these tasks with a service provider. As a landowner, applying a non-restricted use herbicide does not require a license for pesticide applications to manage the lands. However, many of the shrubs and small trees are not easily controlled by these general herbicides. Thus a license to purchase and use a restricted use herbicide may be necessary. Currently, this license can be obtained by passing an exam provided by the North Carolina Department of Agriculture and Consumer Services (NCDA & CS) Pesticide Division. This license will require attending four hours of training in a three-year time period and a small fee to maintain this license. For more information pertaining to licensing, visit the web site <http://www.ncagr.gov/SPCAP/pesticides/index.htm>.

If the landowner chooses, a commercial applicator may be contracted to provide vegetative maintenance on the solar farm. Simply ensure that the person or company has the appropriate license(s). Within current legal structure, most commercial applicators are likely to have license permitting general weed control but one must be licensed in forestry to manage trees or shrubs. Thus, as a worst case scenario, it may be necessary to contract with more than one person/company. *(Note: Farmers are allowed to apply herbicides on farms they own or lease but are not permitted to apply on property of others. Such privilege is allowed only for commercial operators.)*

WILDLIFE IMPACTS

Aim to evaluate the potential impact this project might have upon wildlife. Consider both the good and unfavorable potential consequences. Small shrubs or tree borders may protect the investment as well as provide an aesthetically pleasing area. However, some plants will simply not tolerate the amplified light or heat if planted too close to the solar panels. Too

amplified light or heat if planted too close to the solar panels. Too, establishment of a border may increase activity of small birds, insects and small mammals. However, this also increases the chance of wildlife nesting. Removal of bird's nest or wasp nest should be a routine maintenance to prevent potential fires or permanent damage to equipment (See Fire Safety). For additional resources for those wishing to consider wildlife conservation and wildlife protection a priority during planning and development, visit <http://www.ncwildlife.org/Conserving/Programs/GreenGrowthToolbox.aspx>

DRAINAGE, STORMWATER & SOIL QUALITY CONSIDERATIONS

Currently solar farms are considered pervious structures by the State of North Carolina if positioned such that water does not pond on the panels. Even so, large systems may require inclusion of drainage and/or stormwater plans. Additionally, soil erosion and soil quality must be maintained, regardless of size. Both of these may require modification in layout. Due to the potential complexity of this issue based upon size, location and existing structures, it is not possible to provide guidance for stormwater or all erosion control within this article. Planning should include discussion with appropriate planning departments (County or Municipal) depending upon jurisdiction as well as the local Soil & Water Conservation office.

In contrast to stormwater management, addressing soil management is a relatively simple process. Simply protect soil by planting a permanent ground cover. Many types of permitted grasses will qualify. Aim to provide proper fertilization to maintain growth. The NCDA & CS Agronomic Division

provides soil testing for plant nutrients and lime. Soil testing and recommendations are free of charge from April 1st through the end of November. (There is a \$4 charge per sample for submission any other time). Sampling instructions, forms, boxes and other assistance is available from any local N.C. Cooperative Extension office. Additional information, payment for samples submitted (when appropriate), and instructions are also available at <http://www.ncagr.gov/agronomi/sthome.htm>. Note that some fertilizers may be corrosive to metals, plastics and glass used in the solar farms. Thus apply fertilizer with care to avoid damage to the panels or electrical conduits.

The goal of fertilization should be to provide adequate nutrients to establish the desired ground cover. Poor ground cover, in a worst case scenario, may result in sheet flow erosion as large quantities of water rush off of the solar panels during heavy storm events. Even frequent, yet less heavy rainfall events may create a dripline directly beneath the individual panels that may cause a shift in equipment angle. If this occurs, restoring the eroded land and prevention of runoff into surrounding surface waters will be the responsibility of the landowner or contractor/developer, depending upon the designation

Sheet flow erosion
dripline

made within the contract.

Lastly, most solar farms are indeed safe to operate. However, potentially toxic heavy metals and silicone by-products are used in these projects. Damaged units or time may release these contaminants into the environment. As such, consider taking soil samples to monitor for potential contaminants. For additional information concerning potential contaminants as outlined by the EPA, visit <https://www.epa.gov/chemical-research/ecological-soil-screening-level-metal-contaminants>.

Toxic heavy metals

PROXIMITY TO AIRPORT

Establishment of solar farms has been noted as a potential hazard for airports and air traffic controllers. Generally, the requirements of notification are not necessary for solar panels established more than 5 nautical miles from an airport. According to their website, the Federal Aviation Administration (FAA) essentially has two objectives as follows:

1. No potential for glint or glare in the existing or planned Airport Traffic Control Tower (ATCT) cab, and
2. No potential for glare or “low potential for after-image” along the final approach path for any existing landing threshold or future landing thresholds (including any planned interim phases of the landing thresholds) as shown on the current FAA-approved Airport Layout Plan (ALP)¹⁷. The final approach path is defined as two (2) miles from fifty (50) feet above the landing threshold using a standard three (3) degree glide path.

In most cases, solar farms do not emit frequencies that are not in compliance with the FAA Co-location Policy or other regulations that may impact flight paths. However, it is advisable to discuss potential solar farm issue with the FAA’s local Airport District Office (ADO) for civilian airports or the NC Commander’s Council for military facilities if this might be a concern.

Steps below can assist in evaluation of proper procedure should one question whether the solar farm might create a potential hazard for air traffic. Tools and steps that will assist in these evaluations are listed below.

1. Google Earth – Use this mapping tool (or similar program) to determine if the proposed facility is within 5 nautical miles of an airport as well as to gather the GIS coordinates and elevation of the field site.
2. Go to the FAA website, <https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp> and enter this data. If a report is required, it will be noted at this site.
3. Visit the website, <https://www.sghat.com/> to determine if glare or after-

images might be a problem with major flight paths.

4. Take printed copies of the above data to the local airport for discussion.

FIRE SAFETY

Fire codes will apply to this structure, just as with any other commercial property. Thus, it is advisable to discuss the potential regulations prior to establishment. Having thus said, most solar farms can be established with minimum restrictions. Generally, clearly marking all direct-current conduits, conductors, enclosures, etc., as well as leaving a clear area (brush free) of at least 10 feet around the array is sufficient.

Another consideration for fire safety will be to discuss fire plans and facility layout with the appropriate Fire Marshal (county and/or city). **These panels should always be considered as having maximum voltage and a potential electrical hazard. Nest from birds, insects and small animals may cause fires. Fires on site may place fire-fighters and others at risk of electrocution.** As such, a pre-fire plan to determine a salvage treatment, if any, in case of a fire should be discussed with all contracting parties, fire departments and Fire Marshal.

“Panels should always be considered as having max. voltage”

VEGETATIVE BUFFER ZONES

Specific regulations or ordinances do not currently exist within the State of North Carolina to mandate a vegetative buffer zone. However, municipal or county ordinances may have these requirements. Even if no regulation requires a vegetative buffer zone, there are some reasonable functions that a vegetative buffer zone will serve. As example, a vegetative buffer zone may provide some protection against wind-blown objects from entering the area where panels are established, may provide some protection against intrusion of vehicles if the area is located on a major highway, or may provide some deflection of potential sunlight glare if the areas is located near

neighborhoods or a major highway. Thus, not only will the vegetative border be pleasing, it may serve some practical functions. (See also Maintenance and Wildlife Sections)

EVALUATION OF THE CONTRACT

Care should be taken to examine all aspects of the contract. Typically, such contracts are written to protect the company, not the landowner. As such, the contract outlines responsibilities and rights of the two parties but are typically one-sided in that they protect the developer/contractor's rights but may greatly limit the landowner's rights. One must remember, the developer/contractor is approaching the agreement to protect himself from as much liability as possible and to make a profit.

It is not the intent of this article to outline all considerations of a contract. However, a few of the major issues that need to be considered are listed below. It is *highly recommended* to consult legal counsel prior to signing the contract.

Potential contractual considerations include:

- Can the contract or any agreement/obligation of the contract be sold, transferred or assigned to another party. If so, what are the terms? The ability to sell a contractual obligation may mean that the company or individual you contract with today is not the same tomorrow. Too, if allowed, the company/contractor to which the agreement is transferred may be limited in liability or simply not agree to all original terms. In some cases, transferal of the agreement may be to a company/contractor that does not have the ability to provide adequate financial backing or proper authority to meet original obligations. Simply make sure that if this clause is included in the contract that the specific conditions, terms, liability and risks associated with such transferal are outlined.
- Easement, right of ways, permission to enter the farmland at will and/or right to work of other parties should be considered carefully. Leases allow a landowner to provide a tenant exclusive rights for a specific time period. They are easily terminated. An easement provides the owner the right to continue using his/her land but transfers an interest in the property, and associated rights, to a third party. They are often recorded with the deed. As such, they are not easily terminated.
- Does the contract allow the developer/contractor access to the land at any time? Some clauses allow entry, without notification, at any time during the term of the contract. Specifically outline who has access to property and under what terms or conditions. Failure to do so may allow the contractor, developer, sub lessee or others access at any time without notification to the landowner.
- Does the contract require the landowner to protect the developer/contractor's interest? If so, this broad term may imply legal fees, liability insurance or other matters. Avoid such clauses and terms and specify exactly what is needed by the contractor rather than a general, unclear clause that might increase the landowner's risks. Make sure these items are specifically outlined.
- Who is liable for injury of a person during establishment, operation or maintenance of the solar panels? In some cases, landowners may become entangled in legal disputes over worker injury. Make sure to protect yourself against such situation by specifically outlining such liability and responsibilities.
- Who is responsible for disputes with sub-contractors, sub lessee or others? As a landowner, it is especially critical to separate your responsibility from those of the contractors/developers. Otherwise, legal

action for which you have no control over may result.

- Do both parties have the right to terminate the agreement without cause? If not, then what are the terms of termination? Solar farms do not generate power equally. In some cases, poor performance may result in an inactive site. If so, as a landowner, do you have the right to terminate the agreement? These issues need to be clearly defined in the contract.
- If there is a dispute or legal matter, what state determines the applicable laws. Some contracts specify that all legal matters be handled by arbitration in the state of the contracting company's origin or operation. Insist that all legal matters and disputes follow local state laws and that disputes be settled within the state that the solar farm is located.
- Consider having the contract publicly recorded. Many contractors not only do not wish for this to occur, the contract may specifically have wording preventing disclosure of terms, operation or any business matters concerning the solar farms. Rather a "memorandum" is executed. Many states do not regard these memorandums as a binding legal agreement and thus are not as enforceable as publicly recorded contracts.
- Make sure that any changes to the contract or agreements is in writing and that the party representing the contract and work has the authority to make changes to the contract. In some cases, a third-party administrating company provides sales or initial contact. These individuals or companies may or may not have authority to accept changes to a contract.
- Many lending institutions, for various liability and risk concerns, will not allow solar farms to be placed onto farms with a lien. If the farm is not fully paid, check with the lending institution. Otherwise, full payment of the remaining balance may be due should the farm be placed into a solar farm.
- Evaluate the liability of injury to workers, visitors to the site, potential environmental damage, fire, vandalism, or other unintended consequences. Liability insurance costs and needs for commercial property may greatly differ from liability insurance for farmland. As such, make sure the contract clearly specifies who owns the equipment and liability of damage to equipment or personal injury.
- Avoid clauses or phrases that are vague such as allowing entry of the developer, contractors or assignee to "undertake any activities that are necessary, helpful, appropriate or convenient in connection with, incidental to, or for the benefit of one or more projects." Such statements give the contractor/developer or others open-ended rights and even the right for future development. Make sure to specifically outline all activities and responsibilities for all parties and specifically state that no others are implied.

Additional information on contract considerations is found at <https://nccleantech.ncsu.edu/wp-content/uploads/Solar-Land-Lease-Issues.pdf>

FARMLAND PRESERVATION PROGRAMS

Craven County, NC, as many counties within North Carolina has farmland preservation programs such as the Voluntary Agricultural District (VAD) or Enhanced Agricultural District. (EVAD). These programs identify farmland that the landowner has voluntarily committed to agricultural production and conservation practices to protect natural resources. As such, no commercial development is allowed.

The Craven County Agricultural Advisory Board administers these programs. If farmlands enrolled into a VAD are to be removed from agricultural production and placed into solar farms, a letter addressed to this board requesting removal is required (and payment for removal of the Conservation Agreement with the Register of Deeds). Once the Agricultural Advisory Board receives this letter, the process should take between 30-90 days.

Farmland enrolled in an EVAD are more secure and binding. These lands have been enrolled as land that will remain in agricultural use for a minimum of 10 years from the date of enrollment and the land is automatically renewed for three-year time periods thereafter. There are penalties for early removal. However, once the original term has expired, the process for removal of lands from an EVAD are identical to the VAD.

Contact and additional information for the Craven County Agricultural Board is found at <http://www.cravencountync.gov/boards/volunteer/vad.cfm>.

DECOMMISSIONING

Currently no ordinance or provision provides for mandatory decommissioning in North Carolina. However, decommissioning may be warranted should the contracting company choose not to utilize the site, the site becomes damaged beyond reasonable repair, as the equipment ages, or equipment becomes too inefficient to provide profit. At some point, whether by choice or by default, the solar panels and equipment will need to be removed.

One of the primary obstacles currently faced by solar farms is that many of the products used consist of heavy metals and contaminants that cannot be disposed within a landfill. Many of the products will need to be recycled. Some companies offer this service for free or a small charge. However, the current concern is that there are not enough decommissioned solar panels to justify recycling of the materials. Thus, it may be difficult and costly to



decommission the site.

Guidelines for decommissioning as listed within the publication, *[Template Solar Energy Development Ordinance for North Carolina](#)* include:

Consider decommissioning under if any of the following conditions:

1. The land lease ends
2. The system does not produce power for 12 months
3. The system is damaged and will not be repaired or replaced

The owner/contractor of the solar farm, as provided for in its lease with the landowner, should do the following as a minimum to decommission the project.

1. Remove all non-utility owned equipment, conduits, structures, fencing, and foundations to a depth of at least three feet below grade.
2. Remove all graveled areas and access roads unless the owner of the leased real estate requests in writing for it to stay in place.
3. Restore the land to a condition reasonably similar to its condition before development, including replacement of top soil removed or eroded.
4. Revegetate any cleared areas with warm season grasses that are native to the region unless requested in writing by the owner of the real estate to not revegetate due to plans for agricultural planting.
5. Provide soil (and water if near a stream) sample reports from a private lab showing soil (water) on the location is free of heavy metals and contaminants and is suitable for agricultural production or desired use.

All removal and decommissioning shall occur within 12 months of the facility ceasing to produce power for sale. The owner/contractor of the solar farm should be responsible for this decommissioning. The owner/contractor of the solar farms should provide the Town/County planning departments, Register of Deeds and landowner a signed decommissioning plan within 30 days of change in the facility owner.

FUTURE CONSIDERATIONS

Within Craven County, NC there are currently no outlines, provisions or ordinances specifically regulating solar farm development. However, one should consider some guidelines that prevent future complications.

- Currently, development evaluates water quantity and quality impacts based upon the structures and property site alone. Increasingly more are supporting efforts to evaluate water impacts on a watershed scale. Thus, long-term plans should provide to protect against soil erosion, stream protection (if near a stream) and water quality

protection (if near a stream) and water quality.

- Across the state, evaluations are occurring to provide some insight into the potential impact of solar farms on wildlife. Loss of farmland, foods and shelter from farmlands will have an impact upon the environment. Whether or not the long-term impact is positive or negative is yet to be determined.
- What will the solar farm do to neighboring land values? Law suits alleging decline in value of homes or businesses due to construction of businesses or farms (swine operations, as example) are numerous. Currently, law protects the original land owner but no law currently addresses the specific glare, frequencies or unfavorable view of a functioning or non-functioning solar farms.



There are numerous lawsuits claiming loss of property value to neighboring properties! Note glare as an issue!

SUMMARY

Each landowner will need to determine whether or not the transition of agricultural land to solar energy production is feasible. Higher revenue on a per acre basis does not necessarily mean greater profit. Higher expenses, future land use and/or opportunity costs may negate profits. Secondly, many of the solar farm projects are established with financial tax incentives, government mandates for alternative energy sources and initial depreciation values anticipated. While these add immediate revenue, they also come at a cost to society and government. Too, they can disappear as quickly as initiated. Lastly, serious consideration of “best and worst case” scenarios should be evaluated. Solar farms providing 15-20 years of alternative energy, revenue to the landowner, and tax revenue to the county is beneficial. In contrast, abandoned solar farm production, excessive cost of decommission or loss of future land use is a detriment to the landowner and area.

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RESOURCES & REFERENCES

Template Solar Energy Development Ordinance for North Carolina

<https://nccleantech.ncsu.edu/wp-content/uploads/NC-Template-Solar-Ordinance.pdf>

NC Clean Energy Technology Center – <https://nccleantech.ncsu.edu/about-ncsc/>

Solar Energy Tax Information – <https://www.ces.ncsu.edu/spotlight/solar-energy-property-tax-resources/>

Property Taxes and Solar PV Systems: Policies, Practices, and Issues –

<https://nccleantech.ncsu.edu/wp-content/uploads/Property-Taxes-and-Solar-PV-Systems-2013.pdf>

Cost of Solar Energy: Article with comments from John Morrison, chief operating officer of Strata Solar in Chapel Hill,

<https://www.carolinajournal.com/news-article/n-c-state-prof-casts-shadows-on-solar-meeting/>

General Solar Energy Information and Data –

<http://www.thesolarfoundation.org/>

NCSU Issues for Landowners – <http://content.ces.ncsu.edu/threshold-issues-for-landowner-solar-leasing>

One article with comments from John Morrison, chief operating officer of Strata Solar in Chapel Hill, outlines some thoughts on this topic at

<https://www.carolinajournal.com/news-article/n-c-state-prof-casts-shadows-on-solar-meeting/>.

July 8, 2016

Fournier to Burgess 5-20-18, footnote 11

By Electronic Delivery

Hon. Kathleen H. Burgess
Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

Re: Case 15-E-0302 – Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard

Dear Secretary Burgess:

The New York Independent System Operator, Inc. (“NYISO”) hereby submits the enclosed Supplemental Comments on the Clean Energy Standard. The NYISO respectfully requests that its comments be accepted into the record of this proceeding pursuant to the Commission’s public statement inviting comments during its pendency:

*Comments from the public will be accepted at any point while this proceeding is pending, but are requested by June 6, 2016 to ensure full consideration. All public comments will become part of the record considered by the Commission.*¹

Respectfully submitted,

/s/ James H. Sweeney
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¹ See New York State Public Service Commission, Spotlight on: Clean Energy Standard, Fact Sheet for Utility Consumers, available at [http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/1008ed2f934294ae85257687006f38bd/\\$FILE/22678344.pdf/15-E-0302%20CES%20factsheet%204-19-16.pdf](http://www3.dps.ny.gov/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/1008ed2f934294ae85257687006f38bd/$FILE/22678344.pdf/15-E-0302%20CES%20factsheet%204-19-16.pdf).

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Rensselaer, NY this 8th day of July 2016.

/s/ John C. Cutting

John C. Cutting
New York Independent System Operator, Inc.
10 Krey Blvd.
Rensselaer, NY 12144
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**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

**Proceeding on Motion of the Commission to
Implement a Large-Scale Renewable Program
and a Clean Energy Standard**

Case 15-E-0302

**SUPPLEMENTAL COMMENTS OF THE
NEW YORK INDEPENDENT SYSTEM OPERATOR, INC.**

The New York Independent System Operator, Inc. (“NYISO”) supports Governor Cuomo’s public policy objectives associated with serving 50% of the State’s energy with renewable resources by the year 2030 (“50% by 30”).¹ The Clean Energy Standard (or “CES”) will play a significant role in shaping the bulk power system in New York State (“State”) over the next 15 years. The NYISO has concerns over how the New York State Public Service Commission (“Commission”) is developing and planning to implement the CES to achieve the 50% by 30 objectives.² The NYISO strives to continue collaboration with the Commission to work toward this goal in a manner that will produce the desired salutary effects of reducing

¹ In December 2015, New York State Governor Cuomo directed the Department of Public Service to develop a Clean Energy Standard and to present the Commission a framework for implementing the CES in June 2016. See https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/Renewable_Energy_Letter.pdf.

² The NYISO’s prior comments in this proceeding, submitted on April 22, 2016, expressed concerns regarding the compliance and procurement mechanisms described in the DPS Staff White Paper on CES and potential impacts on wholesale competitive electricity markets and maintaining system reliability.

Table 1

| | New Resource Type (MW) | Estimated Resource Unavailability (%) | Additional ICR Impact (MW) | Estimated IRM Impact (%) |
|----------------------------|-------------------------------|--|-----------------------------------|---------------------------------|
| <i>Existing Fleet</i> | N/A | N/A | N/A | 17.5% |
| Land-based Wind | 3,500 | 86% | 3,010 | 9% |
| Utility-scale Solar | 6,800 | 55% | 3,740 | 11% |
| Hydro¹⁴ | 600 | 47% | 283 | <1% |
| Biomass/ADG | 360 | 21% | 77 | <1% |
| Offshore Wind | 200 | 53% | 107 | <1% |
| Imports | 450 | 61% | N/A | N/A |
| BTM Solar | 3,000 | 55% | 1,650 | 5% |
| Total | 14,910 | | 8,867 | ~ 40-45% |

The NYISO used historic performance data to estimate the incremental IRM impact for additional land-based wind and solar resources while using the implicit capacity factors defined from the DPS SEIS Base Case Fixed-REC scenario for hydroelectric, biomass, offshore wind and imports. Historically, the NYISO’s land-based wind performance data indicates a performance of about 14% during on-peak hours (e.g., estimated wind resource unavailability of 86%).¹⁵ While the impact of solar facilities on the IRM has not been as widely studied as wind facilities, the NYISO assumed that utility-scale solar facilities have a value of 45% performance during on-peak hours.¹⁶ The overall system-average performance is much better than the wind and solar performance; therefore, the NYISO estimates that each additional installed MW of

¹⁴ The NYISO’s analysis assumed the hydroelectric capacity shown in DPS SEIS Table 4-1. If the NYISO were to assume long-term committed Canadian hydroelectric imports with historically high performance factors, those resources would put downward pressure on the IRM percentage.

¹⁵ See New York Control Area Installed Capacity Requirement Technical Study report at <http://nysrc.org/pdf/Reports/2016%20IRM%20Tech%20Study%20Report%20Final%2012-15-15.pdf>.

¹⁶ *Id.*



United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
Cornell University
Agricultural Experiment
Station

Soil Survey of St. Lawrence County, New York

Fournier to Burgess 5-20-18, footnotes 12, 13, 14



How to Use This Soil Survey

General Soil Map

The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

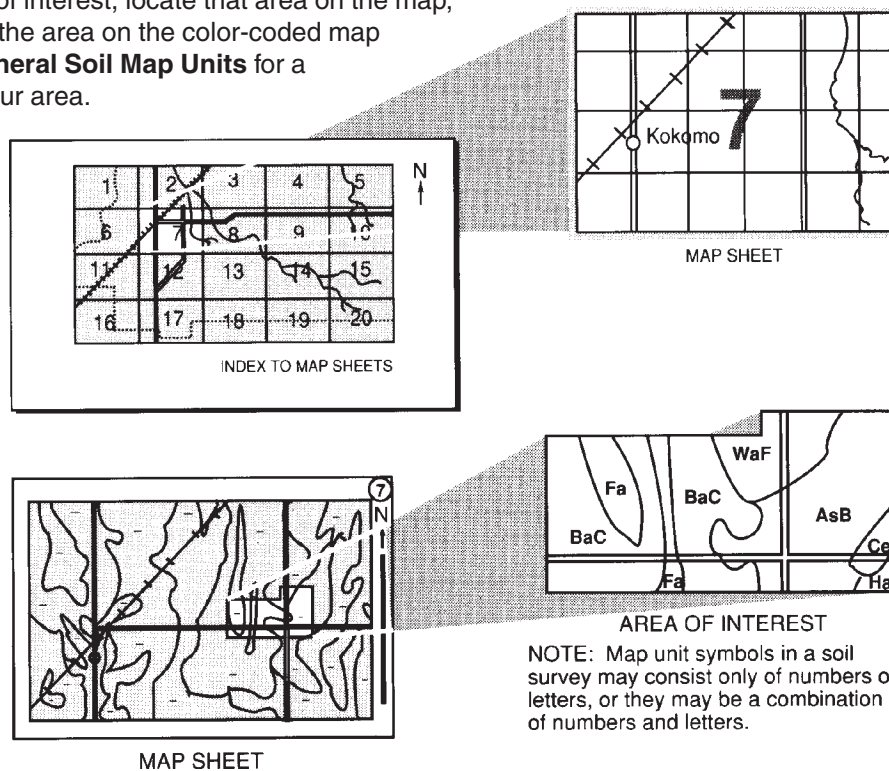
Detailed Soil Maps

The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map units symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1989. Soil names and descriptions were approved in 1990. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1989. This survey was made cooperatively by the Natural Resources Conservation Service and the Cornell University Agricultural Experiment Station. The survey is part of the technical assistance furnished to the St. Lawrence County Soil and Water Conservation District. The St. Lawrence County Soil and Water Conservation District provided partial funding and the New York State Department of Agriculture and Markets and the Adirondack Park Agency provided additional funding for the survey.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director of Civil Rights, Room 326W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-1127 (voice or TDD). USDA is an equal opportunity provider and employer.

Cover: The St. Lawrence River, in the background, was the key to early exploration of much of interior North America. In the 1950's the river became the St. Lawrence Seaway, which opened the North American breadbasket to ocean transport. Nearly level and gently sloping Adjidaumo, Muskellunge, and Swanton soils are in the foreground. These soils formed in marine sediments left after the Wisconsin Glaciation, during which the Champlain Sea, an extension of the Gulf of St. Lawrence, covered the area.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service home page on the World Wide Web. The address is <http://www.nrcs.usda.gov>.

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Foreword

This soil survey provides information that affects land use planning in this survey area. It makes predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations that affect various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Joseph R. DelVecchio
State Conservationist
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Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forest land, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. The slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 320,000 acres in the survey area, or nearly 18 percent of the total acreage, meets the soil requirements for prime farmland. Areas of this land are scattered throughout the county, but most are in the northern parts of the county.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 5. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not corrective measures have overcome the hazard or limitation. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps at the back of this publication. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Over 3,200 acres of the prime farmland consists of well drained and moderately well drained soils on ridgetops and benches on uplands. Nearly 16,000 acres consists of poorly drained, somewhat poorly drained, moderately well drained, and well drained soils on terraces, on flood plains, and on footslopes, toe slopes and fans at the base of hillsides.