



November 28, 2018 4697

Town of Farmington Town, Planning and Zoning Boards
1000 County Rd. 8
Farmington, NY 14425

Dear Town of Farmington Town, Planning, and Zoning Boards,

Delaware River Solar (“DRS”) is pleased to have the opportunity to bring the benefits of Community Solar to the Town of Farmington. As you may know, DRS has proposed three Community Solar facilities that will generate, in the aggregate, approximately 7 MW of clean and “green” electricity that will be distributed over the existing electrical grid (the “Projects”).

We submit these responses to the questions asked and comments made through the continued review of the Yellow Mills Road Community Solar systems. Questions outlined in the November 7, 2018 public hearing transcript are numbered below, and our answers are below each question.

Questions:

1. **The applicant was asked to identify feasible alternate sites that they looked at in the Town of Farmington and give reason(s) why one of those alternate sites were not chosen.**

DRS Response: Delaware River Solar (DRS) identified the project parcel at 466 Yellow Mills Road through a diligent search of available land in the Town of Farmington and neighboring towns. Three main factors determined why this parcel was selected over others:

- 1) The landowner was willing to lease the land for solar;
- 2) There is excellent Interconnection feasibility to the Rochester Gas and Electric (RG&E) existing utility lines from this parcel, and
- 3) the Town of Farmington adopted land use laws to regulate and allow solar on this land.

DRS also uses other site selection criteria, not limited to:

- a. Land that is relatively flat and without wetlands or water features, topography and other geologic and ecologic features that solar cannot be developed on;
- b. Interconnection costs at the site location that are not prohibitive to the project;

DRS understands the concern over developing Community Solar on agricultural land, which was a common concern heard during the public hearing. Most suitable land for Community Solar is found in mostly rural



areas, and agricultural areas are often where this land exists. DRS works diligently to make sure we have the least impacts on Agricultural areas as possible. Our site plan is designed to retain the existing farm operations, in addition to providing space for sheep grazing within the system – a new agricultural use possible on the property.

Community Solar is a type of Distributed Generation (DG) permitted in New York State, meaning they distribute power locally. Most site selection criteria for DG systems are based on utility interconnection standards that must be met. The primary consideration is proximity to good utility infrastructure with interconnection capacity. To better understand how utility interconnection works, please refer to **Appendix A – Town of Farmington - 3 Phase Utility Line Map**. This map is managed by Rochester Gas and Electric (RG&E) to display distribution power lines and their available interconnection capacity to inform development considerations for DG systems. The 3-phase powerline that the Yellow Mills Road Community Solar system will connect to is shown to run along Fox Road. Throughout the Town, parcels adjoining these utility lines are most preferred by developers and RG&E. Interconnections further away from existing lines are more cost prohibitive, more difficult to maintain, or are not possible to make connections to.

According to the Town's Farmland Protection Plan, the Town of Farmington is approximately 77.9% agricultural land, and so, there are few if any alternatives to using agricultural land. However, as evident in this map, most of Farmington's agricultural lands do not have Interconnection feasibility, and so the Town is not at risk of converting large parts of agricultural areas to solar development. The overall majority of agricultural parcels in Farmington are not close enough or adjoining to existing power lines that can receive DG connections. Furthermore, interconnection capacity along the particular power line that Yellow Mills Community Solar will connect to, will be completely filled once the projects are built, ensuring no further DG development can occur once this capacity is filled.

466 Yellow Mills Road met all the site selection criteria listed above to begin exploring its development potential in early 2017. After the land was found, DRS approached the landowners of the parcel, to determine if they were interested. Other landowners were also approached, but were not interested. Upon signing a lease with the Smiths, DRS then initiated the Interconnection feasibility studies with RG&E in August 2017 – landowner authorization is required to conduct this study. These studies determined the capacity the systems could be built to. DRS entered into an Interconnection Agreement with RG&E in March 2018, which secured the development potential for three separate 2.338 MW Community Solar systems in the RG&E DG Interconnection Queue. Throughout this time, the



Town of Farmington studied, wrote and adopted its Solar Law through an open public engagement process. This gave DRS the confidence to make 100 percent payments on the Interconnection Agreement, signaling to RG&E that when the projects obtain Zoning approval and building permits, DRS will commit to building the three Community Solar systems outlined in the Interconnection Agreements. Interconnection Agreements are static to the parcel and Point of Interconnection determined to be most suitable by RG&E. This means that they cannot be transferred to any other parcel without being cancelled entirely, and restarting the Interconnection process. Since there are no other parcels available for development along this power line, the Yellow Mills location is the most suitable DG site available.

Schultz Associates Response: Primary Farmland: The Town of Farmington Farmland Protection Soil Type Map, dated May 2014, indicated that the town is comprised of 47.4% Prime Farmland, 12.9% Farmland of Statewide Importance and 17.6% of Prime Farmland if Drained. These variations of Prime Farmland encompass 77.9% of the town. The project site contains a total of 135.4 acres of which 86.0 acres are considered a variation of Prime Farmland (53.1%). Of the 49.4 acres of Non Prime Farmland located on the project parcel 37.3 acres are located within the locations setbacks and wetland areas, 3.0 acres are located along Fox Road in the excavated area near the pond, 5.9 acres are wooded. This leaves approximately 3.2 acres of non-Prime Farmland available for construction (2.4%). 0.4 acres are located between the wetlands and the west property line, 2.4 acres are located on the steep slope in a 100' strip of non wooded area and the remaining acreage is adjacent to wetland #3. The proposed project impacts 30.4 acres of Prime Farmland and 0.5 acres of Non-Prime Farmland.

2. **The applicant is to provide documentation upon the meteorological (lack of sun, snow, hail, wind, etc.) effects of the northeast United States on solar projects. Among the information to be provided is why the industry is just now starting to build solar operations in New York State and what relationship this decision has to the statement... "the northeast United States is notorious for a lack of sun, especially in the Great Lakes region."**

DRS Response: Even in the northeast climate, the Yellow Mills Road Solar farm will get more than enough sunlight each year to produce power for up to 1,200 homes. Advances in efficiency, durability, and technology have led to a reduction in cost of photovoltaic solar panels in the last decade. Solar panels today produce more energy, at lower costs, making solar one of the most cost effective, reliable, and environmentally sound ways to produce electricity.



Nearly a decade before New York State established the goal of reaching 50% renewable energy by 2030, also known as '50X30', solar panels were technologically advanced and economical feasible to deploy in the northeast United States. Other states in the northeast like Massachusetts and Vermont, began allowing Community Solar scale as early as 2009, and already have more solar online than New York. With the 50X30 goal, and other state policy enacted in 2015, New York is quickly catching up and is set to lead the Northeast in solar capacity by 2020.

We have provided two studies to show this - one that address the adoption of solar energy in the northeast, and the second which speaks to the viability of solar in the northeast climate.

For reasons why the solar industry is becoming more active in New York and the northeast, please refer to **Appendix B – “Solar Industry Research Data – Solar Industry Growing at a Record Pace”**, written by the Solar Energy Industries Association (SEIA). SEIA is the national trade association of the U.S. solar energy industry. One notable fact in this report is the current installed capacity of solar in Massachusetts, which came in 7th out of all 50 States in 2017 for installed solar capacity, with 2,226MW of solar. That is equal to nearly twice the installed capacity in New York the same year, or, 318 Yellow Mills Road Community Solar systems.

For background on the viability of solar in the northeast climate, please refer to **Appendix C – “Evaluation of the National Solar Radiation Database (NSRDB Version 2): 1998–2015”** written by the National Renewable Energy Laboratory (NREL). NREL is a Federally funded laboratory of the Department of Energy, whose mission is to “advance the science and engineering of energy efficiency, sustainable transportation, and renewable power technologies and provides the knowledge to integrate and optimize energy systems.” This report explains how much consistent sunlight the Northeast United States receives annually, and why photovoltaic solar is a viable choice.

3. The applicant is asked to identify how they calculate the percent of open space there will be on each of the three proposed parcels of land.

Schultz Associates Response: Open space was calculated by finding the horizontal length of the panel based on the dimensions of the racking system. Using a maximum height of 10' and a height from ground of 3' the total height of the panel system is 7'. The diagonal length is stated to be 13.3'. The calculated horizontal length using the Pythagorean Theorem is 11.3'. The width of one racking system is 45.4'. The total area is then 513.0



SF. Each system has 250 racks. The overall area covered by each system's racks is 2.944 acres. The area of the proposed drives, inverter pad and other miscellaneous structures was then added to the area covered by the panels to create the area covered within each lot. The total area was divided by the area of each individual lot to determine the percentage of lot cover. Lot 1: 3.276 acres / 21.999 acres = 14.9%. Lot 2: 3.174 acres / 15.235 acres = 20.8%. Lot 3: 3.072 acres / 25.999 acres = 11.8%.

4. **The applicant is asked to provide photographs of a solar project comparable in size to the one being proposed in Farmington. The residents want to see what approximately 35 acres of solar panels in an area will look like.**

DRS Response: Please refer to **Appendix D – “Solar Array Pictures”** containing:

- i. Delaware River Solar's Baer Rd Operational 2MW Solar facility located in the town of Delaware, Sullivan county. Although smaller in size, this provides a good visual as to what the residents can expect the proposed Yellow Mills solar farm to be like. DRS makes use of sheep on this project and soon to be many projects following, to offset the costs of vegetation maintenance, and to also better make use of the land.
- ii. Rochester Institute of Technology Solar Farm – images were of the RIT existing 4MW solar farm at 300, 1,200 and 2,000 feet away to show how minimal the views of this system are.
- iii. Various other images are provided as well to give the residents a better idea as to the visuals of the proposed solar facility.

5. **The applicant is asked to provide data from other solar locations which identifies the value of adjacent properties before and after construction of a site farm comparable in size to the one being proposed.**

DRS Response: Please refer to **Appendix E – “Property Value Impact Study”**, which references available market and assessment studies conducted on property values near solar farms of similar sizes. DRS has seen no evidence that solar farms impact neighboring property values either negatively or positively.



6. The applicant is asked to provide their wetlands biologist's report on the site's wetland areas.

DRS Response: Please refer to **Appendix F – “Final Wetland Report 7-24-18”** provided by North Country Ecological Services.

7. The applicant is asked to explain what the North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection's (CIP) Reliability Standards are and how they might affect the proposed Delaware River Solar Project.

DRS Response: NERC CIP Reliability Standards regulate Transmission facilities projects that are (a) over 20MVA and (b) connect to transmission lines. The Yellow Mills Road Solar farms are Distribution systems, which connect to local distribution lines, not transmission lines, and are well below 20MVA, and thus are not regulated by this standard. Please refer to **Appendix G – “NERC-CIP-014-2 - Physical Security Requirements”** if you wish to see a detailed explanation of this regulation.

8. The applicant is asked to provide detail specifications from the manufacturer on the solar panels being proposed for the Delaware River Solar Project. In particular what hazardous chemicals are contained in the panels if they were to be damaged and the chemicals seeped into the ground water.

DRS Response: DRS will select a specific panel manufacturer after obtaining all local permits, since panel prices fluctuate and may drop in the near future. Please refer to **Appendix H – “Jinko Solar Panel Specifications”**, for a sample of standard panels specifications that will be used. DRS has used Jinko and other standard panels on systems.

Also please refer to **Appendix I – “Toxicity Characteristic Leaching Procedure (TCLP)”**, which is an independent study performed on Jinko solar panels to determine if any significant amount of hazardous chemicals may leach from the panels. The study concluded that the concentrations of any potentially hazardous chemicals are below the regulatory level set by the EPA and are thus insignificant and harmless. This is in line with countless other studies that have been done in regards to leaching of hazardous materials from solar panels.



9. The applicant was asked how farm equipment would be able to reach the portion of the site that is used for baling hay.

DRS Response: DRS consulted with the landowner, and will continue to work with them, to ensure the design of the Community Solar farm works with farm uses on the property. A 30 foot wide path will be built through the system, allowing hay bailers, cattle, and farm equipment passage across the parcel. This path width was determined to be appropriate by the landowner. The cattle will be able to graze up to the perimeter of the system fence, which will be a taller post and wire field fence, similar in style to those currently used on the farm for aesthetic reasons. Perimeter access allows passage of cattle to all areas outside the roughly 31 acre fenced solar system, and the hay fields along Yellow Mills Road, which will continue to be used by the landowner.

10. The applicant was asked to explain what information was used in preparing the property boundaries for this solar farm project and is that survey information available to the public prior to a decision being made.

Schultz Associates Response: Please refer to the Yellow Mills SITE 08-20-18 PLAT, provided in our initial application site plans. The project parcel was surveyed to meet the requirements of the American Land Title Association (ALTA) and National Society of Professional Surveyors (NSPS). This includes researching the abstract of title, existing filed deeds and maps as well as ground survey to locate existing surveyor markers (control points and property corners).

11. The applicant was asked to provide additional information about what buffers either exist or are to be proposed between the solar farm portion of the property and adjacent properties along Yellow Mills Road.

DRS Response: Existing vegetation and topography significantly block views of a majority of the system area. Please refer to the Preliminary Landscaping Plan dated 11-20-2018, and Visual Renderings for proposed buffers to adjoining properties and public rights of way, submitted on November 28, 2018.

The landscape plan was designed from line of site analysis to adjoining properties and structures, to buffer views. Line of sight analysis shows the existing topography of the parcel, and adjoining parcels, will block most views of the system, with only 1 to 2 feet of panel height visible from distances over 1,000 feet and more away to all neighboring structures. The proposed landscape screening will enclose views even more from



neighboring structures, obstructing the view of the solar farm. Views from public roads will be minimized by the landscape buffer.

12. The applicant was asked about the intersection of Yellow Mills Road and Fox Road and to provide data from local law enforcement agencies about accidents and fatalities at this intersection.

DRS Response: DRS conducted a search for traffic incident data at this intersection, but could not find any public law enforcement data.

We maintain a high safety rating in order to earn the privilege to work with statewide power utilities. Site safety is our main concern from construction through operations. We believe our site plan and landscape plan will greatly minimize to the greatest extent practicable, any views of the system from adjoining properties. We chose to design some parts of the landscape buffer further inside the parcel, rather than entirely at the road where vegetation could block sight of the intersection at Yellow Mills and Fox Roads.

There will be no increase in vehicular use of the adjoining roads once the solar farm is built. During construction, road visibility, signage and safety will be a priority. A site line distance review of our access road location shows it is sited within requirements for the speed limit on Fox Road, and it's location away from the intersection of Yellow Mills and Fox Roads. Please refer to our Project Memorandum for details on our construction activity. After construction, access to the site will be less than the current farm requires, and under the typical vehicular trips for a single family home.

Schultz Associates Response: Sight Distance for intersection: Schultz Associates utilized the AASHTO Intersection Sight Distance Chart for a driveway along a Major Road. Fox Road has no posted speed limit, it is assumed to be 55 mph, and a design speed of 60 mph was used with the AASHTO calculations. A Left Turn Maneuver requires a sight distance of 665 feet from the access road. A Right Turn Maneuver requires a sight distance of 575 feet from the access road. Sight Distance is determined by using a 3.5 foot eye height located at the proposed driveway entrance 14.5 feet from the outer edge of the travel lane. An object height of 3.5 feet is then located in the travel lane. The proposed driveway entrance has approximately 690 feet looking to the west and 1,004 feet looking to the east.



13. The applicant is asked to verify where there the main aquifer is for this area of the town and its' relationship to the proposed project site.

Schultz Associates Response: The site is located above an Unconfined Principal Aquifer (10-100 gallons per minute). A principal aquifer is an aquifer known to be highly productive or whose geology suggests abundant potential water supply, but are not currently intensively used as sources of water supply by major municipal systems. An Unconfined Aquifer is one where the water seeps in from the ground surface directly above the aquifer, is directly in contact with the atmosphere through open pores in the overlying soil (the Water Table). Please refer to **Appendix J – Aquifer Map**. Information obtained from NYSDEC website.

14. The applicant is asked to provide details on the amount of a surety bond that is being considered to reclaim the site, how it will get adjusted, how it remains in effect and who is the beneficiary.

DRS Response: Please refer to **Appendix K - Decommissioning Plan and Background, “02-1 Decommissioning Package”**, provided to the Planning Board on August 15, 2018 with application materials submitted. This is an initial decommissioning plan, and background, and further detail will need to be discussed during the Planning Board review to determine a final decommissioning agreement. As the proposed project progresses through the town approval process, the information will be updated and provided to the town. DRS will comply with all Town laws for decommissioning requirements.

15. The applicant is to provide a written response to the question if the solar panels are made in the United States and if the company making them is part of a union. Will the installation team use union labor.

DRS Response: The solar panels may or may not be manufactured in the United States as we have not yet determined which panel manufacturer we will be using. Usually panels are manufactured in Asia (Singapore, Taiwan, South Korea, China, and Japan). We can try to source panels from US manufactures but currently there is limited capacity as new factories are opening for production in 2019. The construction and installation teams have also not been determined but typically are not union labor. We try to hire locally and use local companies for the installation and construction of the project.



16. The applicant is to provide a report on the ongoing maintenance of the solar panels, the frequency of inspections, who conducts the inspections, where the maintenance records are going to be maintained and how the public is going to learn of any violations. Also, what chemicals will be used to clean and maintain the panels and how often. How often (schedule) will employees be onsite what times of day, how many and what equipment will be used.

DRS Response: Please refer to the Operation and Maintenance section (Page 21) of the Project Memorandum submitted with our application, for details regarding ongoing maintenance of the solar facility. No chemicals will be used in the cleaning of the panels. If there are any violations during operations or construction, DRS will work diligently to remedy them, and they will be on file with the Town Building Inspector.

17. The applicant is to provide information on the terms of the lease with the landowners.

DRS Response: Delaware River Solar has a lease with the property owners of 466 Yellow Mills Road to operate a Community Solar system on this land for a period of 40 years. The lease provides DRS the ability to seek land use approval to build and operate the Community Solar systems to an extent approved by the Town. During the lease, once the system has reached it's useful life, there is a clause in the lease that the system will be decommissioned and removed from the land, in accordance with Town law and any requirements that are determined as part of the Site Plan and Special Use Permit review by the Planning Board. The lease also requires that any additional tax burden created from the Solar Farm is the responsibility of the system owner, not the property owner.

18. The applicant is asked to provide information about the size and placement of the energy inverters, including pictures of these devices that are being used elsewhere.

DRS Response: Please refer to Appendix L - "Inverter and Transformer Specifications Data Sheet", which outlines the dimensions of typical inverters used (111"x36.2"x86.6") as well as other specifications. A picture of the inverter is provided in specifications sheet, and an active inverter can be seen in the pictures provided of Delaware River Solar's Baer Road project.



19. The applicant is asked to clarify what is meant when he says ... "there are no toxic materials inside the inverters and that they are similar to those now in use at other RG&E facilities." The applicant is to provide the locations of these other RG&E facilities and to provide comparisons between the inverters being proposed by Delaware River Solar and those being used by RG&E.

DRS Response: During the Public Hearing on November 7, 2018, Daniel Compitello attempted to describe that the energy equipment used in solar farms meet industry standards, and the inverter and transformer equipment standards are set by RG&E, to meet compatibility, safety, and reliability requirements of their electrical distribution infrastructure. Please refer to Question 18 for the inverter specification sheet provided.

RG&E does not publicly disclose the location of their transformer or substation energy infrastructure, however, many of this equipment is often visible on RG&E property. Like power lines, silos, and telephone poles, they are so ubiquitous, and seen so often, that they become normal in surrounding views, and become "invisible" to other surroundings.

20. The applicant is asked to provide details about power disruption during maintenance of the solar panels, to include how frequent this happens and what causes the disruption. Copies of the maintenance record of other solar projects comparable in size and still operating.

DRS Response: Solar farms require normal maintenance to perform at their best capacity. DRS assumes the term "power disruption" refers to if the solar farm is not supplying energy to RG&E's distribution grid. This may happen if the solar farm needs maintenance that requires it to be disconnected from the grid, or if there is a failure of equipment. In either case, DRS trained and certified technicians will work to bring the solar farm operational as soon as possible. If the solar farm is ever down, customers of the solar farm will not see a distribution in their power, as long as there is no disruption in the RG&E distribution grid, i.e. downed power lines from an ice storm (sic February, 1991), or a back-out (August 2003). Energy from many power sources is continuously supplied over RG&E's grid, so there will always be power running to customers' homes unless there is an issue with RG&E's infrastructure.

DRS can only provide maintenance records to authorities having regulatory control or compliance oversight of a solar farm. Performance and system data is supplied to and monitored by NYSERDA, and made publicly available through the New York State Open Data program at: <https://data.ny.gov/>



21. The applicant is to provide photographs of other similar solar projects, to include a full panel array depiction.

DRS Response: Please refer to Questions 4 and 11. See attached Images of Delaware River Solar's Baer Road operational 2MW Solar facility located in the town of Delaware, Sullivan County, New York.

22. Applicant stated 2MW supports 200 homes. Then that this project {7MW} would support 1,200 homes. Please explain the math.

DRS Response: Please refer to information on home electricity consumption and solar farm production in our Project Memorandum (Page 7), provided with our application. During the public hearing, we accidentally rounded up this figure, and we apologize for any confusion. The Yellow Mills Road Community Solar farm is projected to power 1,047 homes in Farmington and surrounding communities.

Based on historical energy use information, 1 home on average consumes 10,000 kwh/year. A Killowatt Hour (kwh) is defined as a kilowatt of electricity consumed per hour. Our proposed 7.014 MW solar facility is estimated to produce 10,467,000 kwh/year.

Given this, here are the calculations for how many homes the Yellow Mills Road Community Solar system can power:

Estimated Production of Facility (10,467,000kwh/year) / Average Consumption of a Home (10,000kwh/year) = 1,046.7 homes

23. What regulation limits solar to 2MW per parcel.

DRS Response: The Public Service Commission (PSC) of New York State regulates the size cap of Community Solar facilities that can receive compensation under the Value of Distributed Energy Resources (VDER) tariff. This cap was increased by the PSC from 2MW to 5MW per project on February 22, 2018. PSC orders also require each distinct project to be separately named, and sited on a distinct tax parcel.

24. Please provide the compliance letter from RG&E.

DRS Response: Please refer to Appendix M - "Yellow Mills Road Interconnection Agreements".



25. What government subsidies will be received from NYSERDA.

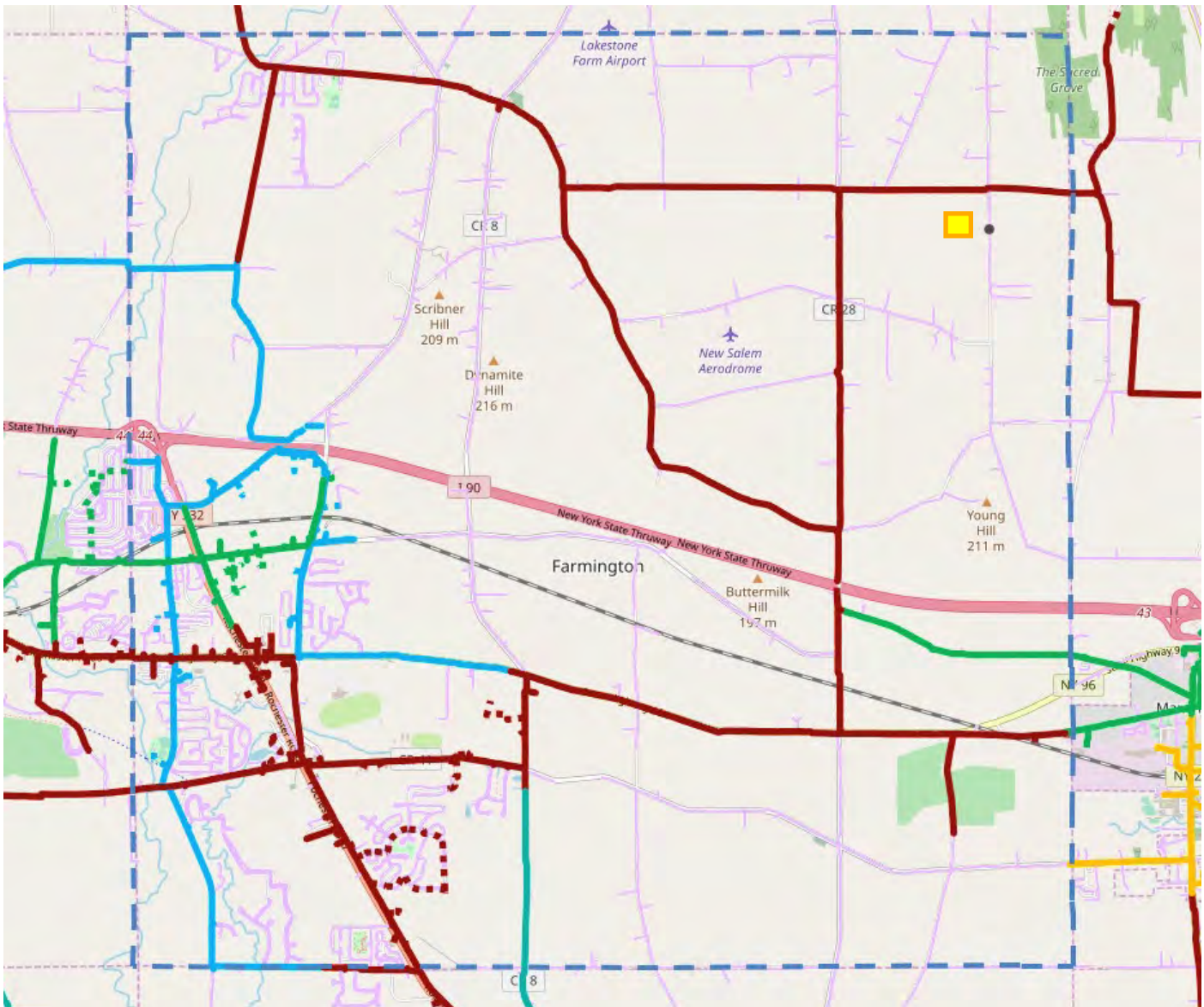
DRS Response: The New York State Energy Research and Development Authority (NYSERDA) manages the NY-Sun Program to promote Community Solar energy adoption across the state. Delaware River Solar will be eligible for a Megawatt Block incentive from NYSERDA after receiving site plan approval. No subsidies have been issued yet.

26. Please provide fencing pictures of your projects that use the type of fencing proposed for this project.

DRS Response: Please refer to the images in Appendix D – “Solar Array Pictures”, for the fence type proposed for the Yellow Mills Road Community Solar farms. The fence height will be 8 feet tall, and comprised of wood posts with vertical rectangular fencing, similar to farm field fencing.

Appendix A

3 Phase Utility Line Map – Town of Farmington



*Solar facilities can only connect to 3 Phase (3PH) line

Legend

NYSEG and RG&E Conductors

Hosting Capacity for 3PH Overhead Conductors

- ≥ 5.00 MW
- 3.00-4.99 MW
- 2.00-2.99 MW
- 1.50-1.99 MW
- 1.00-1.99 MW
- 0.50-0.99 MW
- 0.30-0.42 MW
- 0.00-0.29 MW

1PH and 2PH Overhead Conductors



Yellow Mills Road Solar

Appendix B

[Login](#)

Solar Industry Research Data

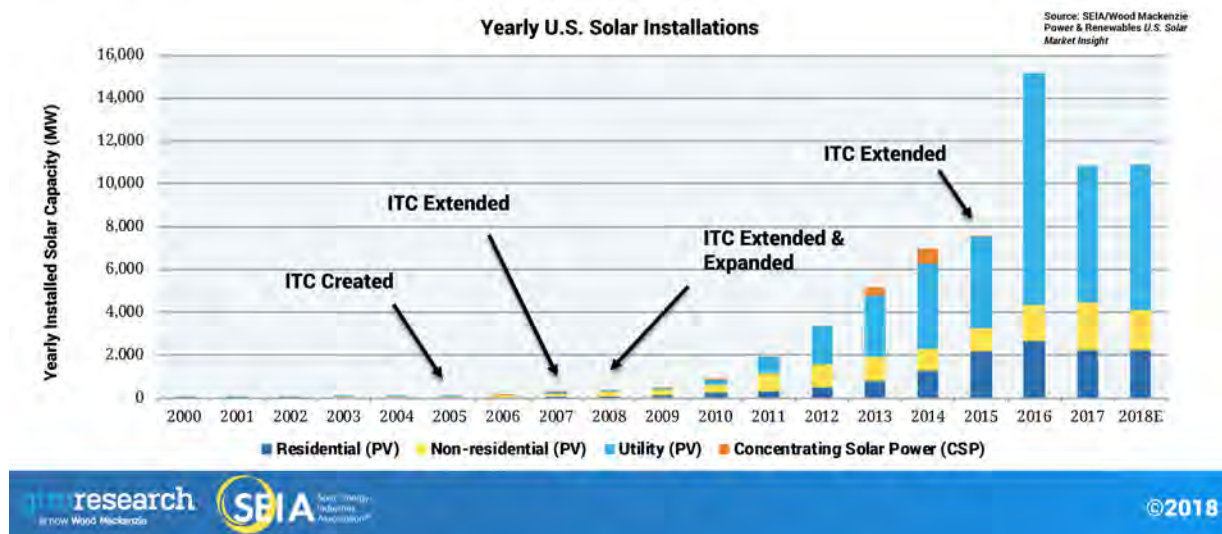
Solar Industry Growing at a Record Pace

[Solar energy in the United States is booming](#). Along with our partners at GTM Research and The Solar Foundation, SEIA tracks trends and trajectories in the solar industry that demonstrate the diverse and sustained growth across the country.

Below you will find charts and factoids that summarize the state of solar in the U.S. SEIA Members have access to [presentation slide decks](#) that contain this data and much more. Not a SEIA Member? [Join today!](#)

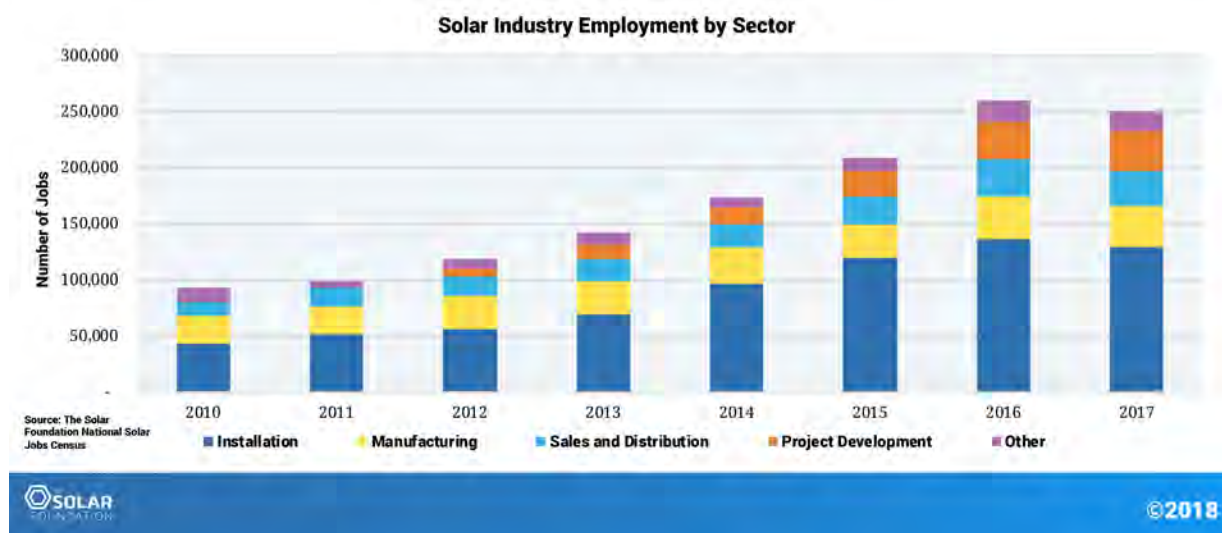
Solar Growth and the ITC

The Solar Investment Tax Credit (ITC) has provided industry stability and growth since its initial passage in 2006. In the last decade, solar has experienced an average annual growth rate of 54%. Installations surged in 2016 ahead of potential drop down of the ITC, but an extension in late 2015 has crated federal policy stability through 2021. To learn more about the ITC and its impact on the solar industry, [click here](#).



Solar as an Economic Engine

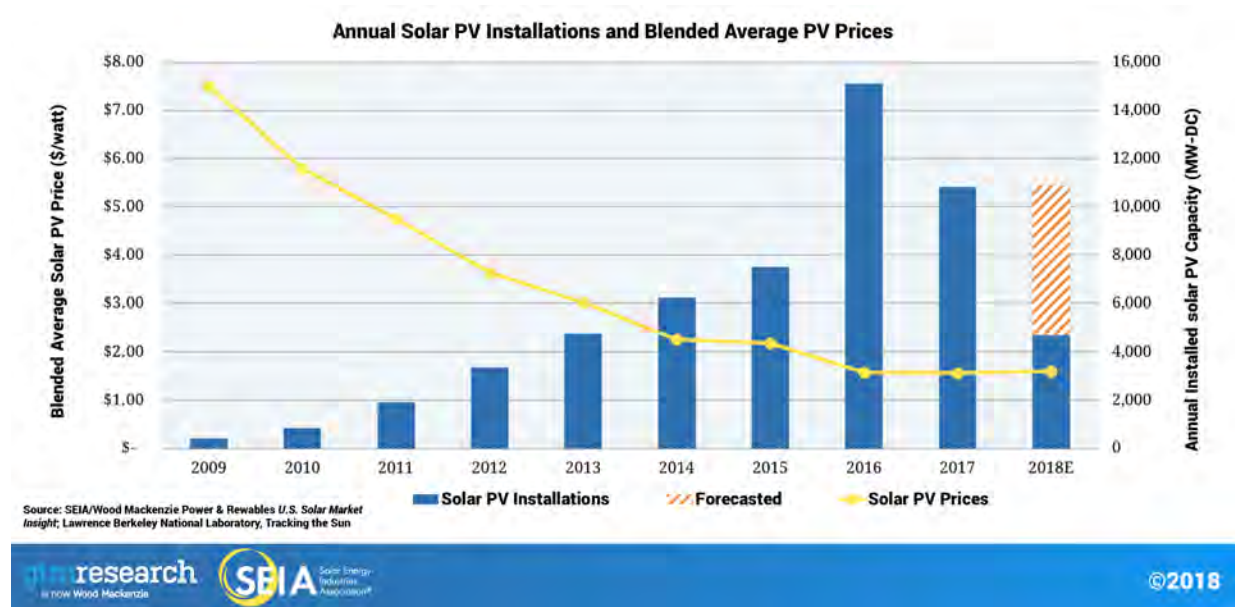
Over **250,000 Americans work in solar** - more than double the number in 2012 - at more than 9,000 companies in every U.S. state. In 2017, the solar industry generated a \$17 billion investment in the American economy.



Growth in Solar is led by Falling Prices

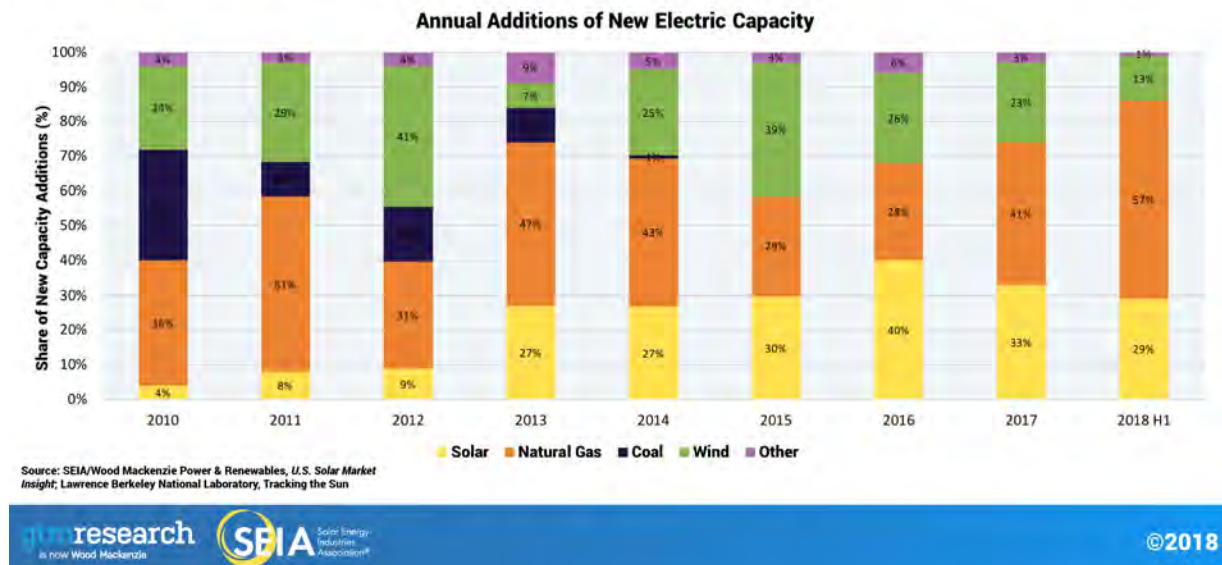
The cost to install solar has dropped by more than 70% since 2010, leading the industry to expand into new markets and deploy thousands of systems nationwide. Prices as of Q2 2018 are at or near their lowest historical level across all market segments. An average-sized

residential system has dropped from more than \$40,000 in 2010 to nearly \$17,000 today, before incentives, while recent utility-scale prices range from \$28/MWh - \$45/MWh, competitive with all other forms of generation.



Solar's Share of New Capacity has Grown Rapidly

Solar has ranked first or second in new electric capacity additions in each of the last 5 years. Solar's increasing competitiveness against other technologies has allowed it to quickly increase its share of total U.S. electrical generation- from just 0.1% in 2010 to over 2% today.



U.S. Solar Market Through Q2 2018: Key Takeaways

2.3 GW installed in Q2 2018

- Down 9% from Q2 2017 and down 7% from Q1 2018
- At 4.7 GW, the first half of 2018 saw more solar installed than any other first half ever

More than 58 GW of total solar capacity now installed

- Average annual growth rate of 59% over the last 10 years
- Generates enough electricity to power 11 million homes

Solar generation offsets more than 74 million metric tons of CO₂ emissions each year, equivalent to:

- Taking 15.8 million vehicles off the road
- Planting 1.9 billion trees

In 2018, a new solar project has been installed in the U.S. every 100 seconds

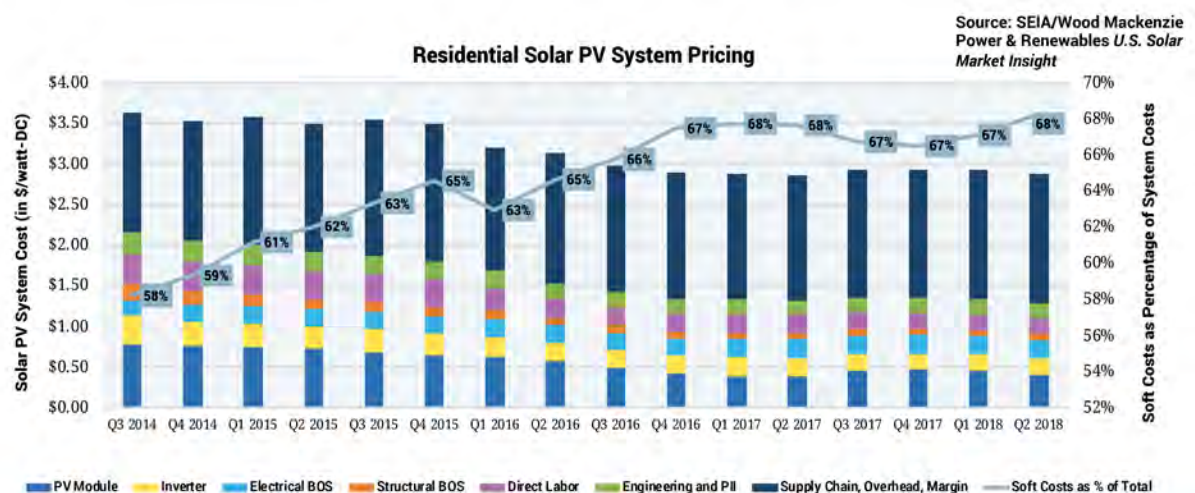
- Five years ago, the solar industry installed 3,000 MW of capacity annually. In 2018, the U.S. solar market will be more than three times larger — with over 10,000 MW installed

There are now more than 1.8 million solar installations in the U.S.

- After reaching 1 million in 2016, 2 million should be hit in late 2018 and 4 million by 2023

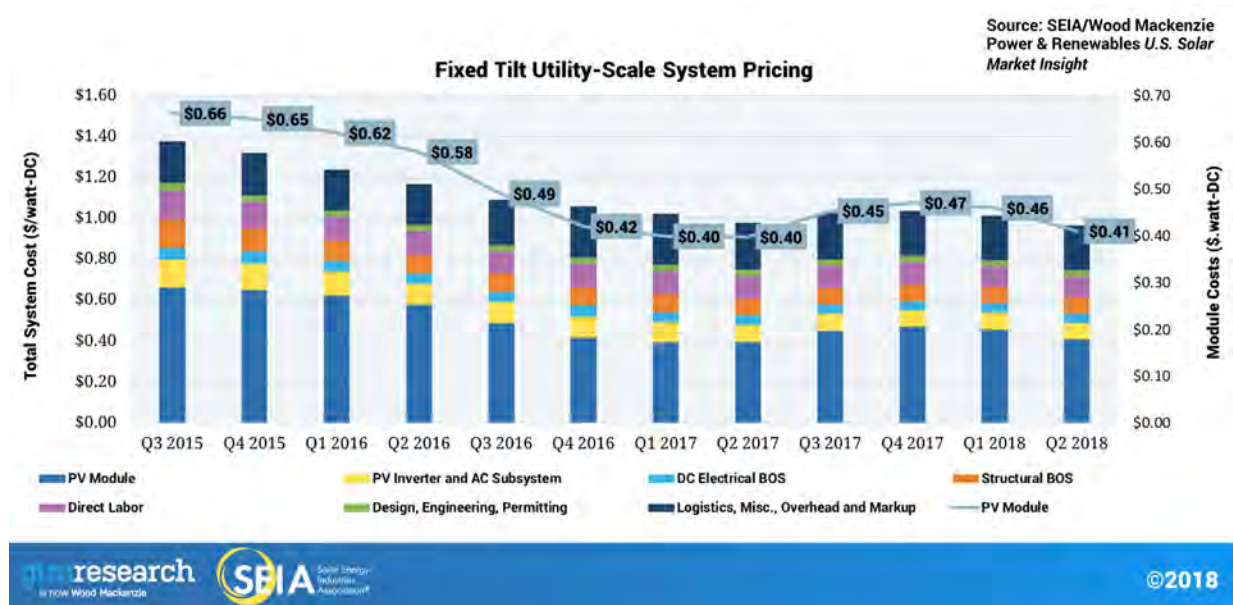
Soft Costs - A Major Opportunity for Residential Price Decline

The biggest cost-decline opportunity in residential and small commercial solar exists in soft costs, which includes labor, permitting/inspection/interconnection, supply chain, customer acquisition and other overhead costs. As hardware costs have fallen, soft costs have increased as a share of total system costs primarily due to increased customer acquisition costs and inconsistent building code and permitting practices across jurisdictions. The [U.S. Department of Energy](#) is leading the charge on reducing soft costs, and SEIA and The Solar Foundation are [working with cities and counties](#) to streamline permitting processes and reduce local barriers to going solar.



Utility Pricing Impacted by Module Import Tariffs

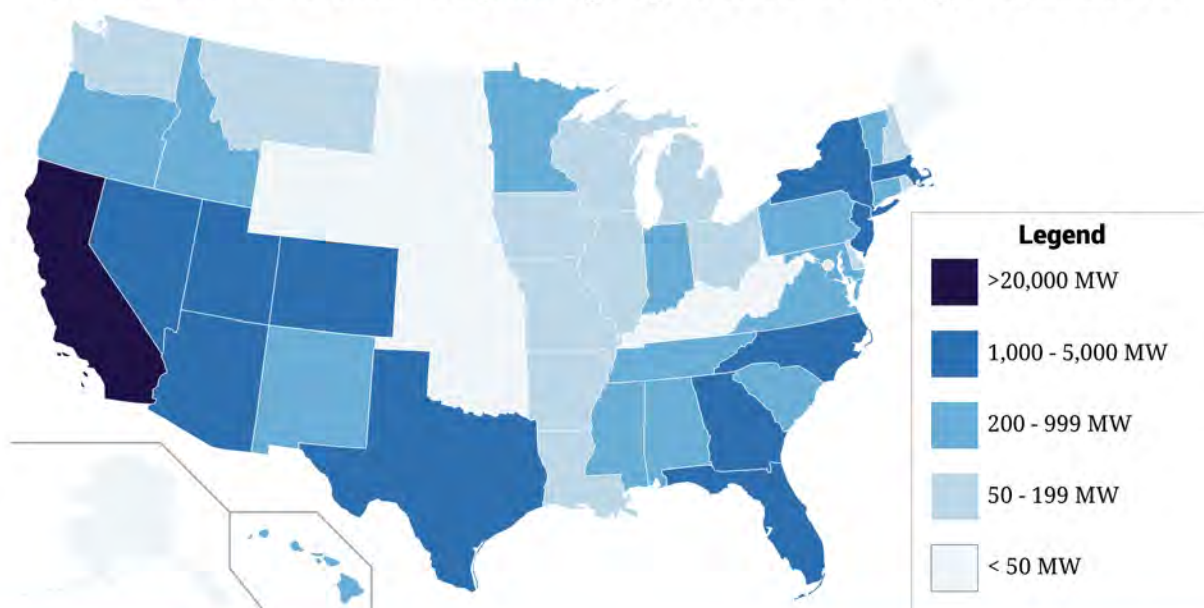
Module prices fell steadily until 2017 when the Section 201 Solar Tariff case was announced. The uncertainty surrounding the decision caused module prices to rise in late 2017, with the largest impact on utility-scale systems, for which modules constitute 40 – 50% of total system costs. Despite imposition of 30% tariff in February 2018, module prices have begun falling again due to renewed market certainty in the wake of the lower-than-expected tariff announcement and global module oversupply caused by steep reductions in Chinese demand.



The U.S Solar Industry is a 50 State Market

While California has traditionally dominated the U.S. solar market, other markets are continuing to expand, including Minnesota, South Carolina, Florida and Texas. In 2017, installations in states outside the top 10 constituted a record 28% of the total market. As the price of solar continues to fall, new state entrants will grab an increasingly larger share of the national market.

Cumulative Solar Capacity by State through Q2 2018



gtmresearch
is now Wood Mackenzie

SEIA
Solar Energy
Industries
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Top 10 Solar States by Cumulative Solar Capacity

- | | |
|------------------------------|-----------------------------|
| 1. California – 22,777 MW | 6. New Jersey – 2,526 MW |
| 2. North Carolina – 4,491 MW | 7. Massachusetts – 2,226 MW |
| 3. Arizona – 3,613 MW | 8. Florida – 1,943 MW |
| 4. Nevada – 2,658 MW | 9. Utah – 1,627 MW |
| 5. Texas – 2,624 MW | 10. Georgia – 1,556 MW |

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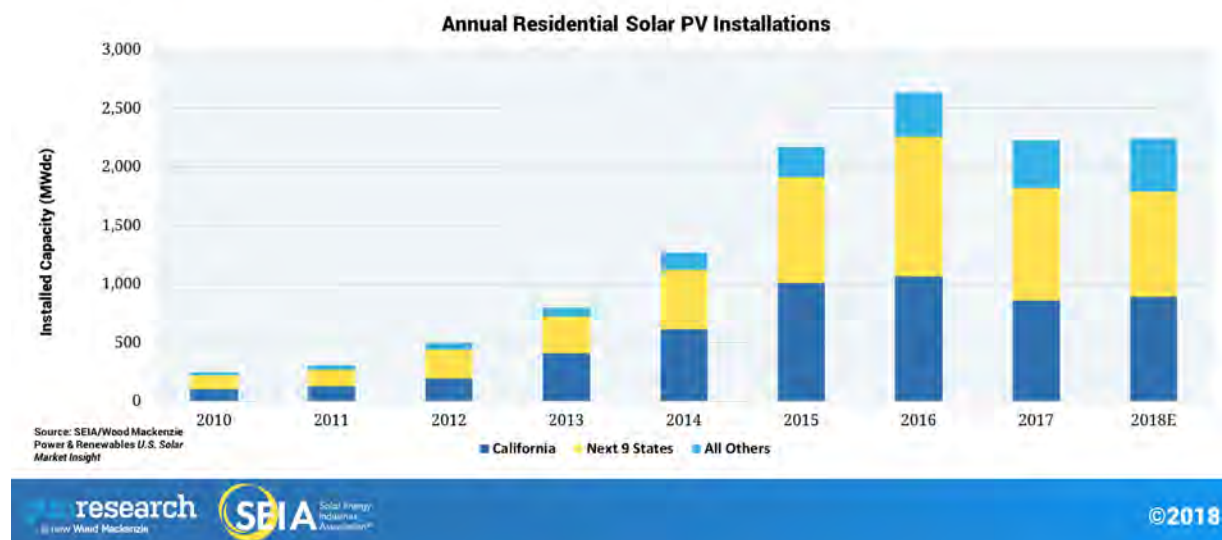
SEIA
Solar Energy
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Residential Market Continues to Diversify

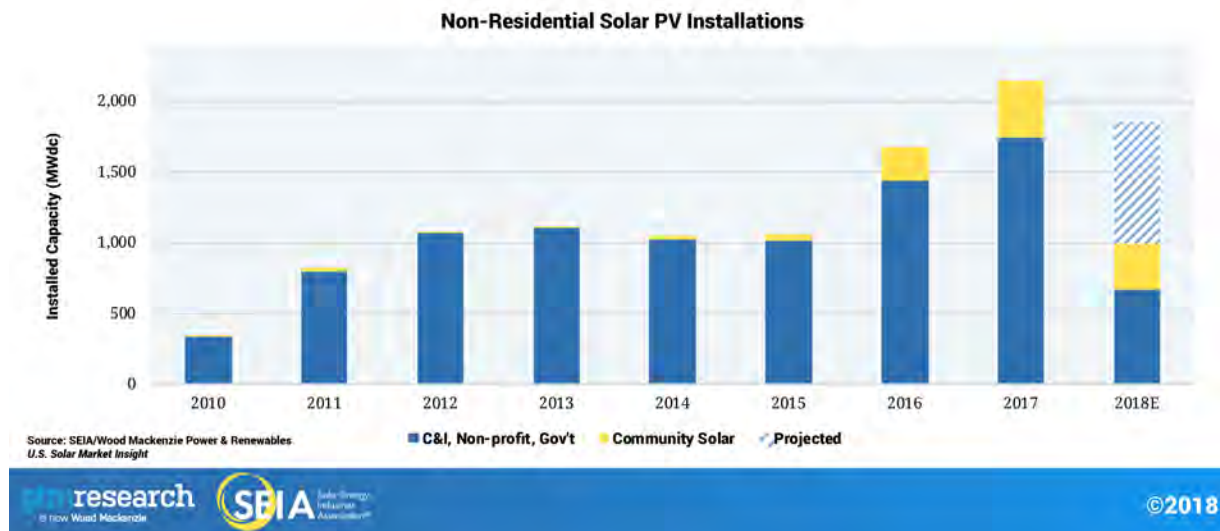
After years of 50%+ annual growth, residential market growth has slowed in several leading states as installers re-orient their sales and business strategies. At the same time, over half the states saw growth in residential solar in 2017, as share of installations among states

outside the top 10 hit 18%- an all-time high. 2018 has seen continued growth in new state markets, will California's residential market has grown in each of the last 3 quarters.



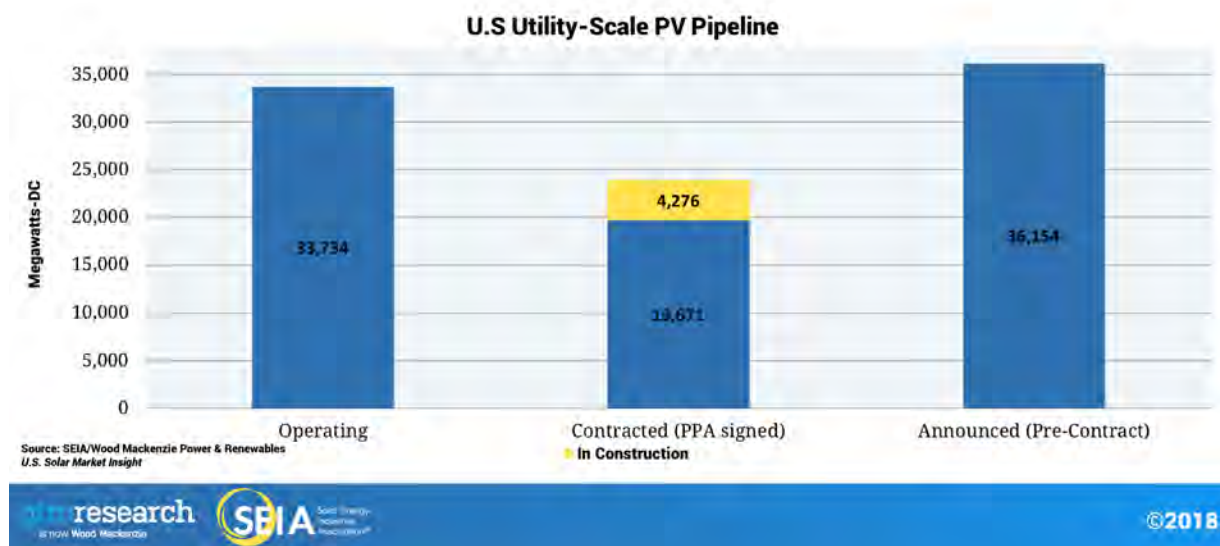
Community Solar, Corporate Procurement Boost Non-Residential Solar Market

The rapid rise of community solar has boosted the non-residential segment in recent years, coupled with increasing numbers of both off-site and rooftop [corporate procurement by such companies as Walmart, Apple, Target and Amazon](#). Both sub-segments are expected to drive growth in non-residential going forward, though 2018 is likely to see a market reset as a couple key state markets transition to new rate structures and distributed generation programs.



Utility-Scale Project Pipeline

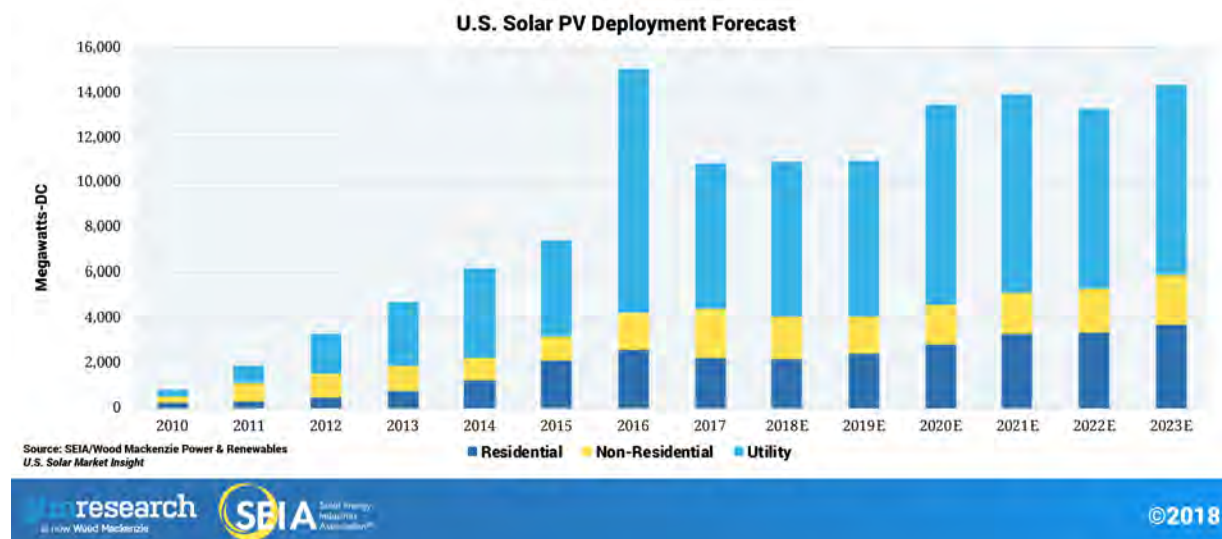
In 2017, 59% of all solar capacity installed was utility-scale, and this segment should account for close to two-thirds of all solar capacity again through 2021. Procurement for new utility-scale projects slowed over the second half of 2017 due to uncertainty surrounding the Section 201 trade case, but the contracted pipeline has begun to increase again in 2018 as developers look to build out projects ahead of Investment Tax Credit declines and at lower module tariff levels.



Solar PV Growth Forecast

Installation growth is expected to remain flat in 2018 as the industry adjusts to new tariffs on imported solar panels. Incremental growth is

expected to return in 2019 and beyond as tariffs decline, prices drop and developers accelerate build-out ahead of Investment Tax Credit declines. By 2021 there will be over 100 GW of solar installed in the U.S., with annual totals exceeding 14 GW by 2023.



Solar Helps K-12 Schools and Fortune 500 Companies Save Money

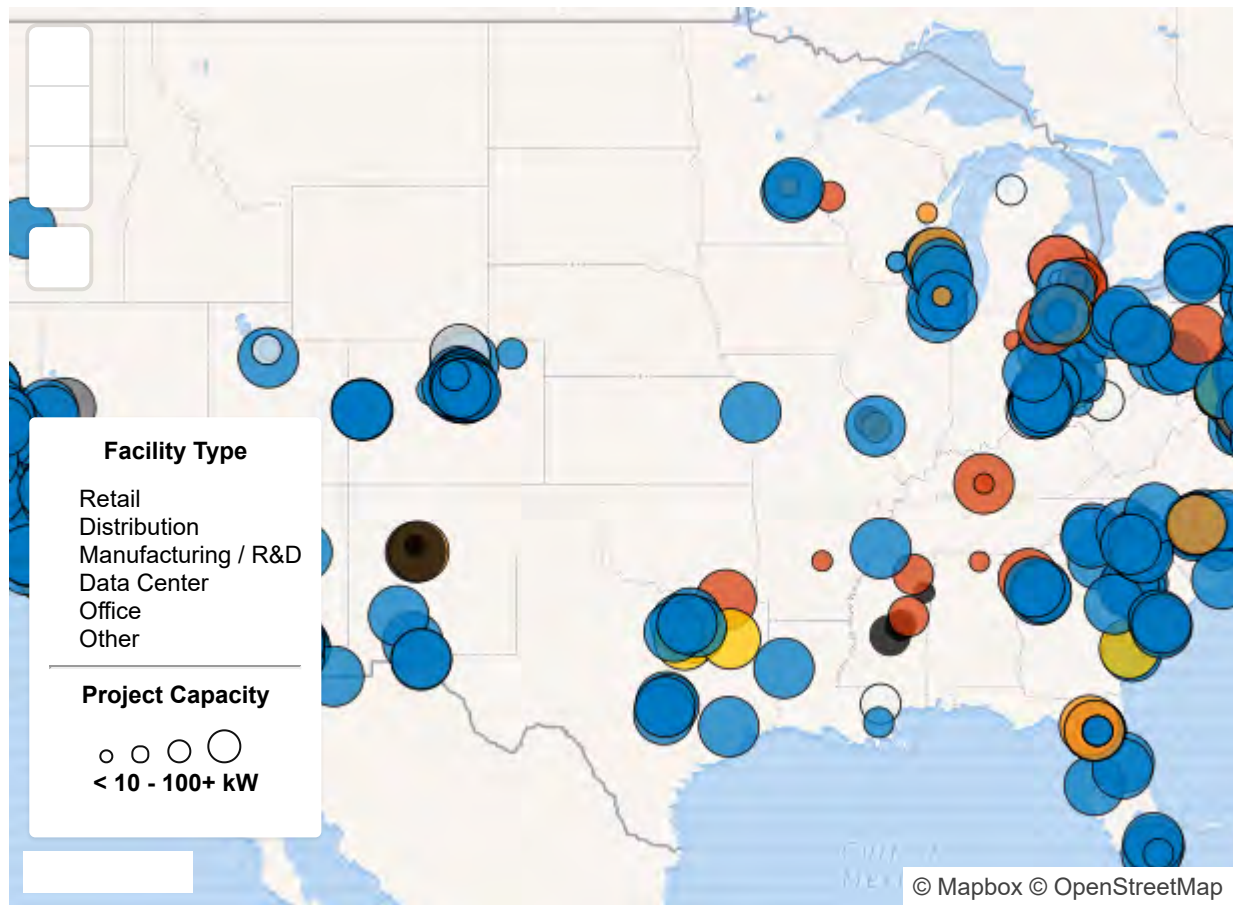
Data from SEIA's annual [Solar Means Business](#) report show that major U.S. corporations, including Target, Walmart and Apple are going solar at an incredible rate. The top 25 corporate solar users in America have installed nearly 1,100 MW of capacity at 2,000 different facilities across the country as of October 2016.

Other key takeaways:

- The amount of solar installed at U.S. corporations and businesses is enough to offset 1.1 million metric tons of carbon dioxide emissions each year
- Commercial prices have fallen by 58% since 2012 and by 16% in the last year

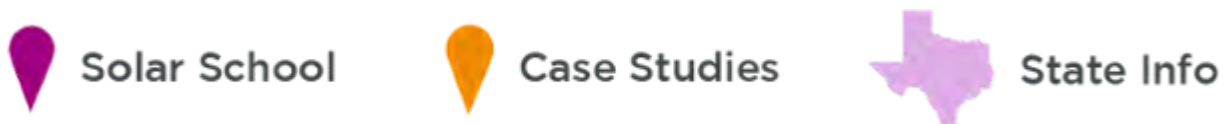
Explore the map below to see where the top 25 corporate solar users in the U.S. have installed solar energy systems. [Click here to view the full](#)

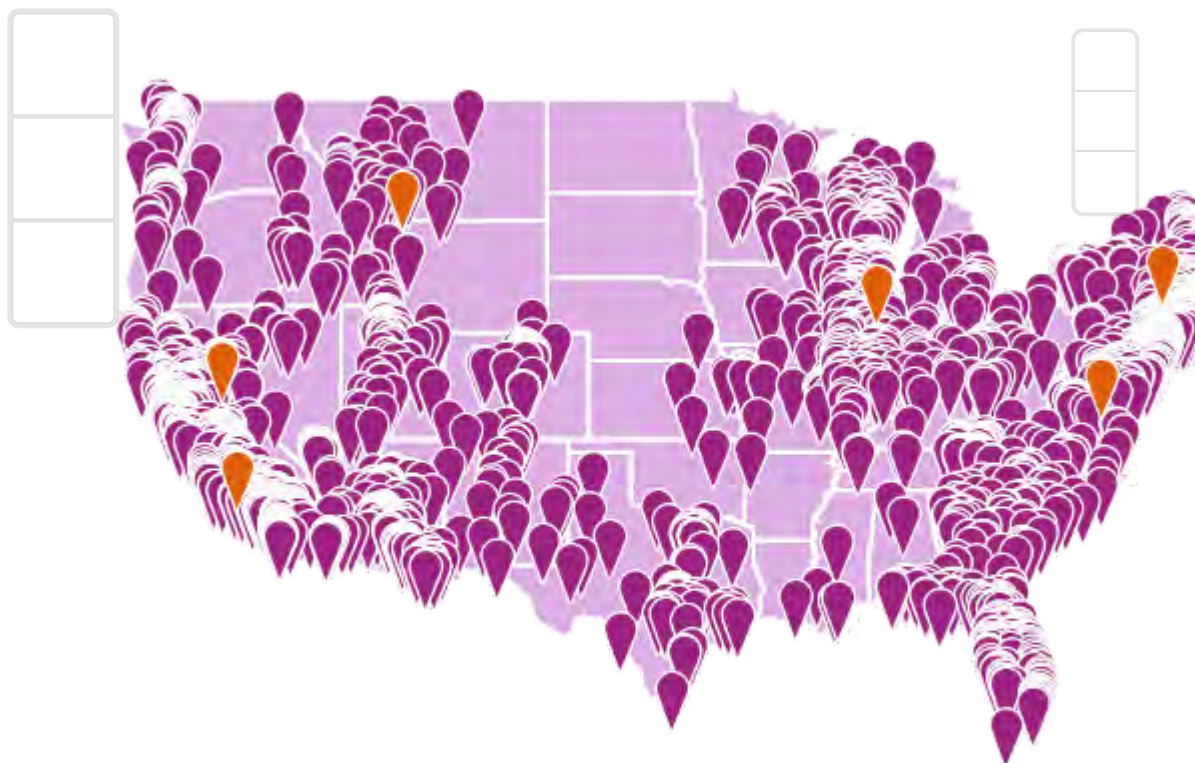
Solar Means Business Report.



SEIA, The Solar Foundation and Generation 180 produced *Brighter Future: A Study on Solar in U.S. Schools*, which shows that more than 5,500 K-12 schools nationwide have installed solar energy systems. Check out the map below, and [click here to access more materials from the report](#).

Each pin on the map below represents a K-12 school or school district with a solar energy system. For a fullscreen version, [click here](#).





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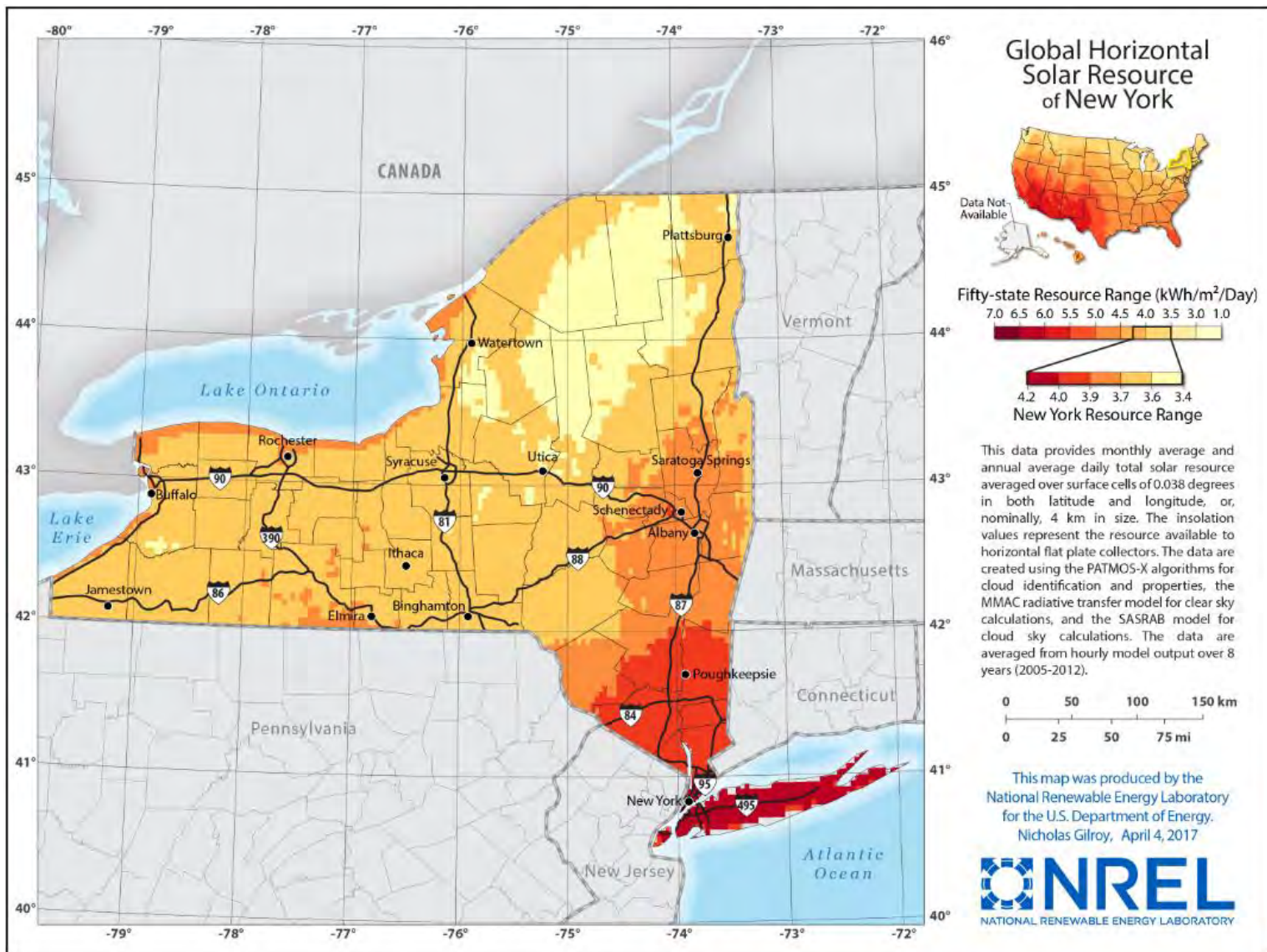
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Appendix C



Appendix D

Baer Road Solar Farm











Rochester Institute of Technology Solar Farm











Appendix E



**Yellow Mills Road
Solar Project**

Property Value Impact Analysis

**Prepared for
Town of Farmington
Planning Board Meeting December 5, 2018**

Prepared by:
**Delaware River Solar
November 28, 2018**

1 Introduction

- 1.1 The proposed solar project ("**Project**") of Delaware River Solar, LLC ("**DRS**") is located southwest of the intersection of Fox Road and Yellow Mills Road in the town of Farmington on a portion of the Smith's property ("**Project Site**").
- 1.2 DRS has been asked to provide information on the property value impact of homes surrounding the Project Site. There are few residential homes surrounding the project site, and DRS has defined this study by using two categories:
 - a) Narrow: Homes located within 1,000 feet of the boundary of the Project Site
 - b) Broad: The Town of Farmington
- 1.3 See Appendix I for the location of the Project Site and Appendix II for a listing of properties near the Project Site, showing distances from property lines and structures to the Project Site.

2 Narrow Definition: Residences within 1000' of Project Site-Assessor Conversations

- 2.1 **Assessor Input:** To begin the process of providing the Planning Board with an analysis for the "Narrow" category, DRS consulted with two assessor's offices where DRS has either operational solar projects or a large number of solar projects in advanced development.
 - 2.1.1 The first assessor DRS spoke with was Renee Ozomek from the Town of Delaware, Sullivan County. DRS has an operational 2MW project ("**Baer Road Project**"), a second 1.75MW project under construction off Hospital Road ("**Hospital Road Project**") and a 6MW ("**Villa Roma Road Project**") project in the permitting process in the Town of Delaware.

Ms. Ozomek relayed that at this time she did not contemplate lowering the assessed values of any homes near either the Baer Road Project or Hospital Road Project and at this time did not see why the assessed values of homes near the Villa Roma Road Project would be lowered. Renee did state there has been some discussion amongst the various assessors in Sullivan County but that there was no consensus at this time that property values of nearby homes would be impacted due to the installation of a solar facility.
 - 2.1.2 The second assessor DRS spoke with was Jay Franklin, the Tompkins County assessor. Tompkins County has experienced a large amount of solar development, both roof top and large scale solar facilities. Jay stated that he had spent a great deal of time studying the issue of the impact on property values of the installation of a nearby solar facility and had concluded there was no reason to lower the assessment for homes that neighbor a solar facility. DRS asked specifically about two 2MW AC projects DRS's has under development in the town of Newfield where homes directly border the site and will have direct views of the solar facility. Jay stated that he had been consulted about these projects (before DRS contacted him regarding this analysis) and concluded that no reduction in assessed value was warranted. DRS also developed three other

2MW AC projects in the town of Newfield that have been constructed and are operational with no change in assessed value. Additionally, Jay provided DRS with the “Oakwood Solar Impact Study” performed by Kirkland Appraisals, LLC attached as Appendix III, as a case study that he found especially compelling.

2.2 **Surrounding Properties** – Appendix II includes a table showing distances from the Project Site to all neighboring properties and structures on those parcels. Here is a review of the closest properties that contain residential homes. There are three within 1,000 feet:

2.2.1 **531 Yellow Mills Road (Tax Parcel # 10.00-1-35.000)** – The closest residential home to the Project Site is 531 Yellow Mills Road, at 685 feet. This view is already buffered by existing vegetation on both the Project Site parcel, and the 531 Yellow Mills property. DRS has submitted a “Preliminary Landscape Plan” and “Visual Rendering”, that will increase the vegetative buffer between these properties.

2.2.2 **4765-4601 Fox Road (Tax Parcel # 10.00-1-70.000)** – The next closest structure to the Project Site is at 4765 Fox Road, at 701 feet. This is an unlisted structure according to County Tax records, and appears to be a small cabin with a large ground mounted solar array in the front yard, located in a clearing within in dense tree area on a 97.98 acre farm parcel. The use of this structure is not known. This structure is sited below the grade of Fox Road, and is heavily screened by existing vegetation and topography on the parcel, and existing topography and vegetation on the Project Site, making views to the Project Site not possible, or extremely limited at any time of the year.

2.2.3 **4697 Fox Road (Tax Parcel # 10.00-1-37.120)** – The next closest residential home to the Project Site borders the Project Site Parcel at 4697 Fox Road, and is 720 feet away from the solar array. This is a single family home. This structure is heavily screened by existing vegetation and topography, making views of the Project Site from the home not possible, or extremely limited at any time of the year.

2.2.4 **All Other Residential Homes** – All other habitable structures on properties in the area of the Project Site are between 1,436 feet and 3,094 feet away. At these distances, views of the solar arrays, which will stand no taller than 10 feet, will not be overly discernable in the existing views parcel and surrounding countryside. Where views of the array are possible, site line analysis in the Preliminary Landscape Plan shows that existing topography and added vegetation will screen views even further to make views of the solar array not

possible, or extremely limited at any time of the year. This is shown in the Visual Renderings showing the landscape buffer.

- 2.3 **Public Roads** – Both Yellow Mills Road and Fox Road are unlisted speed roads, and are assumed to be 55mph. Vehicle traffic along these roads will see the Project Site for short distances and for short durations of time. DRS has prepared the Preliminary Landscape Plan to minimize views of the Project Site from public roads to the greatest extent practicable.

3 **Narrow Definition: Residences within 1000’ of Project Site – Other Real Estate Conversations**

- 3.1 DRS also spoke with other members of the real estate development, sales and management community and found several consistent themes indicating why a large segment of the home purchasing and home valuation community would not consider a solar farm as detrimental to their property value.
- 3.1.1 Solar facilities are quiet, do not disturb night views (there is no lighting), cause no daily increase in traffic when in operation, cause no odors or hold loud events
- 3.1.2 A solar facility is a known neighbor for an extended time, alternatively stated “there are a lot worse neighbors”. Many property owners will take comfort in knowing what’s going to be on the nearby property for 20 or 30 years as opposed to worrying, for example, if there was some other form of development (i.e. odorous pig farm etc.).
- 3.1.3 The impact of approximately 10’ high panels is not materially different than if a farmer erected rows of greenhouses. This point was also made directly in the Kirkland Report.
- 3.1.4 With diligent landscaping and vegetation screening, views of the arrays can be mitigated to a more than satisfactory level relative to existing infrastructure that can be seen along roadsides and through fields. It seems highly likely that once the proper landscaping and vegetation screening is in place the solar facility will be integrated into the community similar to other infrastructure.
- 3.2 DRS also notes that the value of the specific property hosting the solar facility will increase with the development, therefore raising the overall value of the area collectively and increasing the tax base.

4 Broad Definition: Town of Farmington

- 4.1 Expanding out from the properties that are within the 1,000' of the Project Site to include the larger community, there are numerous positive effects. The Town associating itself with green energy and energy independence are quality of life marketing points that attract visitors and new residents. Neighboring towns like Canandaigua, Geneva, Ogden, Parma, and the City of Rochester, among many others, are all taking similar measures, and seeing positive benefits from embracing renewable energy.

In the Town of Delaware, where DRS Community Solar projects will be able to power 100 percent of all 990 homes residing in the town, residents were asked "What will be the effect of being able to state that the Town was carbon neutral on all residential electrical usage?" Respondents we spoke with grew positively animated about the possibilities, especially when it was noted that the introduction of solar facilities in the Town will be constructed on such small amount of land compared to all land in the Town.

In Farmington, the Yellow Mills Road Community Solar systems will reside on approximately 31 acres out of the 25,235 acres that comprise the Town, or 0.12% of all land. The Yellow Mills systems will be able to power around 1,200 homes, or approximately 25% of the 5,039 households in the Town. Another way to view this is that 0.12% of the land in Farmington, can power 25% of all households from the sun. If enough solar farms were built, full capacity of all household electricity use could be powered by just 0.49% of all land. This is a positive point of differentiation between Farmington and other communities, which the Town can take pride in.

5 Conclusion:

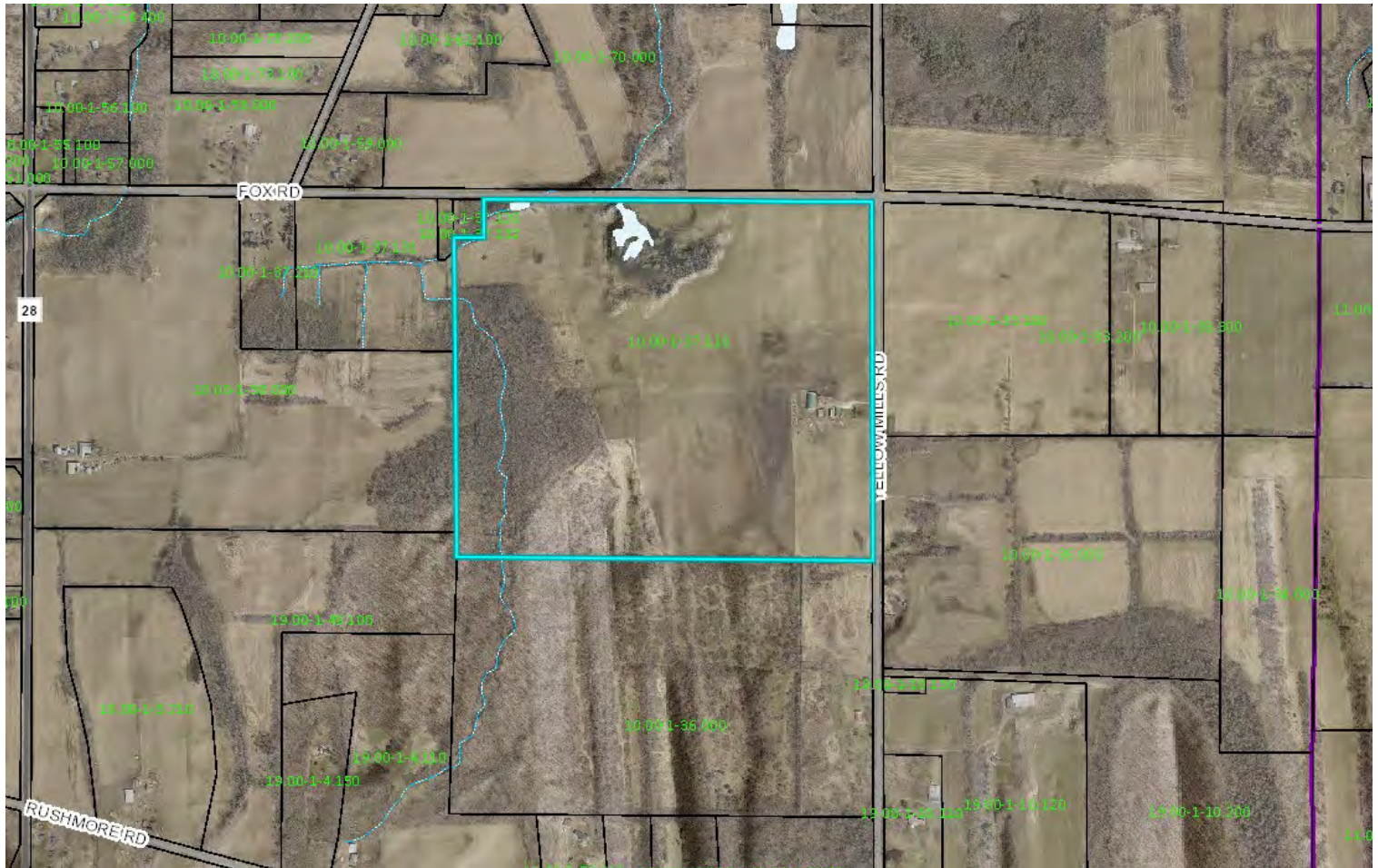
- 5.1 DRS's research shows that while individual homes may experience a change in their views the other certainties and benefits that come with a solar facility, combined with diligent landscaping and vegetation screening, will result in no change to specific property values.
- 5.2 The property values of all residents of the Town will see positive effects of the efforts to be environmentally and locally responsible.
- 5.3 DRS has seen no evidence of property values of surrounding properties being affected negatively by solar farm development.

Appendix I: Project Site Location



Approximate site layout shown in yellow.

Appendix II – Properties Bordering the Project Site



Note: Map is from Ontario County OARs public GIS map.

Tax Parcel	Structure on Parcel	Approximate Distance to Array From Edge of Property	Approximate Distance to Array From Structure	Relative Location	Tax Parcel	Structure on Parcel	Approximate Distance to Array From Edge of Property	Approximate Distance to Array From Structure	Relative Location
10.00-1-36.000	Yes	413ft	1,436ft	S	19.00-1-10.200	No	1,252ft	-	SE
10.00-1-70.000	Yes	416ft	701ft	N	19.00-1-10.130	No	1,319ft	-	SE
10.00-1-33.100	No	465ft	-	E	19.00-1-10.120	Yes	1,427ft	1,868ft	SE
10.00-1-35.000	Yes	594ft	685ft	SE	10.00-1-59.000	Yes	1,446ft	1,565ft	NW
10.00-1-32.000	Yes	625ft	1,495ft	NE	10.00-1-62.100	No	1,474ft	-	NW
10.00-1-37.120	Yes	643ft	720ft	NW	19.00-1-4.110	Yes	1,503ft	2,821ft	SW
10.00-1-37.131	No	716ft	-	W	19.00-1-10.110	Yes	1,747ft	2,148ft	SE
10.00-1-37.132	No	749ft	-	NW	10.00-1-33.200	Yes	1,914ft	1,940ft	E
10.00-1-38.000	Yes	1,048ft	3,094ft	W	10.00-1-62.200	Yes	1,976ft	2,136ft	NW
19.00-1-49.100	No	1,188ft	-	SW					

Appendix III – Kirkland Solar Impact Study



Kirkland Appraisals, LLC

Richard C. Kirkland, Jr., MAI
9408 Northfield Court
Raleigh, North Carolina 27603
Phone (919) 414-8142
rkirkland2@gmail.com
www.kirklandappraisals.com

February 12, 2016

Ms. Jessica Galloza
ESA Renewables, LLC
4150 St. Johns Parkway, Suite 1000
Sanford, F32771

RE: Oakwood Solar Impact Study

Dear Ms. Galloza:

At your request, I have considered the likely impact of solar farms proposed to be constructed on 53.74 acres of land located at 6517 US Highway 70, in Mebane, North Carolina. Specifically, I have been asked to give my professional opinion on whether the proposed solar farm will “maintain or enhance adjoining or contiguous property values” and whether “the location and character of the use, if developed according to the plan as submitted and approved, will be in harmony with the area in which it is to be located.”

To form an opinion on these issues, I have researched and visited existing and proposed solar farms in North Carolina, researched articles through the Appraisal Institute and other studies, and discussed the likely impact with other real estate professionals. I have not been asked to assign any value to any specific property.

This letter is a limited report of a real property appraisal consulting assignment and subject to the limiting conditions attached to this letter. My client is ESA Renewables, LLC, represented to me by Ms. Jessica Galloza. My findings support the Conditional/Special Use Permit application. The effective date of this consultation is February 12, 2016.

Proposed Use Description

The proposed solar farm will be constructed on 53.74 acres of land located at 6517 US Highway 70, in Mebane, North Carolina.

Adjoining land is primarily residential low density and agricultural uses, which is common for solar farms as detailed later in this report. The solar farm will consist of fixed solar panels that will generate no noise, no odor, and less traffic than a residential subdivision. The panels will be less than 15 feet in height and located behind a chain link fence.

I have considered adjoining uses and included a map to identify each parcel's location. The breakdown of those uses by acreage and number of parcels is summarized below.

Adjoining Use Breakdown

	Acreage	Parcels
Residential	71.98%	96.77%
Agricultural	28.02%	3.23%
Total	100.00%	100.00%

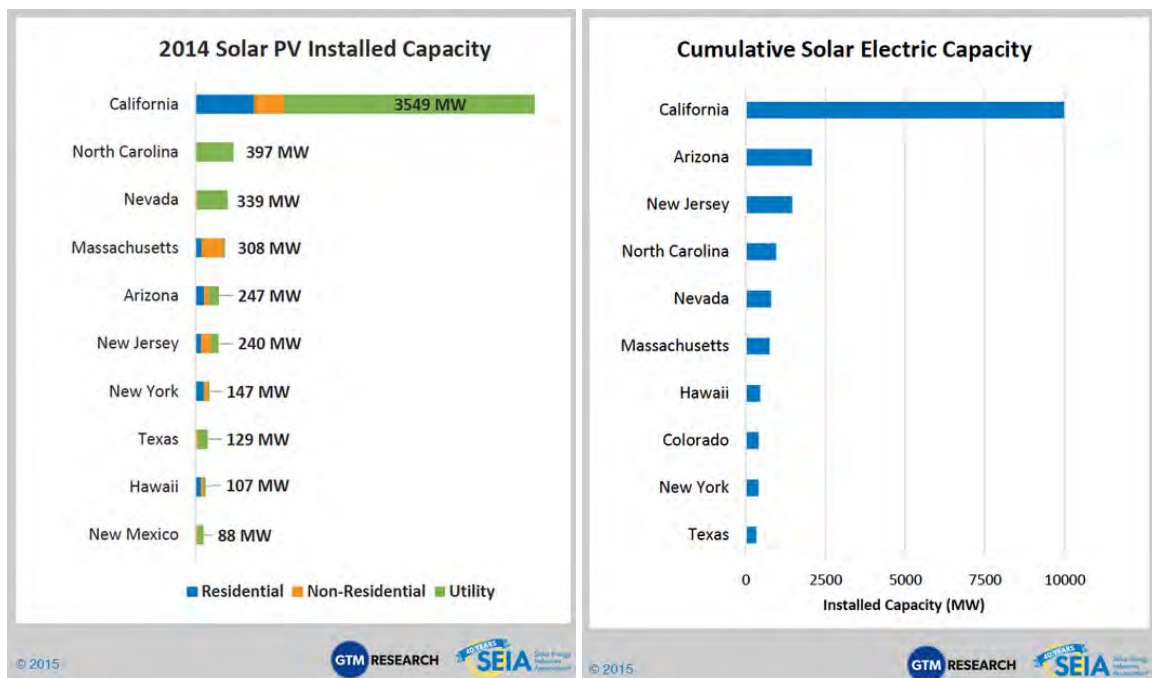
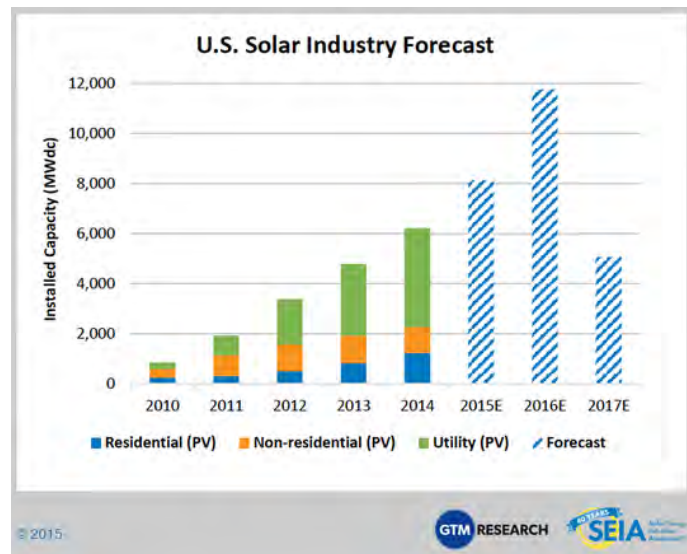


Surrounding Uses

#	MAP ID	Owner	GIS Data		% Adjoining	% Adjoining	Distance in Feet:
			Acres	Present Use	Acres	Parcels	Home to Panels
1	9825948348	Curtis	52.66	Agricultural	28.02%	3.23%	N/A
2	9835037821	Beaver HOA	6.30	Residential	3.35%	3.23%	N/A
3	9835130411	Curtis	2.71	Residential	1.44%	3.23%	N/A
4	9835131231	Ivey	1.02	Residential	0.54%	3.23%	460
5	9835132079	Ivey	0.59	Residential	0.31%	3.23%	N/A
6	9835134009	Ivey	0.48	Residential	0.26%	3.23%	590
7	9835135019	Ivey	0.47	Residential	0.25%	3.23%	N/A
8	9835136180	James	0.82	Residential	0.44%	3.23%	790
9	9835129681	Rhodes	12.33	Residential	6.56%	3.23%	730
10	9835220129	Gilmore	2.29	Residential	1.22%	3.23%	605
11	9835210959	Morgan	2.40	Residential	1.28%	3.23%	835
12	9835210868	Lawson	2.50	Residential	1.33%	3.23%	830
13	9835210575	Foster	2.61	Residential	1.39%	3.23%	855
14	9835210672	Douglas	2.66	Residential	1.42%	3.23%	920
15	9835210582	Riley	2.84	Residential	1.51%	3.23%	1010
16	9835210367	Cordero	2.49	Residential	1.32%	3.23%	1020
17	9835212233	Seifts	3.16	Residential	1.68%	3.23%	1090
18	9835105787	Mace	2.20	Residential	1.17%	3.23%	N/A
19	9835103858	Mace	5.17	Residential	2.75%	3.23%	715
20	9835101614	Hobbey	1.31	Residential	0.70%	3.23%	970
21	9835009723	Murdock	1.34	Residential	0.71%	3.23%	930
22	9835007790	Horne	0.92	Residential	0.49%	3.23%	950
23	9835007703	Mace	0.89	Residential	0.47%	3.23%	N/A
24	9835006716	Ellis	0.90	Residential	0.48%	3.23%	1030
25	9835016318	Mace	4.81	Residential	2.56%	3.23%	N/A
26	9835013165	Najera	5.81	Residential	3.09%	3.23%	710
27	9835011302	Herbert	6.35	Residential	3.38%	3.23%	1250
28	9825918836	Southard	14.82	Residential	7.88%	3.23%	805
29	9825924159	Adams	12.84	Residential	6.83%	3.23%	1950
30	9825926712	Hoover	19.05	Residential	10.13%	3.23%	1165
31	9825937298	Tsiapera	13.23	Residential	7.04%	3.23%	1200
Total			187.970		100.00%	100.00%	931

I. Overview of Solar Farms Development in North Carolina

Across the nation the number of solar installations has dramatically increased over the last few years as changes in technology and the economy made these solar farms more feasible. The charts below show how this market has grown and is expected to continue to grow from 2010 to 2017, the drop off in 2017 is expected due to the expiration of tax credits for solar installations. The U.S. Solar Market Insight Reports for 2010 and 2011 which is put out by the Solar Energy Industries Association note that 2010 was a “breakout” year for solar energy. The continued boom of solar power is shown in the steady growth. North Carolina was ranked as having the second most active photovoltaic installed capacity in 2014.



As shown in the charts above, North Carolina ranked second in installed solar energy in 2014. North Carolina ranked fifth in cumulative installed solar energy in the United States.

II. Market Analysis of the Impact on Value from Solar Farms

I have researched a number of solar farms in North Carolina to determine the impact of these facilities on the value of adjoining property. I have provided a breakdown of the adjoining uses to show what adjoining uses are typical for solar farms and what uses would likely be considered consistent with a solar farm use. This breakdown is included in the Harmony of Use section of this report.

I also conducted a series of matched pair analyses. A matched pair analysis considers two similar properties with only one difference of note to determine whether or not that difference has any impact on value. Within the appraisal profession, matched pair analysis is a well-recognized method of measuring impact on value. In this case, I have considered residential properties adjoining a solar farm versus similar residential properties that do not adjoin a solar farm. I have also considered matched pairs of vacant residential and agricultural land.

As outlined in the discussion of each matched pair, I concluded from the data and my analysis that there has been no impact on sale price for residential, agricultural, or vacant residential land that adjoins the existing solar farms included in my study.

1. **Matched Pair – AM Best Solar Farm, Goldsboro, NC**

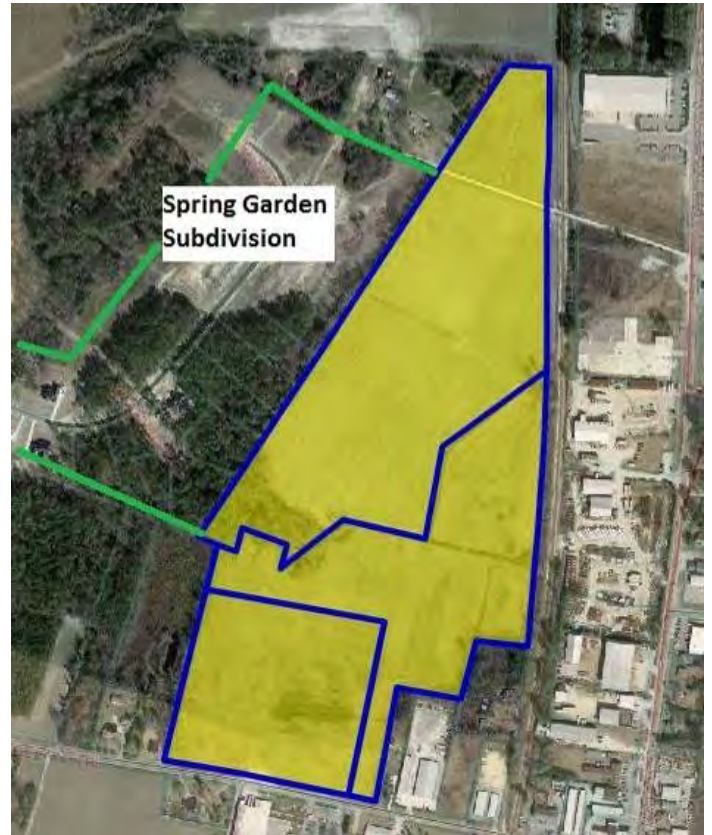
This solar farm adjoins Spring Garden Subdivision which had new homes and lots available for new construction during the approval and construction of the solar farm. The recent home sales have ranged from \$200,000 to \$250,000. This subdivision sold out the last homes in late 2014. The solar farm is clearly visible particularly along the north end of this street where there is only a thin line of trees separating the solar farm from the single-family homes.






Homes backing up to the solar farm are selling at the same price for the same floor plan as the homes that do not back up to the solar farm in this subdivision. According to the builder, the solar farm has been a complete non-factor. Not only do the sales show no difference in the price paid for the various homes adjoining the solar farm versus not adjoining the solar farm, but there are actually more recent sales along the solar farm than not. There is no impact on the sellout rate, or time to sell for the homes adjoining the solar farm.

I spoke with a number of owners who adjoin the solar farm and none of them expressed any concern over the solar farm impacting their property value.

The data presented on the following page shows multiple homes that have sold in 2013 and 2014 adjoining the solar farm at prices similar to those not along the solar farm. These series of sales indicate that the solar farm has no impact on the adjoining residential use.

The homes that were marketed at Spring Garden are shown below.



	Americana SqFt: 3,194 Bed / Bath: 3 / 3.5	Price: \$237,900 View Now »		Washington SqFt: 3,292 Bed / Bath: 4 / 3.5	Price: \$244,900 View Now »
	Presidential SqFt: 3,400 Bed / Bath: 5 / 3.5	Price: \$247,900 View Now »		Kennedy SqFt: 3,494 Bed / Bath: 5 / 3	Price: \$249,900 View Now »
	Virginia SqFt: 3,449 Bed / Bath: 5 / 3	Price: \$259,900 View Now »			

AM Best Solar Farm, Goldsboro, NC**Matched Pairs**

As of Date: 9/3/2014

Adjoining Sales After Solar Farm Completed

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
3600195570	Helm	0.76	Sep-13	\$250,000	2013	3,292	\$75.94	2 Story
3600195361	Leak	1.49	Sep-13	\$260,000	2013	3,652	\$71.19	2 Story
3600199891	McBrayer	2.24	Jul-14	\$250,000	2014	3,292	\$75.94	2 Story
3600198632	Foresman	1.13	Aug-14	\$253,000	2014	3,400	\$74.41	2 Story
3600196656	Hinson	0.75	Dec-13	\$255,000	2013	3,453	\$73.85	2 Story
	Average	1.27		\$253,600	2013.4	3,418	\$74.27	
	Median	1.13		\$253,000	2013	3,400	\$74.41	

Adjoining Sales After Solar Farm Announced

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
0	Feddersen	1.56	Feb-13	\$247,000	2012	3,427	\$72.07	Ranch
0	Gentry	1.42	Apr-13	\$245,000	2013	3,400	\$72.06	2 Story
	Average	1.49		\$246,000	2012.5	3,414	\$72.07	
	Median	1.49		\$246,000	2012.5	3,414	\$72.07	

Adjoining Sales Before Solar Farm Announced

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
3600183905	Carter	1.57	Dec-12	\$240,000	2012	3,347	\$71.71	1.5 Story
3600193097	Kelly	1.61	Sep-12	\$198,000	2012	2,532	\$78.20	2 Story
3600194189	Hadwan	1.55	Nov-12	\$240,000	2012	3,433	\$69.91	1.5 Story
	Average	1.59		\$219,000	2012	2,940	\$74.95	
	Median	1.59		\$219,000	2012	2,940	\$74.95	

Nearby Sales After Solar Farm Completed

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
3600193710	Barnes	1.12	Oct-13	\$248,000	2013	3,400	\$72.94	2 Story
3601105180	Nackley	0.95	Dec-13	\$253,000	2013	3,400	\$74.41	2 Story
3600192528	Mattheis	1.12	Oct-13	\$238,000	2013	3,194	\$74.51	2 Story
3600198928	Beckman	0.93	Mar-14	\$250,000	2014	3,292	\$75.94	2 Story
3600196965	Hough	0.81	Jun-14	\$224,000	2014	2,434	\$92.03	2 Story
3600193914	Preskitt	0.67	Jun-14	\$242,000	2014	2,825	\$85.66	2 Story
3600194813	Bordner	0.91	Apr-14	\$258,000	2014	3,511	\$73.48	2 Story
3601104147	Shaffer	0.73	Apr-14	\$255,000	2014	3,453	\$73.85	2 Story
	Average	0.91		\$246,000	2013.625	3,189	\$77.85	
	Median	0.92		\$249,000	2014	3,346	\$74.46	

Nearby Sales Before Solar Farm Announced

TAX ID	Owner	Acres	Date Sold	Sales Price	Built	GBA	\$/GBA	Style
3600191437	Thomas	1.12	Sep-12	\$225,000	2012	3,276	\$68.68	2 Story
3600087968	Lilley	1.15	Jan-13	\$238,000	2012	3,421	\$69.57	1.5 Story
3600087654	Burke	1.26	Sep-12	\$240,000	2012	3,543	\$67.74	2 Story
3600088796	Hobbs	0.73	Sep-12	\$228,000	2012	3,254	\$70.07	2 Story
	Average	1.07		\$232,750	2012	3,374	\$69.01	
	Median	1.14		\$233,000	2012	3,349	\$69.13	

Matched Pair Summary

	Adjoins Solar Farm		Nearby Solar Farm	
	Average	Median	Average	Median
Sales Price	\$253,600	\$253,000	\$246,000	\$249,000
Year Built	2013	2013	2014	2014
Size	3,418	3,400	3,189	3,346
Price/SF	\$74.27	\$74.41	\$77.85	\$74.46

Percentage Differences

Median Price	-2%
Median Size	-2%
Median Price/SF	0%

I note that 2308 Granville Drive sold again in November 2015 for \$267,500, or \$7,500 more than when it was purchased new from the builder two years earlier (Tax ID 3600195361, Owner: Leak). The neighborhood is clearly showing appreciation for homes adjoining the solar farm.

The Median Price is the best indicator to follow in any analysis as it avoids outlying samples that would otherwise skew the results. The median sizes and median prices are all consistent throughout the sales both before and after the solar farm whether you look at sites adjoining or nearby to the solar farm. The average for the homes nearby the solar farm shows a smaller building size and a higher price per square foot. This reflects a common occurrence in real estate where the price per square foot goes up as the size goes down. This is similar to the discount you see in any market where there is a discount for buying larger volumes. So when you buy a 2 liter coke you pay less per ounce than if you buy a 16 oz. coke. So even comparing averages the indication is for no impact, but I rely on the median rates as the most reliable indication for any such analysis.

AM Best Solar Farm, Goldsboro, NC



View of home in Spring Garden with solar farm located through the trees and panels – photo taken on 9/23/15.



View from vacant lot at Spring Garden with solar farm panels visible through trees taken in the winter of 2014 prior to home construction. This is the same lot as the photo above.

2. Matched Pair – White Cross Solar Farm, Chapel Hill, NC

A new solar farm was built at 2159 White Cross Road in Chapel Hill, Orange County in 2013. After construction, the owner of the underlying land sold the balance of the tract not encumbered by the solar farm in July 2013 for \$265,000 for 47.20 acres, or \$5,606 per acre. This land adjoins the solar farm to the south and was clear cut of timber around 10 years ago. I compared this purchase to a nearby transfer of 59.09 acres of timber land just south along White Cross Road that sold in November 2010 for \$361,000, or \$6,109 per acre. After purchase, this land was divided into three mini farm tracts of 12 to 20 acres each. These rates are very similar and the difference in price per acre is attributed to the timber value and not any impact of the solar farm.

Type	TAX ID	Owner	Acres	Date	Price	\$/Acre	Notes	Conf By
Adjoins Solar	9748336770	Haggerty	47.20	Jul-13	\$265,000	\$5,614	Clear cut	Betty Cross, broker
Not Near Solar	9747184527	Purcell	59.09	Nov-10	\$361,000	\$6,109	Wooded	Dickie Andrews, broker

The difference in price is attributed to the trees on the older sale.

No impact noted for the adjacency to a solar farm according to the broker.

I looked at a number of other nearby land sales without proximity to a solar farm for this matched pair, but this land sale required the least allowance for differences in size, utility and location.

Matched Pair Summary

	Adjoins Solar Farm		Nearby Solar Farm	
	Average	Median	Average	Median
Sales Price	\$5,614	\$5,614	\$6,109	\$6,109
Adjustment for Timber	\$500	\$500		
Adjusted	\$6,114	\$6,114	\$6,109	\$6,109
Tract Size	47.20	47.20	59.09	59.09

Percentage Differences

Median Price Per Acre	0%
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This matched pair again supports the conclusion that adjacency to a solar farm has no impact on adjoining residential/agricultural land.

3. Matched Pair – Wagstaff Farm, Roxboro, NC

This solar farm is located at the northeast corner of a 594-acre farm with approximately 30 acres of solar farm area. This solar farm was approved and constructed in 2013.

After approval, 18.82 acres were sold out of the parent tract to an adjoining owner to the south. This sale was at a similar price to nearby land to the east that sold in the same time from for the same price per acre as shown below.

Type	TAX ID	Owner	Acres	Present Use	Date Sold	Price	\$/AC
Adjoins Solar	0918-17-11-7960	Piedmont	18.82	Agricultural	8/19/2013	\$164,000	\$8,714
Not Near Solar	0918-00-75-9812 et al	Blackwell	14.88	Agricultural	12/27/2013	\$130,000	\$8,739

Matched Pair Summary

	Adjoins Solar Farm		Nearby Solar Farm	
	Average	Median	Average	Median
Sales Price	\$8,714	\$8,714	\$8,739	\$8,739
Tract Size	18.82	18.82	14.88	14.88

Percentage Differences

Median Price Per Acre 0%

This matched pair again supports the conclusion that adjacency to a solar farm has no impact on adjoining residential/agricultural land.

4. Matched Pair – Mulberry, Selmer, TN

This solar farm adjoins two subdivisions with Central Hills having a mix of existing and new construction homes. Lots in this development have been marketed for \$15,000 each with discounts offered for multiple lots being used for a single home site. I spoke with the agent with Rhonda Wheeler and Becky Hearnberger with United County Farm & Home Realty who noted that they have seen no impact on lot or home sales due to the solar farm in this community.

I have included a map below as well as data on recent sales activity on lots that adjoin the solar farm or are near the solar farm in this subdivision both before and after the announced plan for this solar farm facility. I note that using the same method I used to breakdown the adjoining uses at the subject property I show that the predominant adjoining uses are residential and agricultural, which is consistent with the location of most solar farms.



Adjoining Use Breakdown

	Acreage	Parcels
Commercial	3.40%	0.034
Residential	12.84%	79.31%
Agri/Res	10.39%	3.45%
Agricultural	73.37%	13.79%
Total	100.00%	100.00%

From the above map, I identified four recent sales of homes that occurred adjoining the solar farm both before and after the announcement of the solar farm. I have adjusted each of these for differences in size and age in order to compare these sales among themselves. As shown below after adjustment, the median value is \$130,776 and the sales prices are consistent with one outlier which is also the least comparable home considered. The close grouping and the similar price per point overall as well as the similar price per square foot both before and after the solar farm.

Matched Pairs

#	TAX ID	Owner	Date Sold	Sales Price	Acres	Built	GBA	\$/GBA	Style	Parking
6&7	0900 A 011.00	Henson	Jul-14	\$130,000	2.65	2007	1,511	\$86.04	1 Story	2 Garage
12	0900 A 003.00	Amerson	Aug-12	\$130,000	1.20	2011	1,586	\$81.97	1 Story	2 Garage
15	099C A 003.00	Smallwood	May-12	\$149,900	1.00	2002	1,596	\$93.92	1 Story	4 Garage
16	099C A 002.00	Hessing	Jun-15	\$130,000	1.00	1999	1,782	\$72.95	1 Story	2 Garage
		Average		\$134,975	1.46	2005	1,619	\$83.72		
		Median		\$130,000	1.10	2005	1,591	\$84.00		

#	TAX ID	Owner	Date Sold	Sales Price	Adjustments*					
					Acres	Built	GBA	Style	Parking	Total
6&7	0900 A 011.00	Henson	Jul-14	\$130,000	-\$7,500	\$2,600	\$6,453	\$0	\$0	\$131,553
12	0900 A 003.00	Amerson	Aug-12	\$130,000	\$0	\$0	\$0	\$0	\$0	\$130,000
15	099C A 003.00	Smallwood	May-12	\$149,900	\$0	\$6,746	-\$939	\$0	-\$15,000	\$140,706
16	099C A 002.00	Hessing	Jun-15	\$130,000	\$0	\$7,800	-\$14,299	\$0	\$0	\$123,501
		Average		\$134,975	-\$1,875	\$4,286	-\$2,196	\$0	-\$3,750	\$131,440
		Median		\$130,000	\$0	\$4,673	-\$470	\$0	\$0	\$130,776

* I adjusted all of the comparables to a base line 2011 Year Built and 1,586 s.f. based on Lot 12

I also considered a number of similar home sales nearby that were both before and after the solar farm was announced as shown below. These homes are generally newer in construction and include a number of larger homes but show a very similar price point per square foot.

Nearby Sales Before Solar Farm Announced

TAX ID	Owner	Date Sold	Sales Price	Acres	Built	GBA	\$/GBA	Style	Parking
099B A 019	Durrance	Sep-12	\$165,000	1.00	2012	2,079	\$79.37	1 Story	2 Garage
099B A 021	Berryman	Apr-12	\$212,000	2.73	2007	2,045	\$103.67	1 Story	2 Garage
090O A 060	Nichols	Feb-13	\$165,000	1.03	2012	1,966	\$83.93	1 Story	2 Garage
	Average		\$180,667	1.59	2010	2,030	\$88.99		
	Median		\$165,000	1.03	2012	2,045	\$83.93		

Nearby Sales After Solar Farm Announced

TAX ID	Owner	Date Sold	Sales Price	Acres	Built	GBA	\$/GBA	Style	Parking
090N A 040	Carrithers	Mar-15	\$120,000	1.00	2010	1,626	\$73.80	1 Story	2 Garage
099C A 043	Cherry	Feb-15	\$148,900	2.34	2008	1,585	\$93.94	1 Story	2 Garage
	Average		\$134,450	1.67	2009	1,606	\$83.87		
	Median		\$134,450	1.67	2009	1,606	\$83.87		

I then adjusted these nearby sales using the same criteria as the adjoining sales to derive the following breakdown of adjusted values based on a 2011 year built 1,586 square foot home. The adjusted values are consistent with a median rate of \$128,665, which is actually lower than the values for the homes that back up to the solar farm.

Nearby Sales Adjusted

Nearby Sales Adjusted				Adjustments*					
TAX ID	Owner	Date Sold	Sales Price	Acres	Built	GBA	Style	Parking	Total
099B A 019	Durrance	Sep-12	\$165,000	\$0	-\$825	-\$39,127	\$0	\$0	\$125,048
099B A 021	Berryman	Apr-12	\$212,000	-\$7,500	\$4,240	-\$47,583	\$0	\$0	\$161,157
090O A 060	Nichols	Feb-13	\$165,000	\$0	-\$825	-\$31,892	\$0	\$0	\$132,283
090N A 040	Carrithers	Mar-15	\$120,000	\$0	\$600	-\$2,952	\$0	\$0	\$117,648
099C A 043	Cherry	Feb-15	\$148,900	-\$7,500	\$2,234	\$94	\$0	\$0	\$143,727
	Average		\$165,500	-\$1,875	\$798	-\$30,389	\$0	\$0	\$134,034
	Median		\$165,000	\$0	-\$113	-\$35,510	\$0	\$0	\$128,665

* I adjusted all of the comparables to a base line 2011 Year Built and 1,586 s.f. based on Lot 12

If you consider just the 2015 nearby sales, the range is \$117,648 to \$143,727 with a median of \$130,688. If you consider the recent adjoining sales the range is \$123,501 to \$131,553 with a median of \$127,527.

This difference is less than 3% in the median and well below the standard deviation in the sales. The entire range of the adjoining sales prices is overlapped by the range from the nearby sales. These are consistent data sets and summarized below.

Matched Pair Summary

	Adjoins Solar Farm		Nearby After Solar Farm	
	Average	Median	Average	Median
Sales Price	\$134,975	\$130,000	\$134,450	\$134,450
Year Built	2005	2005	2009	2009
Size	1,619	1,591	1,606	1,606
Price/SF	\$83.72	\$84.00	\$83.87	\$83.87

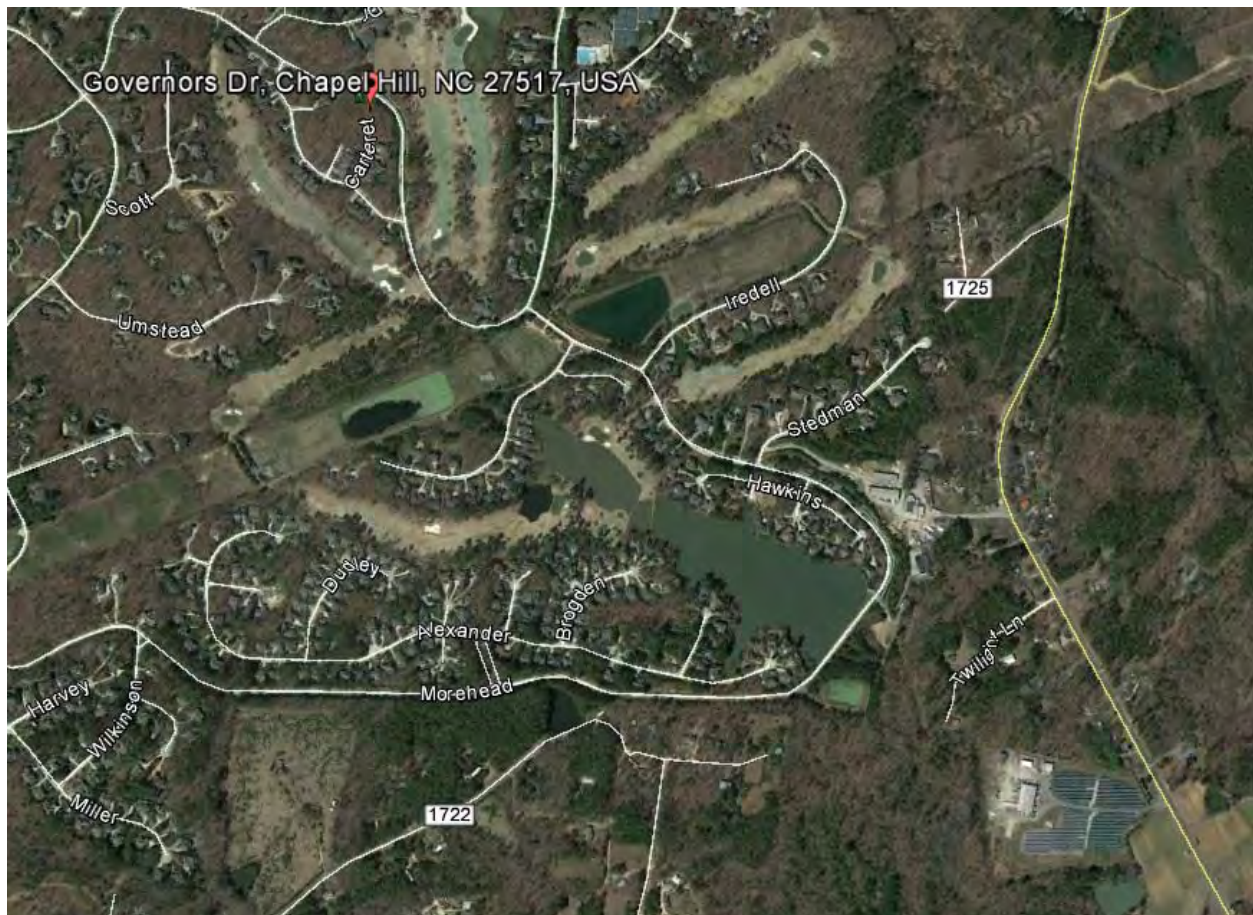
Percentage Differences

Median Price	3%
Median Size	1%
Median Price/SF	0%

Based on the data presented above, I find that the price per square foot for finished homes are not being impacted negatively by the presence of the solar farm. The difference in pricing in homes in the neighborhood is accounted for by differences in size, building age, and lot size. The median price for a home after those factors are adjusted for are consistent throughout this subdivision and show no impact due to the proximity of the solar farm. This is consistent with the comments from the broker I spoke with for this subdivision as well.

III. Harmony of Use/Compatibility

I have visited over 170 solar farms and sites on which solar farms are proposed in North Carolina to determine what uses are compatible with a solar farm. The data I have collected and provide in this report strongly supports the compatibility of solar farms with adjoining agricultural and residential uses. While I have focused on adjoining uses, I note that there are many examples of solar farms being located within a quarter mile of residential developments, including such notable developments as Governor's Club in Chapel Hill, which has a solar farm within a quarter mile as you can see on the following aerial map. Governor's Club is a gated golf community with homes selling for \$300,000 to over \$2 million.



The subdivisions included in the matched pair analysis also show an acceptance of residential uses adjoining solar farms as a harmonious use.

Beyond these anecdotal references, I have quantified the adjoining uses for a number of solar farm comparables to derive a breakdown of the adjoining uses for each solar farm. The chart below shows the breakdown of adjoining or abutting uses by total acreage. While most of these solar farms were located in North Carolina, the breakdown of adjoining uses is very similar to that shown for Oregon as shown earlier in this report.

Percentage By Adjoining Acreage

Total Solar Farms Reviewed		173							
	Res	Ag	Res/AG	Park	Sub	Comm	Ind	All Res Uses	All Comm Uses
Average	13%	57%	22%	1%	0%	0%	5%	94%	5%
Median	6%	63%	7%	0%	0%	0%	0%	100%	0%

Res = Residential, Ag = Agriculture, Sub = Substation, Com = Commercial, Ind = Industrial.

I have also included a breakdown of each solar farm by number of adjoining parcels rather than acreage. Using both factors provides a more complete picture of the neighboring properties.

Percentage By Total Number of Adjoining Parcels

Total Solar Farms Reviewed		173							
	Res	Ag	Res/AG	Park	Sub	Comm	Ind	All Res Uses	All Comm Uses
Average	58%	27%	9%	0%	0%	2%	4%	94%	5%
Median	63%	25%	4%	0%	0%	0%	0%	100%	0%

Res = Residential, Ag = Agriculture, Sub = Substation, Com = Commercial, Ind = Industrial.

Both of the above charts show a marked residential and agricultural adjoining use for most solar farms. Every single solar farm considered included an adjoining residential use except for one, which included an adjoining residential/agricultural use. These comparable solar farms clearly support a compatibility with adjoining residential uses along with agricultural uses.

IV. Specific Factors on Harmony of Use

I have completed a number of Impact Studies related to a variety of uses and I have found that the most common areas for impact on adjoining values typically follow the following hierarchy with descending levels of potential impact. I will discuss each of these categories and how they relate to a solar farm.

1. Hazardous material
2. Odor
3. Noise
4. Traffic
5. Stigma
6. Appearance

1. Hazardous material

The solar farm presents no potential hazardous waste byproduct as part of normal operation. Any fertilizer, weed control, vehicular traffic, or construction will be significantly less than typically applied in a residential development or even most agricultural uses.

The various solar farms that I have inspected and identified in the addenda have no known pending environmental impacts associated with the development and operation.

2. Odor

The various solar farms that I have inspected produced no noticeable odor.

3. Noise

These are passive solar panels with no associated noise beyond a barely audible sound during daylight hours. The transformer reportedly has a hum similar to a fluorescent light in an office building that can only be heard in close proximity to this transformer and the buffers on the property are sufficient to make emitted sounds inaudible from the adjoining properties. No sound is emitted from the facility at night.

The various solar farms that I have inspected were inaudible from the roadways. I heard nothing on any of these sites associated with the solar farm.

4. Traffic

The solar farm will have no onsite employee's or staff. The site requires only minimal maintenance. Relative to other potential uses of the site (such as a residential subdivision), the additional traffic generated by a solar farm use on this site is insignificant.

5. Stigma

There is no stigma associated with solar farms and solar farms and people generally respond favorably towards such a use. While an individual may express concerns about proximity to a solar farm, there is no specific stigma associated with a solar farm. Stigma generally refers to things such as adult establishments, prisons, rehabilitation facilities, and so forth.

Solar panels have no associated stigma and in smaller collections are found in yards and roofs in many residential communities. Solar panels on a roof are often cited as an enhancement to the property in marketing brochures.

I see no basis for an impact from stigma due to a solar farm.

6. Appearance

Larger solar farms using fixed panels are a passive use of the land that is considered in keeping with a rural/residential area. As shown below, solar farms are comparable to larger greenhouses. This is not surprising given that a greenhouse is essentially another method for collecting passive solar energy. The greenhouse use is well received in residential/rural areas and has a similar visual impact as a solar farm.





The fixed solar panels are all less than 15 feet high, which means that the visual impact of the solar panels will be similar in height to a typical greenhouse and lower than a single story residential dwelling. Were the subject property developed with single family housing, it would have a much greater visual impact on the surrounding area given that a two-story home with attic could be three to four times as high as these proposed panels. The panels will be located behind a chain link fence.

7. Conclusion

On the basis of the factors described above, it is my professional opinion that the proposed solar farm will be in harmony with the area in which it is to be developed. The breakdown of adjoining uses is similar to the other solar farms tracked.

V. Market Commentary

I have surveyed a number of builders, developers and investors regarding solar farms over the last year. I have received favorable feedback from a variety of sources; below are excerpts from my conversations with different clients or other real estate professionals.

I spoke with Betty Cross with Keller Williams Realty in Chapel Hill, who sold the tract of land adjoining the White Cross Road solar farm. She indicated that the solar farm was not considered a negative factor in marketing the property and that it had no impact on the final price paid for the land.

I spoke with Lynn Hayes a broker with Berkshire Hathaway who sold a home at the entrance to Pickards Mountain where the home exits onto the Pickard Mountain Eco Institute's small solar farm. This property is located in rural Orange County west of Chapel Hill. This home closed in January 2014 for \$735,000. According to Ms. Hayes the buyer was excited to be living near the Eco Institute and considered the solar farm to be a positive sign for the area. There are currently a number of 10 acre plus lots in Pickards Meadow behind this house with lots on the market for \$200,000 to \$250,000.

A new solar farm was built on Zion Church Road, Hickory at the Two Lines Solar Farm on the Punch property. After construction of the solar farm in 2013, an adjoining tract of land with 88.18 acres sold for \$250,000, or \$2,835 per acre. This was a highly irregular tract of land with significant tree cover between it and the solar farm. I have compared this to a current listing of 20.39 acres of land that is located southeast just a little ways from this solar farm. This land is on the market for \$69,000, or \$3,428 per acre. Generally, a smaller tract of land would be listed for more per acre. Considering a size adjustment of 5% per doubling in size, and a 10% discount for the likely drop in the closed price off of the asking price, I derive an indicated value per acre of the smaller tract of \$2,777 per acre. This is very similar to the recently closed sale adjoining the solar farm, which further supports the matched pair analysis earlier in this report.

Rex Vick with Windjam Developers has a subdivision in Chatham County off Mt. Gilead Church Road known as The Hamptons. Home prices in The Hamptons start at \$600,000 with homes over \$1,000,000. Mr. Vick expressed interest in the possibility of including a solar farm section to the development as a possible additional marketing tool for the project.

Mr. Eddie Bacon, out of Apex North Carolina, has inherited a sizeable amount of family and agricultural land, and he has expressed interest in using a solar farm as a method of preserving the land for his children and grandchildren while still deriving a useful income from the property. He believes that solar panels would not in any way diminish the value for this adjoining land.

I spoke with Carolyn Craig, a Realtor in Kinston, North Carolina who is familiar with the Strata Solar Farms in the area. She noted that a solar farm in the area would be positive: "A solar farm is color coordinated and looks nice." "A solar farm is better than a turkey farm," which is allowed in that area. She would not expect a solar farm will have any impact on adjoining home prices in the area.

Mr. Michael Edwards, a broker and developer in Raleigh, indicated that a passive solar farm would be a great enhancement to adjoining property: "You never know what might be put on that land next door. There is no noise with a solar farm like there is with a new subdivision."

These are just excerpts I've noted in my conversations with different clients or other real estate participants that provided other thoughts on the subject that seemed applicable.

VI. Conclusion

The matched pair analysis shows no impact in home values due to the adjacency to the solar farm as well as no impact to adjacent vacant residential or agricultural land. The criteria for making downward adjustments on property values such as appearance, noise, odor, and traffic all indicate that a solar farm is a compatible use for rural/residential transition areas.

Similar solar farms have been approved adjoining agricultural uses, schools and residential developments. Industrial uses rarely absorb negative impacts from adjoining uses. The adjoining residential uses to other solar farms have included single family homes up to \$260,000 on lots as small as 0.74 acres. The solar farm at the Pickards Mountain Eco Institute adjoins a home that sold in January 2014 for \$735,000 and in proximity to lots being sold for \$200,000 to \$250,000 for homes over a million dollars.

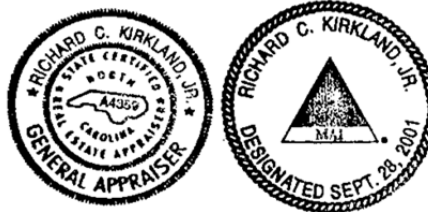
Based on the data and analysis in this report, it is my professional opinion that the solar farm proposed at the subject property will maintain or enhance the value of adjoining or abutting property and that the proposed use is in harmony with the area in which it is located.

If you have any further questions please call me any time.

Sincerely,



Richard C. Kirkland, Jr., MAI
State Certified General Appraiser



Limiting Conditions and Assumptions

Acceptance of and/or use of this report constitutes acceptance of the following limiting conditions and assumptions; these can only be modified by written documents executed by both parties.

- ❖ The basic limitation of this and any appraisal is that the appraisal is an opinion of value, and is, therefore, not a guarantee that the property would sell at exactly the appraised value. The market price may differ from the market value, depending upon the motivation and knowledge of the buyer and/or seller, and may, therefore, be higher or lower than the market value. The market value, as defined herein, is an opinion of the probable price that is obtainable in a market free of abnormal influences.
- ❖ I do not assume any responsibility for the legal description provided or for matters pertaining to legal or title considerations. I assume that the title to the property is good and marketable unless otherwise stated.
- ❖ I am appraising the property as though free and clear of any and all liens or encumbrances unless otherwise stated.
- ❖ I assume that the property is under responsible ownership and competent property management.
- ❖ I believe the information furnished by others is reliable, but I give no warranty for its accuracy.
- ❖ I have made no survey or engineering study of the property and assume no responsibility for such matters. All engineering studies prepared by others are assumed to be correct. The plot plans, surveys, sketches and any other illustrative material in this report are included only to help the reader visualize the property. The illustrative material should not be considered to be scaled accurately for size.
- ❖ I assume that there are no hidden or unapparent conditions of the property, subsoil, or structures that render it more or less valuable. I take no responsibility for such conditions or for obtaining the engineering studies that may be required to discover them.
- ❖ I assume that the property is in full compliance with all applicable federal, state, and local laws, including environmental regulations, unless the lack of compliance is stated, described, and considered in this appraisal report.
- ❖ I assume that the property conforms to all applicable zoning and use regulations and restrictions unless nonconformity has been identified, described and considered in this appraisal report.
- ❖ I assume that all required licenses, certificates of occupancy, consents, and other legislative or administrative authority from any local, state, or national government or private entity or organization have been or can be obtained or renewed for any use on which the value estimate contained in this report is based.
- ❖ I assume that the use of the land and improvements is confined within the boundaries or property lines of the property described and that there is no encroachment or trespass unless noted in this report.
- ❖ I am not qualified to detect the presence of floodplain or wetlands. Any information presented in this report related to these characteristics is for this analysis only. The presence of floodplain or wetlands may affect the value of the property. If the presence of floodplain or wetlands is suspected the property owner would be advised to seek professional engineering assistance.
- ❖ For this appraisal, I assume that no hazardous substances or conditions are present in or on the property. Such substances or conditions could include but are not limited to asbestos, urea-formaldehyde foam insulation, polychlorinated biphenyls (PCBs), petroleum leakage or underground storage tanks, electromagnetic fields, or agricultural chemicals. I have no knowledge of any such materials or conditions unless otherwise stated. I make no claim of technical knowledge with regard to testing for or identifying such hazardous materials or conditions. The presence of such materials, substances or conditions could affect the value of the property. However, the values estimated in this report are predicated on the assumption that there are no such materials or conditions in, on or in close enough proximity to the property to cause a loss in value. The client is urged to retain an expert in this field, if desired.
- ❖ Unless otherwise stated in this report the subject property is appraised without a specific compliance survey having been conducted to determine if the property is or is not in conformance with the requirements of the

Americans with Disabilities Act (effective 1/26/92). The presence of architectural and/or communications barriers that are structural in nature that would restrict access by disabled individuals may adversely affect the property's value, marketability, or utility.

- ❖ Any allocation of the total value estimated in this report between the land and the improvements applies only under the stated program of utilization. The separate values allocated to the land and buildings must not be used in conjunction with any other appraisal and are invalid if so used.
- ❖ Possession of this report, or a copy thereof, does not carry with it the right of publication.
- ❖ I have no obligation, by reason of this appraisal, to give further consultation or testimony or to be in attendance in court with reference to the property in question unless further arrangements have been made regarding compensation to Kirkland Appraisals, LLC.
- ❖ Neither all nor any part of the contents of this report (especially any conclusions as to value, the identity of the appraiser, or the firm with which the appraiser is connected) shall be disseminated to the public through advertising, public relations, news, sales, or other media without the prior written consent and approval of Kirkland Appraisals, LLC, and then only with proper qualifications.
- ❖ Any value estimates provided in this report apply to the entire property, and any proration or division of the total into fractional interests will invalidate the value estimate, unless such proration or division of interests has been set forth in the report.
- ❖ Any income and expenses estimated in this report are for the purposes of this analysis only and should not be considered predictions of future operating results.
- ❖ This report is not intended to include an estimate of any personal property contained in or on the property, unless otherwise stated.
- ❖ This report is subject to the Code of Professional Ethics of the Appraisal Institute and complies with the requirements of the State of North Carolina for State Certified General Appraisers. This report is subject to the certification, definitions, and assumptions and limiting conditions set forth herein.
- ❖ The analyses, opinions and conclusions were developed based on, and this report has been prepared in conformance with, our interpretation of the guidelines and recommendations set forth in the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA).
- ❖ This is a Real Property Appraisal Consulting Assignment.

Certification – Richard C. Kirkland, Jr., MAI

I certify that, to the best of my knowledge and belief:

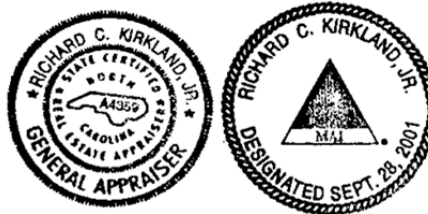
1. The statements of fact contained in this report are true and correct;
2. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, unbiased professional analyses, opinions, and conclusions;
3. I have no present or prospective interest in the property that is the subject of this report and no personal interest with respect to the parties involved;
4. I have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment;
5. My engagement in this assignment was not contingent upon developing or reporting predetermined results;
6. My compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of the appraisal;
7. The reported analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute;
8. The reported analyses, opinions and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice.
9. The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives;
10. I have not made a personal inspection of the property that is the subject of this report, and;
11. No one provided significant real property appraisal assistance to the person signing this certification.
12. As of the date of this report I have completed the requirements of the continuing education program of the Appraisal Institute;
13. I have not appraised this property within the last three years.

Disclosure of the contents of this appraisal report is governed by the bylaws and regulations of the Appraisal Institute and the National Association of Realtors.

Neither all nor any part of the contents of this appraisal report shall be disseminated to the public through advertising media, public relations media, news media, or any other public means of communications without the prior written consent and approval of the undersigned.



Richard C. Kirkland, Jr., MAI
State Certified General Appraiser





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Hester & Company , Raleigh, N.C. Commercial appraiser	1996 – 2003

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MAI (Member, Appraisal Institute) designation #11796	2001
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VA State Certified General Appraiser # 4001017291	
OR State Certified General Appraiser # C001204	
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--	------

CONTINUING EDUCATION

Uniform Standards of Professional Appraisal Practice Update	2016
Forecasting Revenue	2015
Wind Turbine Effect on Value	2015
Supervisor/Trainee Class	2015
Business Practices and Ethics	2014
Subdivision Valuation	2014
Uniform Standards of Professional Appraisal Practice Update	2014
Introduction to Vineyard and Winery Valuation	2013
Appraising Rural Residential Properties	2012
Uniform Standards of Professional Appraisal Practice Update	2012
Supervisors/Trainees	2011
Rates and Ratios: Making sense of GIMs, OARs, and DCFs	2011
Advanced Internet Search Strategies	2011
Analyzing Distressed Real Estate	2011
Uniform Standards of Professional Appraisal Practice Update	2011
Business Practices and Ethics	2011
Appraisal Curriculum Overview (2 Days – General)	2009
Appraisal Review - General	2009
Uniform Standards of Professional Appraisal Practice Update	2008
Subdivision Valuation: A Comprehensive Guide	2008
Office Building Valuation: A Contemporary Perspective	2008
Valuation of Detrimental Conditions in Real Estate	2007
The Appraisal of Small Subdivisions	2007
Uniform Standards of Professional Appraisal Practice Update	2006
Evaluating Commercial Construction	2005

Conservation Easements	2005
Uniform Standards of Professional Appraisal Practice Update	2004
Condemnation Appraising	2004
Land Valuation Adjustment Procedures	2004
Supporting Capitalization Rates	2004
Uniform Standards of Professional Appraisal Practice, C	2002
Wells and Septic Systems and Wastewater Irrigation Systems	2002
Appraisals 2002	2002
Analyzing Commercial Lease Clauses	2002
Conservation Easements	2000
Preparation for Litigation	2000
Appraisal of Nonconforming Uses	2000
Advanced Applications	2000
Highest and Best Use and Market Analysis	1999
Advanced Sales Comparison and Cost Approaches	1999
Advanced Income Capitalization	1998
Valuation of Detrimental Conditions in Real Estate	1999
Report Writing and Valuation Analysis	1999
Property Tax Values and Appeals	1997
Uniform Standards of Professional Appraisal Practice, A & B	1997
Basic Income Capitalization	1996

Appendix F

Final

**DELINEATION OF WATERS OF THE UNITED
STATES**

INCLUDING

FRESHWATER WETLANDS

Yellow Mills Road Solar Farm

**Town of Farmington
Ontario County, New York**

Prepared For:

**Delaware River Solar, LLC
c/o Mr. Peter Dolgos
33 Irving Place
New York, New York 10003**

Prepared By:



July 24, 2018

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Appendix C – Wetland Delineation Map
Appendix D – Supplemental Jurisdictional Information and Soil Survey Data

1.0 INTRODUCTION

At the request of Delaware River Solar, LLC (DRS), North Country Ecological Services, Inc. (NCES) completed an on-site delineation of Waters of the United States that include freshwater wetlands on a portion of a 135.36± acre property known as “Lands of Smith - Yellow Mills Road” (the “Site”). The Site is currently owned by Rodger and Carol Smith of 4790 Fox Road, Palmyra, New York 14522 (the "Owners"). the property is an active cattle farm. At this time, DRS is under contract to acquire a portion of the property from the Owners for the purposes of establishing a solar farm.

At the further request of DRS, the delineation was limited to 84.75± acres of the Site (the "Review Area"). The Review Area encompasses the lands that will be converted from agricultural use into the solar farm. The formal delineation was warranted to identify potential environmental constraints and assist in defining unrestricted land in conjunction with anticipated future development/usage of the property.

After a review of the Ontario County Soil Survey, the USGS 7.5' topographic map (Macedon Quadrangle), aerial photographs, and other technical information for the Site, NCES identified and delineated the limits of wetlands and other Waters of the United States that fall under the jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA). NCES also reviewed the property for wetlands that would be subject to regulation by the New York State Department of Environmental Conservation (DEC) pursuant to Article 24 of the Environmental Conservation Law (ECL). The formal field delineation was completed by NCES on April 30, 2018.

As a result of the delineation, a total of 6.89± acres of vegetated wetland and 1,605± linear feet of stream channels (Seasonal Relatively Permanent Waterways – RPW's) were identified. The delineated wetland boundaries were subsequently field located by NCES utilizing GPS technology and were formally mapped by the firm of Schultz Associates, of 129 South Union Street, Spencerport, New York 14559 (Schultz).

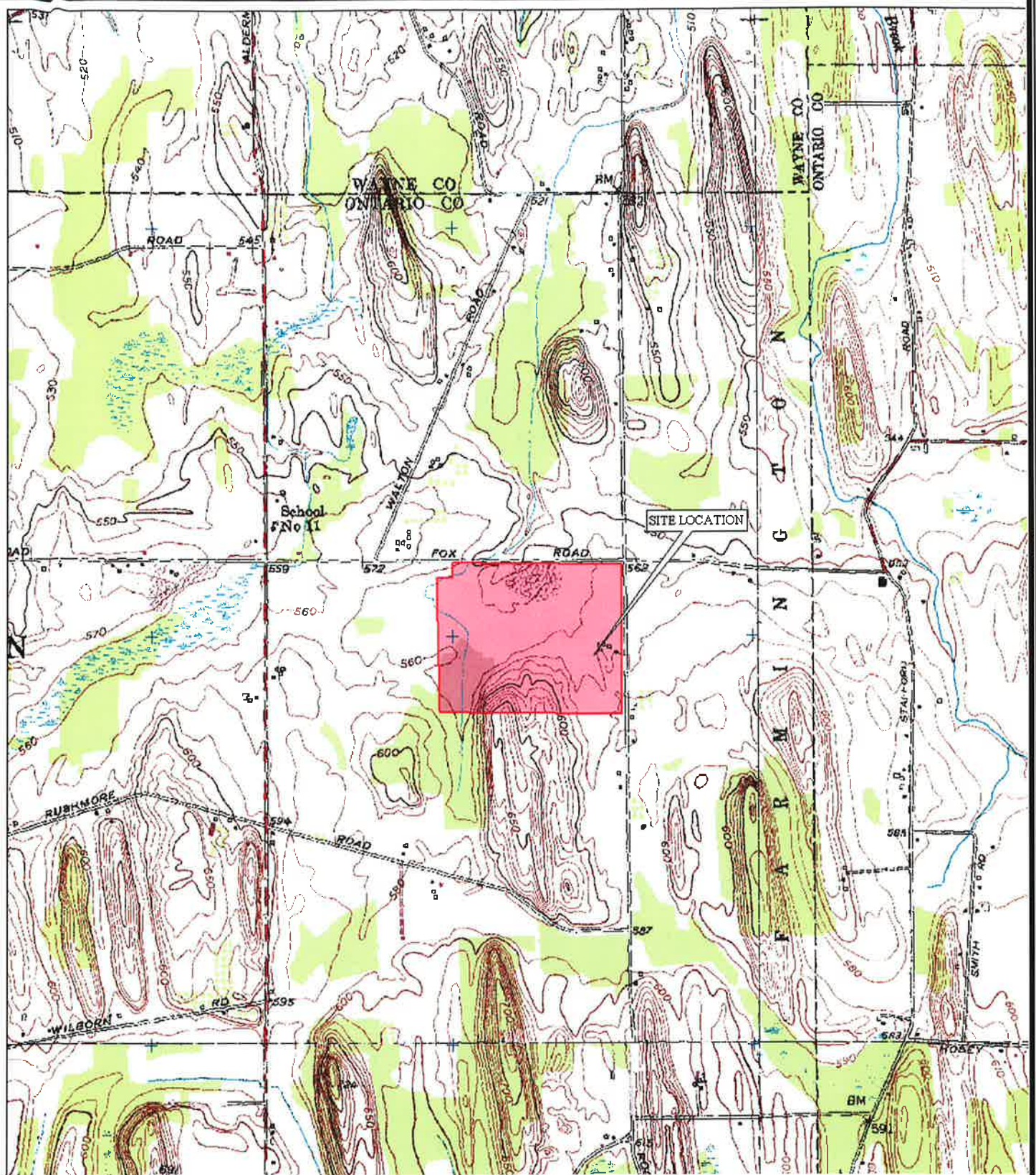
2.0 SITE LOCATION & DESCRIPTION

The Site is located at the southwest intersection of Yellow Mills Road and Fox Road in the Town of Farmington, Ontario County, New York (Figure 1). The Review Area basically encompassed the eastern two-thirds of the property. The centralized coordinates of the Review Area are 43° 00' 59.27" N Latitude and 77° 15' 38.19" W Longitude. The general topography of the Review Area is generally flat. However, a large upland ridge exists within the southwest corner of the property. Elevations within the Review Area range from 630 feet above mean sea level (msl), found along the aforementioned upland ridge, to 543 feet above msl, located at the edge of a pond found along Fox Road, resulting in an elevation difference of 87± feet.

The Site can be characterized as an active cattle farm. The majority of the land within the Review Area exists as pasture for cattle. Other fields on the farm utilized for hay and field crops to support the cattle operation. A large upland ridge is located in the southwest corner of the Site. This upland ridge is predominantly wooded. The northwest corner of the Review Area appears to have been mined for sand & gravel. Large, deep, pits and open water ponds are present in this portion of the Site.

With the exception of the upland ridge, all other portions of the Review Area have been historically utilized for farming or mining activities. It was apparent that portions of the ridge have been logged by the Owners. A large forested wetland complex is located along the western boundary of the Review Area. This portion of the Site has probably been historically too wet to have been actively farmed. Several large barns, garages, and a single-family home are also situated on the property along Yellow Mills Road. Areas immediately surrounding the house and barns exists as mowed lawn.

Based upon the definitions presented in the *Ecological Communities of New York State* (Edinger, 2014) and the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, 1979), the following ecological communities have been identified within the Review Area:



Base Map: USGS Macedon 7.5' Quadrangle, Ontario County, N.Y.

Scale: 1" = 2000'



FIGURE 1- SITE LOCATION MAP

- Pastureland (Edinger)
- Cropland - field crops (Edinger)
- Successional northern hardwood forest (Edinger)
- Quarry pond (Edinger)
- Red maple hardwood swamp (Edinger)**
- Palustrine forested wetland (Cowardin)**
- Palustrine emergent wetland (Cowardin)

** The Red maple hardwood swamp community identified by Edinger is the same as the Palustrine forested community described by Cowardin.

Land use surrounding the Site include single-family residential homes, active agriculture, and undeveloped forested land. The parcel is bordered to the north by Fox Road, on the east Yellow Mills Road Road, and to the south and west by undeveloped woodlands. Active agricultural fields are located to the north and east of the Site, on opposites sides of the road that border the property. Photographs of the Review Area that were taken by NCES to show the condition of the property at the time of the delineation are contained in Appendix A.

3.0 DELINEATION METHODOLOGY

Wetland boundaries were delineated using the three-parameter methodology as outlined in the *Corps of Engineers Wetland Delineation Manual*, 1987 (1987 manual). The 1987 manual was used in accordance with the Corps of Engineers Appropriation Bill and the Johnson Amendment of August 17, 1991, which states that until revisions to the January 1989 *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (1989 manual) are finalized, the Corps of Engineers will apply the 1987 manual to identify and delineate wetlands potentially subject to regulation under Section 404 of the CWA. In order for an area to be classified as a wetland, it must exhibit the following characteristics: hydrophytic vegetation, hydric soils, and wetland hydrology.

NCES also used information presented within the *Regional supplement to the Corps of Engineers Wetland Delineation Manual – Northcentral and Northeast Region* (January 2012) as further guidance for assessing and defining wetland boundaries. According to the 1987 Manual and Interim Regional Supplement, in order for an area to be classified as a wetland, it must exhibit hydrophytic vegetation; hydric soils; and wetland hydrology.

The routine on-site determination method was used to determine the wetland boundaries on the Site. Vegetative, soils, and hydrologic data were examined and collected along the upland/wetland transitions. Vegetation was sampled using the quadrant sampling procedure. Transects were established perpendicular to the wetland boundaries in order to document the vegetation, soils, and hydrology of the on-site wetlands and uplands.

The USACE has also issued the *National List of Plant Species That Occur in Wetlands*, which lists species of vascular plants that are likely to occur in a wetland. The list separates the plants into five categories that determine the "wetland indicator status." A species indicator status is based upon its frequency of occurrence in wetlands:

- *Obligate wetland* plants (OBL) occur almost always (estimated probability >99%) in wetlands under natural conditions;
- *facultative wetland* plants (FACW) usually occur in wetlands (estimated probability 67-99%), but are occasionally found in upland;
- *facultative* plants (FAC) are equally likely to occur in wetlands or uplands (estimated probability 34-66%);
- *facultative upland* plants (FACU) are those species that normally occur in uplands but occasionally occur in wetlands (estimated probability 67-99%); and,
- *upland* (UPL) species occur almost always in uplands (estimated probability >99%) under natural conditions (Federal Interagency Committee for Wetland Delineation, 1989).

Dominant plant species were determined for each vegetative stratum by estimating aerial cover. Dominant plant species are defined as those species in each stratum that, when ranked in decreasing order of abundance and when cumulatively totaled, exceed 50% of the total dominance measure for each stratum, plus any additional species that comprise 20% or more of the total dominance measure.

Soils were analyzed to depths below the A-horizon. Samples were taken in conjunction with the procedures outlined within the Regional Supplement. Soil samples were checked to determine Munsell Soil Color Chart designation and hydric soils were identified by color. Indicators of hydrology were noted on the field data sheets. Vegetation, soils, and hydrology were analyzed to determine the wetland boundary.

Perennial and Intermittent streams were identified by the formation of banks, apparent streambeds, and high water marks where extended hydrologic input has formed deep channels in the soils and formed hydric soils. Copies of the field data sheets used to document the vegetation, soils, and hydrology are contained in Appendix B.

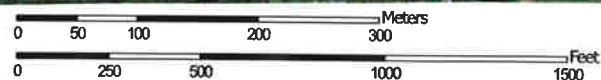
4.0 EXISTING CONDITIONS

4.1 Soils

According to the USDA Natural Resources Conservation Service Web Soil Survey 3.2 for Ontario County, New York (the "Soil Survey"), a total of ten (10) different soil series were identified within the boundaries of the Site. The soil types identified include: Fine-loamy, mixed, active Typic Argiaquolls (19A); Canandaigua mucky silt loam, with 0-3% slopes (44A); Ontario fine sandy loam, with 8-35% slopes (112C & 112E); Ontario loam, with 3-25% slopes (116B, 116C & 116D); Palmyra cobbly loam, with 0-3% slopes (122A and 122B); Palmyra gravelly loam, with 3-15% slopes (126B and 126C); Phelps gravelly silt loam, with 0-3% slopes (210A); Kendaia loam, with 0-3% slopes (304A); and, Pits, gravel and sand (PG), (Figure 2).




Natural Resources
Conservation Service
 Web Soil Survey
 National Cooperative Soil Survey



Soils Legend

- | | |
|---|---|
| 19A – Fine-loamy, mixed, active Typic Argiaquolls | 122A – Palmyra cobbly loam, 0-3% slopes |
| 44A – Canandaigua mucky silt loam, 0-3% slopes | 122B – Palmyra cobbly loam, 3-8% slopes |
| 112C – Ontario fine sandy loam, 8-25% slopes | 126B – Palmyra gravelly loam, 3-8% slopes |
| 112E – Ontario fine sandy loam, 25-35% slopes | 126C – Palmyra gravelly loam, 8-15% slopes |
| 116B – Ontario loam, 3-8% slopes | 210A – Phelps gravelly silt loam, 0-3% slopes |
| 116C – Ontario loam, 8-15% slopes | 304A – Kendaia loam, 0-3% slopes |
| 116D – Ontario loam, 15-25% slopes | PG – Pits, gravel and sand |

Base Map: Web Soil Survey 3.2 – Ontario County Soil Survey, N.Y.

Scale: As Noted



FIGURE 2 - SOIL SURVEY

4.2 Vegetation

During the review, NCES identified six (6) different ecological communities within the boundaries of the Review Area. These ecological communities include: Pastureland, Cropland - field crops, Successional northern hardwood forest, Quarry pond, Palustrine forested wetland, and Palustrine emergent wetland. Each of these vegetative communities, with the exception of the Quarry pond, possess different and distinct species of vegetation that assist in defining them. The Quarry pond community was simply an open body of water that did not possess any significant vegetation within it. The dominant species of vegetation observed in each ecological community are listed below:

Some of the dominant species of vegetation observed within the Pastureland and Cropland - field crops ecological communities included; but are not limited to: alfalfa (*Medicago sativa*), timothy (*Phleum pratense*), orchard grass (*Dactylis glomerata*), reed canary grass (*Phalaris arundinacea*), wild carrot (*Daucus carota*), birdsfoot trefoil (*Lotus corniculatus*), red clover (*Trifolium pratense*), common plantain (*Plantago major*), English plantain (*Plantago lanceolata*), wild madder (*Galium mollugo*), Canada goldenrod (*Solidago canadensis*), spotted knapweed (*Centaurea maculosa*), dandelion (*Taraxacum officinale*), common milkweed (*Asclepias syriaca*), common mugwort (*Artemisia vulgaris*), ragweed (*Ambrosia artemisiifolia*), daisy (*Chrysanthemum leucanthemum*), wild madder (*Galium mollugo*), and cow vetch (*Vicia cracca*).

Some of the dominant species of vegetation observed within the Successional northern hardwood forest ecological community included; but are not limited to: red oak (*Quercus rubra*), shagbark hickory (*Carya ovata*), white ash (*Fraxinus americana*), (*Fagus grandifolia*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), quaking aspen (*Populus tremuloides*), honeysuckle (*Lonicera tatarica*), buckthorn (*Rhamnus cathartica*), poison ivy (*Toxicodendron radicans*), garlic mustard (*Alliaria officinalis*), and common blue violet (*Viola sororia*).

Some of the dominant species of vegetation observed within the Palustrine forested wetlands included, but are not limited to, red maple, green ash (*Fraxinus pennsylvanicum*), American elm (*Ulmus americana*), pussy willow (*Salix discolor*), witch hazel (*Hamamelis virginiana*), tussock sedge (*Carex stricta*), skunk cabbage (*Symplocarpus foetidus*), fowl manna grass (*Glyceria striata*), jewelweed (*Impatiens capensis*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), and sensitive fern (*Onoclea sensibilis*).

Some of the dominant species of vegetation observed within the Palustrine emergent wetlands included; but are not limited to: purple loosestrife (*Lythrum salicaria*), reed canary grass (*Phalaris arundinacea*), moneywort (*Lysimachia nummularia*), soft rush (*Juncus effusus*) slender goldenrod (*Solidago tenuifolia*), sensitive fern, late goldenrod (*Solidago gigantea*), fox sedge (*Carex vulpinoidea*), dark green bulrush (*Scirpus atrovirens*), and jewelweed.

4.3 Hydrology

The main sources of hydrology that influence the wetlands identified on the Site appear to originate from ground water discharge, surface water runoff, and direct precipitation. The stream that bisects the field dissipates into natural sand and gravel in the center of the field. There is no physical outlet to this watercourse as the water simply dissipates into the ground.

The forested wetland located along the western boundary of the Review Area receives runoff from the adjacent upland ridge as well as retains surface water. Ground water seeps were noted along the toe-of-slope of the ridge and wetland boundary. This wetland naturally drains to the northwest and is hydrologically contiguous with a larger wetland complex found to the west of the Site. This off-site wetland physically abuts a perennial stream channel that flows to the north and into other wetlands that are located to the north of Fox Road. The open water ponds and adjacent wetland communities are primarily ground water induced, as surrounding lands were mined for sand and gravel and the land

was excavated to the groundwater elevation. These ponded areas fluctuate in depth as the ground water table rises and lowers in conjunction with the natural hydrologic cycle. These ponds, hydrologically connect with the off-site wetlands that drain into the aforementioned perennial stream channel found to the northwest of the Site.

The un-named stream continues to the north and eventually converges with Ganargua Creek. This stream is a third-order perennial tributary that flows east and into the Erie Canal. The Erie Canal is classified as a Traditional Navigable Waterway (TNW).

As previously stated, the drainage that extends into the center of the property is reliant upon direct precipitation and surface water runoff for hydrologic input. The linear drainage extends flows to the center of the property. Natural flow is northward from the southern property boundary to the center of the Site. Once in the center of the Site, the drainage dissipates into the soil. No surface connection between this drainage and the open water ponds found to the north were observed.

5.0 WETLAND FINDINGS

During the delineation, three (3) individual wetland areas were identified on the Site. The wetlands have been designated by NCES as Wetland Areas 1, 2, and 3. The location and configuration of these wetlands is shown on the drawing prepared by Shultz Associates that is titled "Existing Conditions - Delaware River Solar, LLC - Yellow Mills Road" dated May 30, 2108 and last revised June 28, 2018. A copy of this wetland delineation map is contained in Appendix C.

6.0 JURISDICTIONAL DETERMINATION

In light of the Supreme Court rulings regarding the potential restriction of authority of the USACE to assert jurisdiction over isolated, non-adjacent, non-navigable waters of the United States based on the Solid Waste Agency of Northern Cook County vs. United

States (SWANCC) and Rapanos vs. USACE (Rapanos), it is required that environmental consultants identify, describe, and segregate each wetland area into jurisdictional and non-jurisdictional categories. This is required to assist the USACE in determining which wetlands are jurisdictional. Consultants must also provide project specific information relative to “post Rapanos” guidelines. A copy of the supplemental information is contained in Appendix D.

According to the Supreme Court, if a wetland can be deemed “isolated,” “non-adjacent,” and/or “non-navigable” and it is not physically hydrologically connected with a tributary system of a Traditional Navigable Waterway (TNW), the USACE does not have authority to assert jurisdiction over these wetland areas without a “Significant Nexus” review to determine the significance of the wetland in relation to adjacent jurisdictional waters. If it is subsequently determined during a joint review between the USACE and the Environmental Protection Agency (EPA) that no significant nexus exists, and if the wetlands are not regulated by any other governmental agency, such as the DEC or the United States Fish and Wildlife Service (USFWS), then these wetlands are not regulated.

6.1 Army Corps of Engineers Jurisdictional Wetlands

The observations made by NCES during the wetland delineation process revealed that a direct hydrological connection with a tributary system of a navigable waterway was identified between some of the wetlands and off-site waters of the United States. Therefore, the wetlands identified in Table 1 fall under the regulatory jurisdiction of the USACE pursuant to Section 404 of the Clean Water Act.

TABLE 1
USACE Jurisdictional Wetlands

Area	Size	Stream Length	Vegetative Cover Types
1	1.52± Acres	0± linear feet	Palustrine Emergent and Forested
2	4.26± Acres	0± linear feet	Open Water Pond
Totals	5.78± Acres	± linear feet	

6.2 Potential Non - Jurisdictional Wetlands

Based on the observations made by NCES during the delineation process, one of the wetlands identified has the potential to be deemed “isolated” and thus “non-jurisdictional” as it does not possess a physical, surface connection with any other wetlands identified; it is not adjacent to, nor does it abut a wetland that is physically connected with off-site waters. Consequently, the wetland identified in Table 2 may not fall under the regulatory jurisdiction of the USACE.

TABLE 2
Potential Non- Jurisdictional Wetlands

Area	Size	Stream Length	Vegetative Cover Types
3	1.11± Acres	1,605± linear feet	Linear Palustrine Emergent

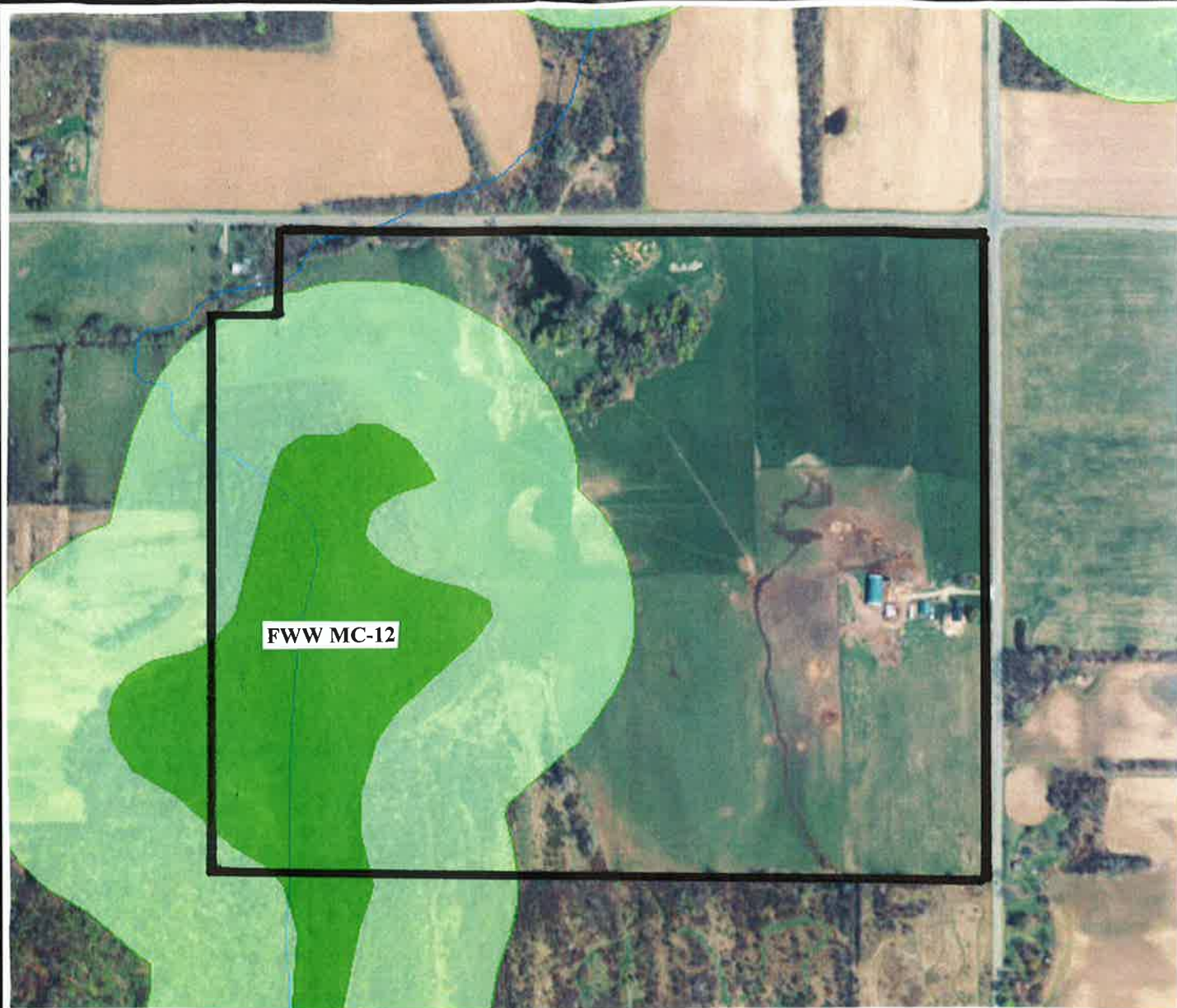
6.3 DEC Regulated Wetlands

Based on the review of the Article 24 Freshwater Wetland mapping that was obtained from the DEC’s Environmental Resource Mapper (ERM), a portion of a currently mapped Article 24 regulated wetlands is found within the boundaries of the Site (Figure 3). Specifically, portions of Freshwater Wetland (FWW) MC-12 are contained within the property boundaries. Portions of the 100 foot Adjacent Area (buffer zone) of Freshwater Wetland MC-12 are also contained within the boundaries of the Review Area as well.

The DEC mapped wetland correlates with Wetland Area 1 as identified and delineated by NCES. The extent of the DEC regulated areas are shown on the delineation map contained in Appendix C and are outlined in Table 3 below:





TABLE 3
DEC Regulated Areas

Area	Size	Stream Length	Vegetative Cover Types
FWW MC-12	1.52± Acres	0± linear feet	Palustrine Emergent and Forested
100' A.A.	2.49± Acres	0± linear feet	Active Pasture
Totals	4.01± Acres	0± linear feet	



NEW YORK STATE - DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

Map Layers & Legend

-  Classified Water Bodies
-  Classified Water Bodies
-  State-Regulated Freshwater Wetlands
-  Wetland Check-zone

Base Map: DEC Environmental Resource Mapper - Ontario County, NY

Scale: None



FIGURE 3 - DEC Regulated Areas

Based on the review of the Article 15 Protected Stream information obtained from the ERM, no Article 15 regulated streams exist on the Site. Therefore, no Article 15 Protection of Waters Permit will be required for this project.

6.4 National Wetland Inventory (NWI) Wetland Information

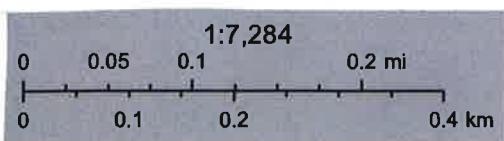
As is required by the USACE Buffalo District wetland reporting guidelines, NCES reviewed the U.S. Fish and Wildlife Service (USFWS) website and reviewed the National Wetland Inventory Mapper to determine if wetlands identified by the USFWS are present on the Site. Based on the information obtained from the National Wetland Inventory Mapper, it was determined by NCES that a portion of a NWI mapped wetland is present within the boundaries of the Site (Figure 4). The mapped wetland correlates with Wetland Area 1 as delineated by NCES and the wetland designated as FWW MC-12 by the DEC. The USFWS does not regulate wetlands and the NWI maps were generated to assist in identifying aquatic resources. No further consultation with the USFWS relative to wetlands is required.

7.0 CONCLUSION

As a result of the delineation, it has been determined that there are three (3) separate vegetated wetlands that total $6.89\pm$ acres within the Review Area. Within the confines of Wetland Area 3, a total of $1,605\pm$ linear feet of stream channel (Seasonal RPW) are present. Wetland Area 3 could not be field delineated since it was located within an active cattle pasture. While onsite, NCES was advised against entering the pasture with the cattle by the Owners. The herd contained several large bulls that, according to the Owners, are highly protective and aggressive. The edge of the drainage was well defined by topography and vegetation, and the boundaries of Wetland Area 3 were established using aerial photography and detailed topographic data.



U.S. Fish and Wildlife Service
National Wetlands Inventory



Wetlands



Estuarine and Marine Deepwater



Estuarine and Marine Wetland



Freshwater Emergent Wetland



Freshwater Forested/Shrub Wetland



Freshwater Pond



Lake



Other



Riverine

Base Map: USFWS NWI Wetlands Map, Ontario County, N.Y.

Scale: As Noted



FIGURE 4 - NWI WETLANDS

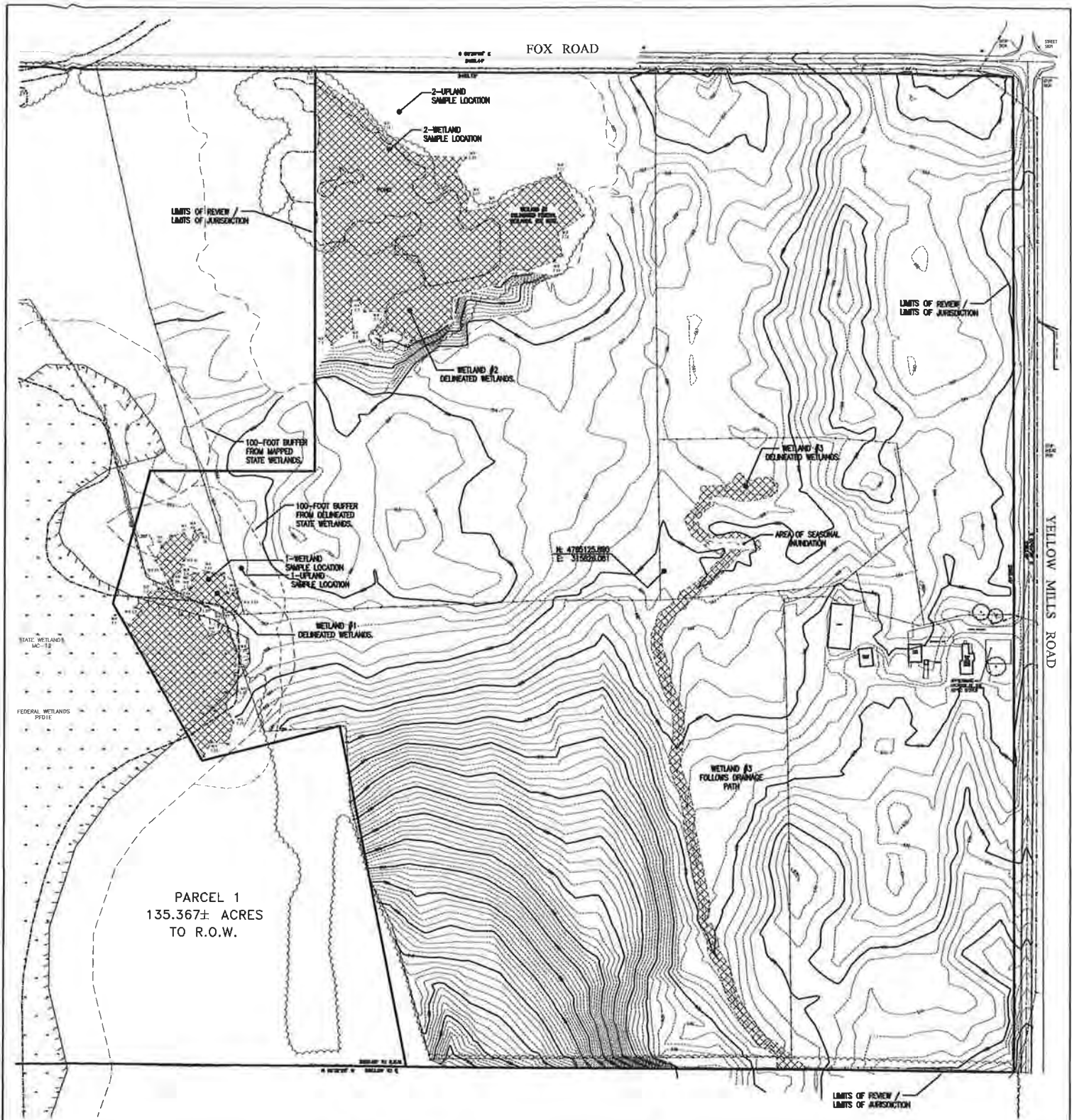
While there are no DEC regulated streams found on the property, Wetland Area 1 is a portion of DEC regulated wetland MC-12. In addition to the wetland itself, the DEC regulates 100' from the boundary of the wetland and any disturbances to the wetland or within 100' of it, may require an Article 24 permit from the DEC. The remainder of the property is actively farmed and the fields appeared to be well drained and maintained for cattle.

8.0 REFERENCES

- Cowardin, L.M., V. Carter, F.C. Gocet and E.T. Laroe. December 1979. Classification of Wetlands and Deepwater Habitats of the United States. USFWS Office of Biological Service, FWS/IOBL-79/31.
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- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, US Army Engineer Waterway Experiment Station, Vicksburg, Mississippi.
- New York State Department of Environmental Conservation. Environmental Resource Mapper. Article 24 and Article 15 Regulated Resources of Ontario County, New York. On-line Resource Guide. www.state.ny.us
- U. S. Department of Agriculture, Natural Resource Conservation Service. Web Soil Survey 3.2. Soil Survey of Ontario County, New York.

Appendix C

Wetland Delineation Map



WETLAND INFORMATION:

AREA OF REVIEW / LIMITS OF JURISDICTION: 84.75± ACRES

WETLAND TABLE:

AREA #1: 1.52± ACRES
 AREA #2: 4.26± ACRES
 AREA #3: 1.11± ACRES / 1,605 LINEAR FEET
 TOTAL: 6.89± ACRES / 1,605 LINEAR FEET

WETLAND DELINEATION:

1. PORTIONS OF THE WETLANDS DEPICTED ON THIS MAP WERE DELINEATED BY NORTH COUNTRY ECOLOGICAL SERVICES, INC. ON APRIL 30, 2018 (25 WEST RULTON STREET, GLOVERSVILLE, NY 12078).
2. THE MAPPED BOUNDARY OF THE NYDEC STATE WETLAND WERE LOCATED BASED ON THE DIGITAL MAPS PROVIDED BY THE NYSDEC ENVIRONMENTAL RESOURCE MAPPER.
3. THE MAPPED BOUNDARY OF THE FEDERAL WETLAND WERE LOCATED BASED ON THE DIGITAL MAPS PROVIDED BY THE U.S. FISH AND WILDLIFE NATIONAL WETLANDS INVENTORY MAPPER.

LEGEND:



LOCATION MAP:



ZONING: A-80
 TAX ACCOUNT No: 010 000-01-037.131
 CURRENT ADDRESS: 466 YELLOW MILLS RD
 PARCEL AREA: 135.4± ACRES

LAND OWNER:
 RODGER & CAROL SMITH
 4790 FOX ROAD
 PALMYRA, NY 14522

APPLICANT:
 DELAWARE RIVER SOLAR, LLC
 CONTACT: PETER DOLGOS
 33 IRVING PLACE
 NEW YORK NY 10003
 (646) 998-6495

A MAP SHOWING

DELAWARE RIVER SOLAR, LLC SOLAR ENERGY FACILITY

~ YELLOW MILLS ROAD ~
 SITUATE IN:
 PART OF TOWN LOTS 118 & 119, TOWN OF FARMINGTON,
 COUNTY OF ONTARIO, STATE OF NEW YORK

SCHULTZ ASSOCIATES
 ENGINEERS & LAND SURVEYORS P.C.
 129 SOUTH UNION STREET, PO BOX 89
 SPENCERPORT, NEW YORK 14559
 585-349-3750
 www.schultzassociatesPC.com

EXISTING CONDITIONS

DRAWN BY: RHH/JS/DSM	PROJECT NO: 18.023
CHECKED BY: CIA	SHEET No 1 OF 1
SCALE: 1" = 300'	DWG NO: EX-1
DATE: MAY 30, 2018	

Appendix D

***Supplemental Jurisdictional
Information***

Supplemental Information for Jurisdictional Determination Yellow Mills Road Solar

USACE Application #:	<i>Not Yet Assigned</i>
Project Name:	Yellow Mills Road Solar Farm
Current Property Owners:	Rodger and Carol Smith 4790 Fox Road Palmyra, New York 14522
Project Applicant:	Delaware River Solar, LLC c/o Mr. Peter Dolgos 33 Irving Place New York, N.Y. 10003
Environmental Consultants Wetland Delineators:	North Country Ecological Services, Inc. 25 West Fulton Street Gloversville, New York 12078 (518) 725-1007
Total Property Acreage:	135.36± acres
Limits of Jurisdiction:	84.75± acres
Site Coordinates:	43° 00' 59.27" N Latitude and 77° 15' 38.19" W Longitude
Historic Land Use:	Active Agricultural
Current Land Use:	Active Agricultural
Average Annual Rainfall:	34.0 Inches
Average Annual Snowfall:	66.0 Inches
Watershed Area:	582.4± acres
Site Location Map:	See Figure 1 in the Delineation Report – The Site is located at the southwest intersection of Yellow Mills Road and Fox Road, in the Town of Farmington, Ontario County, New York.

Soil Survey Map:	See Figure 2 in the Delineation Report - According to the USDA Natural Resources Conservation Service Web Soil Survey 3.2 for Ontario County, New York (the "Soil Survey"), a total of ten (10) different soil series were identified within the boundaries of the Site. The soil types identified include: Fine-loamy, mixed, active Typic Argiaquolls (19A); Canandaigua mucky silt loam, with 0-3% slopes (44A); Ontario fine sandy loam, with 8-35% slopes (112C & 112E); Ontario loam, with 3-25% slopes (116B, 116C & 116D); Palmyra cobbly loam, with 0-3% slopes (122A and 122B); Palmyra gravelly loam, with 3-15% slopes (126B and 126C); Phelps gravelly silt loam, with 0-3% slopes (210A); Kendaia loam, with 0-3% slopes (304A); and, Pits, gravel and sand (PG).		
DEC Wetlands Map:	See Figure 3 in the Delineation Report – Based on the review of the Article 24 Freshwater Wetland mapping that was obtained from the DEC’s Environmental Resource Mapper (ERM), a portion of a currently mapped Article 24 regulated wetlands is found within the boundaries of the Site. Specifically, portions of Fresh Water Wetland (FWW) MC-12 are contained within the property boundaries. In addition, portions of the 100 foot Adjacent Area of Freshwater Wetland MC-12 is also contained within the boundaries of the Review Area as well. The DEC mapped wetland correlates with Wetland Area 1 as identified and delineated by NCES.		
Total Aquatic Resources:	6.89± acres		
Jurisdictional Areas:	<u>Acreage</u>	<u>Central Coordinates</u>	
	Area 1 = 1.52± acres	(43° 00' 56.95" N 77° 15' 50.20"W)	
	Area 2 = 4.26± acres	(43° 01' 07.46" N 77° 15' 45.81"W)	
Potential Non-Jurisdictional Wetlands:	Area 3 = 1.11± acres	(43° 00' 55.36" N 77° 15' 36.05"W)	
Total On-Site Streams:	1,605± linear feet		
Traditional Navigable Waterways:	0.0± linear feet		

Perennial Relatively
Permanent Waterways: 0.0± linear feet

Seasonal Relatively
Permanent Waterways: 1,605± linear feet (within Wetland Area 3)

Non-Relatively
Permanent Waterways: 0.0± linear feet

Wetland Connectivity with RPW's and TNW's:

The main sources of hydrology that influence the wetlands identified on the Site appear to originate from ground water discharge, surface water runoff, and direct precipitation. Wetland Area 3 does not connect with other waters of the U.S. It flows to a natural sand and gravel deposit and the water dissipates into the ground.

The forested wetland located along the western boundary of the Review Area receives runoff from the adjacent upland ridge and from ground water seeps were noted along the toe-of-slope of the ridge. This wetland naturally drains to the northwest and is hydrologically contiguous with a larger wetland complex found to the west of the Site. This off-site wetland physically abuts a perennial stream channel that flows to the north and into other wetlands that are located to the north of Fox Road.

The open water ponds and adjacent wetland communities are primarily ground water induced as they were mined for sand and gravel and the land was excavated to the groundwater elevation. These ponded areas fluctuate in depth as the ground water table rises and lowers in conjunction with the natural hydrologic cycle. These ponds, hydrologically connect with the off-site wetlands.

The un-named stream continues to the north and eventually converges with Ganargua Creek. This stream is a third-order perennial tributary that flows east and into the Erie Canal. The Erie Canal is classified as a Traditional Navigable Waterway (TNW).

The drainage that extends through the center of the property is reliant upon direct precipitation and surface water for hydrologic input. The linear wetland extends north to south into the center of the property. Natural flow is northward from the southern property boundary to the center of the Site. Once in the center of the Site, the drainage dissipates into the soil. No surface connection between this drainage and the open water ponds found to the north were observed.

Potential Pollutants:

During the field review NCES did not identify any contaminants or visible point sources of pollution on the property.

Habitat For Species:

During the site assessments, NCES documented only a few wildlife species on the Site. The species observed are extremely common and included white-tailed deer, raccoon, wild turkey, woodchuck, coyote, cottontail rabbit, chipmunk, and various early successional field associated birds. During the delineation, no endangered, threatened or rare species of flora or fauna were observed by NCES.