Exhibit E
Employee Safety Manual
Rev 10/2021

Impact Power Solutions, Inc.
2670 Patton Road
Roseville, MN 55113
651-789-5305
651-789-4415 Fax
Ips-solar.com

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COMPANY POLICY LETTER

SAFETY AND HEALTH POLICY FOR Impact Power Solutions, Inc.

The purpose of this policy is to develop a high standard of safety throughout all operations of ***Impact Power Solutions, Inc.***

We believe that each employee has the right to derive personal satisfaction from his/her job and the prevention of occupational injury or illness is of such consequence to this belief that it will be given top priority at all times.

It is our intention here at ***Impact Power Solutions, Inc.*** to initiate and maintain complete accident prevention and safety training programs. Each individual from top management to the working person is responsible for the safety and health of those persons in their charge and coworkers around them. By accepting mutual responsibility to operate safely, we will all contribute to the wellbeing of personnel.

Jamie Borell- Chief Executive Officer

Safety Program Outline

(Impact Power Solutions, Inc.)

Element 1 - Safety Orientation: Each employee will be given a safety orientation by *Jamie Borell, CEO* or Eric Hanson, COO, when first hired. The orientation will cover the following items:

A description of the accident prevention program:

- We have a formal written accident prevention program. It consists of this safety orientation, safety meetings as described in Element 2, and Self-inspections as outlined in Element 3.
- We also have basic safety rules that all employees must follow. They are:
  - Never do anything that is unsafe in order to get the job done. If a job is unsafe, report it to your supervisor or foreman. We will find a safer way to do that job.
  - Do not remove or disable any safety device! Keep guards in place at all times on operating machinery.
  - Never operate a piece of equipment unless you have been trained and are authorized.
  - Use your personal protective equipment whenever it is required.
  - Obey all safety warning signs.
  - Working under the influence of alcohol or illegal drugs or using them at work is illegal and absolutely prohibited.
  - Do not bring firearms or explosives onto company property.
  - Horseplay, running and fighting are prohibited
  - Clean up spills immediately. Replace all tools and supplies after use. Do not allow scraps to accumulate where they will become a hazard. Good housekeeping helps prevent accidents.

How and when to report injuries, including first aid kits and their locations:

- If injured on the job, report to *Kim Bloom, HR Manager – 651-370-7544*
  - We have first aid qualified workers here but we do not have "designated" first-aiders. First aid at the job site is done on a Good Samaritan basis.
    - If first aid trained personnel are involved in a situation involving blood, they should:
    - Avoid skin contact with blood/other potentially infectious materials by letting the victim help as much as possible, and by using gloves provided in the first aid kit.
    - Remove clothing, etc. with blood on it after rendering help.
    - Wash thoroughly with soap and water to remove blood. A 10% chlorine bleach solution is good for disinfecting areas contaminated with blood (spills, etc.).
    - Report such first aid incidents within the shift to supervisors (time, date, blood presence, exposure, names of others helping).

  - **First aid kit locations at jobsites include:**

  - **First-Aid kits on the roof and in the company van.**

Temperature Extremes

Workers subjected to temperature extremes, radiant heat, humidity, or air velocity combinations which, over a period of time, may produce physical illness. Protection by use of adequate controls, methods or procedures, or use of protective clothing will be provided to employees working in these conditions. Excessive exposure to heat is referred to as heat stress and excessive exposure to cold is referred to as cold stress.

Heat related illness (HRI) and cold-induced illnesses (Hypothermia/frostbite) are well known, recognized workplace hazards. All work operations involving exposure to temperature extremes, either humidity/heat extremes or cold extremes have the potential for inducing heat stress and heat related illnesses or cold stress resulting in frostbite or hypothermia, therefore, **Impact Power Solutions, Inc.** has developed a policy to address these issues. All employees will receive training relating to the causes and effects, as well as the personal and environmental factors that may lead to temperature extreme related illnesses. Each employee will be provided with training and materials that include but are not limited to:

- The chosen method or methods to assess the risk for HRI or cold stress.
- A section covering training elements to provide employees information on what the employer will do when working in extreme weather conditions.
- A section on first aid including how to identify HRI symptoms and cold stress systems. The proper first aid application for an individual that is suffering from HRI or cold weather illness, and procedures for summoning medical aid personnel.
- A section identifying where and how adequate drinking water will be supplied.

What to do in an emergency including how to exit the workplace:

- An evacuation map for the office and each jobsite is posted. It shows the location of exits and emergency meeting location.

Fire Emergency

- A fire extinguisher or fire extinguishers will be covered as part of this orientation.
- If you discover a fire: Tell another person immediately. Call or have them call 911 and a supervisor.
- If the fire is small (such as a wastebasket fire) and there is minimal smoke, you may try to put it out with a fire extinguisher.
- If the fire grows or there is thick smoke, do not continue to fight the fire.
- Tell other employees in the area to evacuate.
- Go to the designated emergency meeting location outside the building.

Use and care of required personal protective equipment (PPE):

- Some tasks in our company require an employee to wear PPE to protect against injury.
- Employees be instructed by the onsite job foreman using the manufacturer's instructions on how to use and care for these PPE.

On-the-job training about what you need to know to perform the job safely:

- Before first assigned a task, an onsite job supervisor will demonstrate what to do along with safety instructions and required PPE.
- We have established safety rules and personal protective equipment (PPE) requirements based upon a hazard assessment for each task.
- Do not use equipment or attempt to do any of these tasks until required training and PPE.

Safety Meetings and Self-Inspections

- **Employee Safety Meetings**
- At the beginning of each job and at least weekly thereafter.
- Review of any walk-around safety inspections conducted since the last safety meeting.
- Review of any citation to assist in correction of hazards.
- Evaluation of any accident investigations conducted since the last meetings to determine if the cause of the unsafe acts or unsafe conditions involved were properly identified and corrected.
- Document attendance and other subjects discussed.

Safety Disciplinary Policy

Impact Power Solutions, Inc. believes that a safety and health Accident Prevention Program is unenforceable without some type of disciplinary policy. Our company believes that in order to maintain a safe and healthful workplace, the employees must be cognizant and aware of all company, State, and Federal safety and health regulations as they apply to the specific job duties required. The following disciplinary policy is in effect and will be applied to all safety and health violations.

The following steps will be followed unless the seriousness of the violation would dictate going directly to Step 2 or Step 3.

1. A first-time violation will be discussed orally between company supervision and the employee. This will be done as soon as possible.

2. A second-time offense will be followed up in written form and a copy of this written documentation will be entered into the employee's personnel folder. Time off without pay (3-day minimum).

3. A third-time violation will result in termination.

If an employee of this company knowingly and willingly violates any of the safety rules or procedures or puts his/her self in an imminent danger situation, the employee will be immediately discharged.

General Safe Work Practices for Construction

Personal Protective Equipment

- Suitable clothing must be worn; long pants, at least short-sleeved shirts and adequate foot wear.

- Hard hats, safety glasses or goggles must be used when a potential hazard exists. (Safety glasses must be ANSI Z87 or Z87.1 approved).

- Hearing protection (earplugs or earmuffs) must be used in high noise areas.

- Gloves (as needed).

Housekeeping

- Always store materials in a safe manner. Tie down or support materials if necessary to prevent falling, rolling, or shifting.
- Shavings, dust scraps, oil or grease should not be allowed to accumulate. Good housekeeping is a part of the job.
- Trash piles must be removed as soon as possible. Trash is a safety and fire hazard.
- Immediately remove all loose materials from stairs, walkways, ramps, platforms, etc.
- Do not block aisles, traffic lanes, fire exits, gangways, or stairs.

Other general safe work practices

- Avoid shortcuts – use ramps, stairs, walkways, ladders, etc.
- Do not remove, deface or destroy any warning, danger sign, or barricade, or interfere with any form of accident prevention device or practice provided for your use or that is being used by other workers.
- Get help with heavy or bulky materials to avoid injury to yourself or damage to material.
- Do not use tools with split, broken, or loose handles, or burred or mushroomed heads. Keep cutting tools sharp and carry all tools in a container.
- Know the correct use of hand and power tools. Use the right tool for the job.

Fall protection

- Fall hazards of 10 feet or more will be outlined and addressed in our jobsite fall protection work plan.
- Fall hazards of less than 10 feet will be protected by covers, guardrails or other methods and will be addressed in our self-inspections and safety meetings.
- Standard guardrails must be erected around all floor openings and open-sided surfaces.

Electrical

- Ground-fault circuit interrupters (GFCI) will be used whenever possible.
- Electric cords will be inspected daily and repaired or replaced as necessary.
- Do not operate any power tool or equipment unless trained in its operation.
- Use tools only for their designed purpose.

Ladder safety

- Inspect before use for physical defects.
- Ladders are not to be painted except for numbering purposes.
- Do not use ladders for skids, braces, workbenches, or any purpose other than climbing.
- When you are ascending or descending a ladder, do not carry objects that will prevent you from grasping the ladder with both hands.
- Always face the ladder when ascending and descending.
- Always maintain 3 points of contact with the ladder.
- If a ladder must be placed over a doorway, barricade the door to prevent its use and post a warning sign.
- Only one person is allowed on a ladder at a time.
- Do not jump from a ladder when descending.
- All joints between steps, rungs, and side rails must be tight.
- Safety feet must be in good working order and in place.
- Rungs must be free of grease and/or oil.

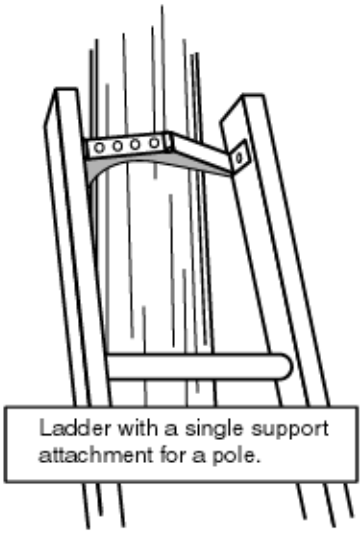
Stepladders

- Do not place tools or materials on the steps or platform of a stepladder

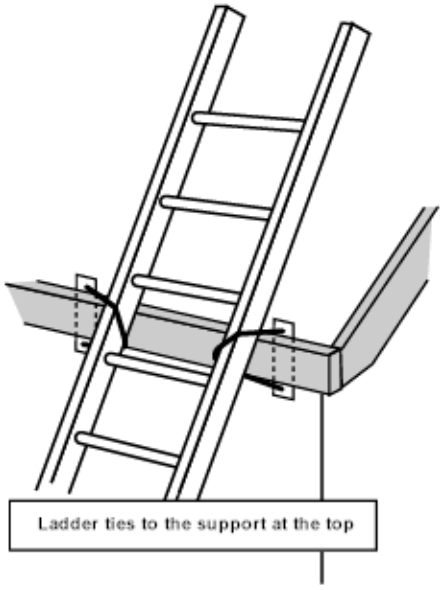
- Do not use the top two steps of a stepladder as a step or stand.
- Always level all four feet and lock spreaders in place.
- Do not use a stepladder as a straight ladder.

Straight type or extension ladders

- All straight or extension ladders must extend at least three feet beyond the supporting object when used as an access to an elevated work area.
- After raising the extension portion of a two or more-stage ladder to the desired height, check to ensure that the safety dogs or latches are engaged.
- All extension or straight ladders must be secured or tied off at the top.

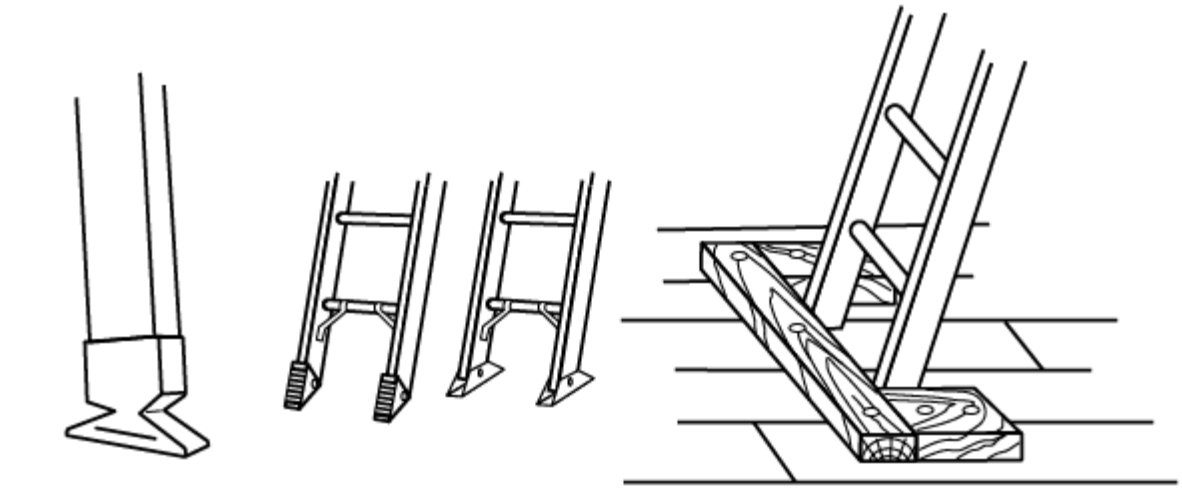


Ladder with a single support attachment for a pole.



Ladder ties to the support at the top

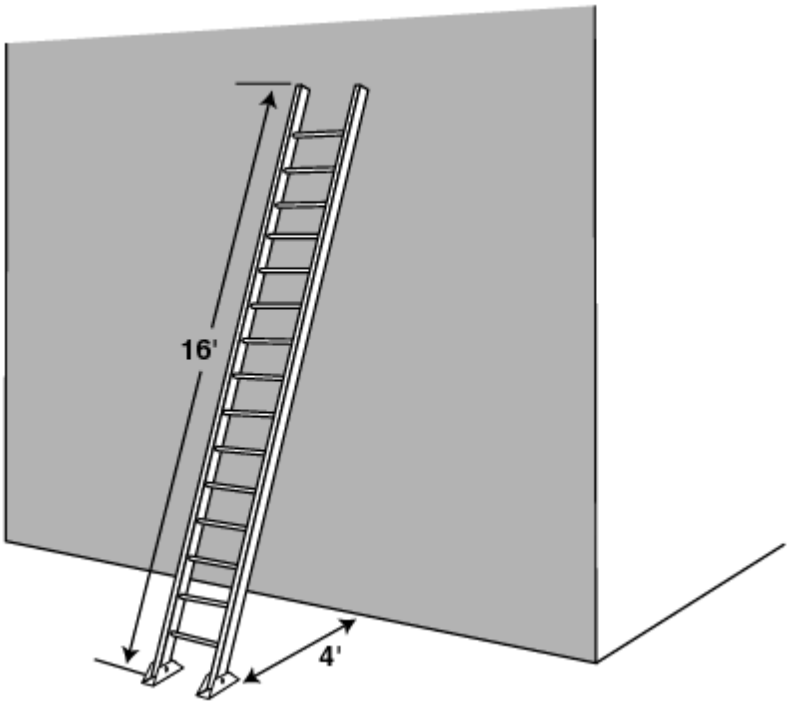
- All ladders must be equipped with safety (non-skid) feet.



Rubber Safety Feet Spikes Cleats Nailed to the Floor

Ladders with supports on the bottom.

- Portable ladders must be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is about one-quarter of the working length of the ladder.

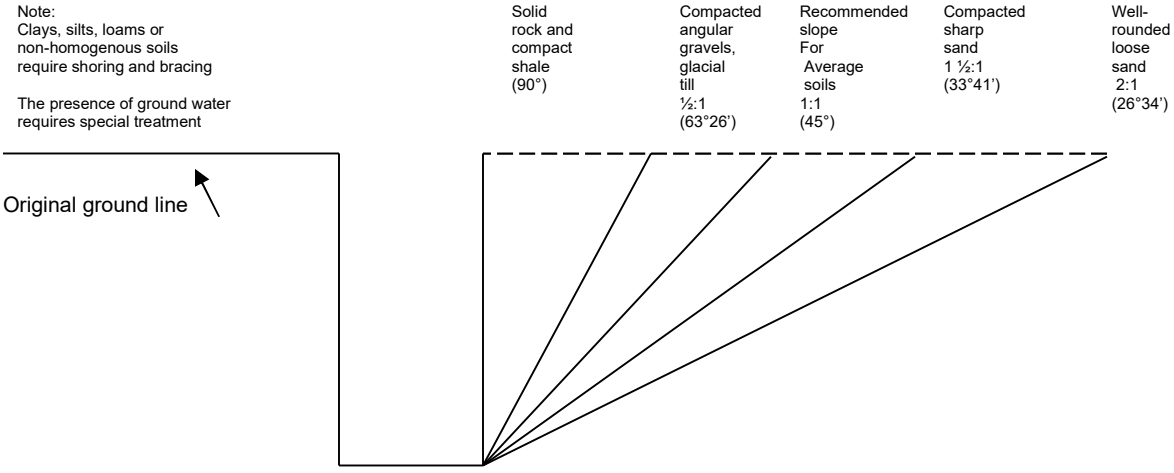


Trenching and Excavating

1. The determination of the angle of repose and design of the supporting system shall be based on careful evaluation of pertinent factors, such as:

    a. Depth and/or cut/soils classification
    b. Possible variation in water content of the material while excavation is open
    c. Anticipated changes in materials from exposure to air, sun, water, or freezing
    d. Loading imposed by structures, equipment, or overlaying or stored material
    e. Vibration from equipment, blasting, traffic, or other sources

Approximate Angle of Repose
For sloping of sides of excavations



2. Walkways or bridges with standard railings **must be provided** when employees or equipment are required to cross over excavations.

3. The walls and faces of all excavations in which employees are exposed to danger from moving ground **must be guarded** by a shoring system, sloping of the ground, or some other equivalent means.

4. **No person must be permitted** under loads handled by power shovels, derricks, or hoists.

5. **All employees must be protected** with personal protective equipment for the protection of the head, eyes, respiratory system, hands, feet, and other parts of the body.

Scaffold Safety Rules

1. General

   Before starting work on a scaffold, inspect it for the following:

   a. Are guardrails, toe boards, and planking in place and secure?

   b. Are locking pins at each joint in place?

   c. Are all wheels on moveable scaffolds locked?

2. Do not attempt to gain access to a scaffold by climbing on it (unless it is specifically designed for climbing – always use a ladder.

3. Scaffolds and their components must be capable of supporting four times the maximum intended load.

4. Any scaffold, including accessories such as braces, brackets, trusses, screw legs, ladders, etc., damaged or weakened in any way, must be immediately repaired or replaced.

5. Scaffold planks must extend over their end supports not less than 6 inches or more than 12 inches, unless otherwise specifically required.

6. Scaffold platforms must be at least 18 inches wide unless otherwise specifically required or exempted.

7. Where persons are required to work or pass under the scaffold, scaffolds shall be provided with a screen between the toe board and guardrail, extending along the entire opening. The screen must be made of No. 18 gauge U.S. Standard wire, ½ inch mesh or equivalent protection.

8. All scaffolds must be erected level and plumb, and on a solid footing.

9. Do not change or remove scaffold members unless authorized.

10. Do not allow workers to ride on a rolling scaffold when it is being moved. Remove or secure all materials and tools on deck before moving.

11. Do not alter any scaffold member by welding, burning, cutting, drilling, or bending.

Motorized vehicles and equipment

1. Do not ride on motorized vehicles or equipment unless a proper seat is provided for each rider.
2. Always be seated when riding authorized vehicles (unless they are designed for standing).
3. Do not operate any motorized vehicle or equipment unless you are specifically authorized to do so by your supervisor.
4. Always use seat belts in the correct manner.
5. Obey all speed limits and other traffic regulations.
6. Always be aware of pedestrians and give them the right-of-way.
7. Always inspect your vehicle or equipment before and after daily use.
8. Never mount or dismount any vehicles or equipment while they are still in motion.
9. Do not dismount any vehicle without first shutting down the engine, setting the parking brake and securing the load.
10. Do not allow other persons to ride the hook or block, dump box, forks, bucket or shovel of any equipment.
11. Each operator must be knowledgeable of all hand signals and obey them.
12. Each operator is responsible for the stability and security of his/her load.

Job Orientation Guide

Company: **Impact Power Solutions** Employee:
Trainer: Hire Date:
Date Position:

This checklist is a guideline for conducting employee safety orientations for employees new to *(Customize by adding the name of your company)*. Once completed and signed by both supervisor and employee, it serves as documentation that orientation has taken place.

		Date	Initials
1.	Explain the company safety program, including:		
	Orientation	_____	_____
	On-the-job training	_____	_____
	Safety meetings	_____	_____
	Accident investigation	_____	_____
	Disciplinary action	_____	_____
2.	Use and care of personal protective equipment, (Hard hat, fall protection, eye protection, etc.)	_____	_____
3.	Line of communication and responsibility for immediately reporting accidents.		
	A. When to report an injury	_____	_____
	B. How to report an injury	_____	_____
	C. Who to report an injury to	_____	_____
	D. Filling out accident report forms	_____	_____
4.	General overview of operation, procedures, methods and hazards as they relate to the specific job	_____	_____
5.	Pertinent safety rules of the company and WISHA	_____	_____
6.	First aid supplies, equipment and training		
	A. Obtaining treatment	_____	_____
	B. Location of Facilities	_____	_____
	C. Location and names of First-aid trained personnel	_____	_____
7.	Emergency plan		
	A. Exit location and evacuation routes	_____	_____
	B. Use of firefighting equipment (extinguishers, hose)	_____	_____
	C. Specific procedures (medical, chemical, etc.)	_____	_____
8.	Vehicle safety	_____	_____
9.	Personal work habits		
	A. Serious consequences of horseplay	_____	_____
	B. Fighting	_____	_____
	C. Inattention	_____	_____
	D. Smoking policy	_____	_____
	E. Good housekeeping practices	_____	_____
	F. Proper lifting techniques	_____	_____

NOTE TO EMPLOYEES: Do not sign unless ALL items are covered and ALL questions are satisfactorily answered.

The signatures below document that the appropriate elements have been discussed to the satisfaction of both parties, and that both the supervisor and the employee accept responsibility for maintaining a safe and healthful work environment.

Date: _____ Supervisor's Signature: _____

Date: _____ Employee's Signature: _____

JOB SAFETY ANALYSIS WORKSHEET

TITLE OF JOB OPERATION: _____ Date: _____

Title of person who does job: _____

Employee observed: _____ Location: _____

Analysis made by: _____ Analysis approved by: _____

Sequence of basic job steps	Potential accidents or hazards	Recommended safe job procedures

Personal protective equipment required for this position:

Other hazards that may develop and will be addressed in our safety meetings:

FALL PROTECTION WORK PLAN

COMPANY:_____ DATE: _____
SITE ADDRESS:_____

REPORT PREPARED BY:_____ TITLE:_____

1) SPECIFIC WORK AREA:_____
2) ACTIVITIES:_____
3) IDENTIFY ALL FALL HAZARDS IN THIS AREA:_____

_____
_____
_____

4) CHECK THE METHOD OF FALL RESTRAINT OR ARREST TO BE UTILIZED:

慌 STANDARD GUARDRAIL	慌 FULL BODY HARNESS	慌 SCISSOR LIFT
慌 SECURED TO EXISTING STRUCTURE	慌 TIE-OFF POINT CAPABLE OF 5000 LB/PERSON	慌 BOOM LIFT
慌 SHOCK ABSORBING LANYARD	慌 RETRACTABLE LANYARD	慌 FORKLIFT BASKET
慌 SCAFFOLD W/GUARDRAIL	慌 OTHER (SPECIFY)	
慌 WARNING LINE	慌 WARNING LINE & SAFETY MONITOR (See WAC 296-155-24521)	

5) DESCRIBE PROCEDURES FOR ASSEMBLY, MAINTENANCE, INSPECTION AND DIASSEMPLY OF THE SYSTEM (IF ADDITIONAL SPACE IS REQUIRED, COMPLETE ON THE BACK OR THIS FORM OR ATTACH A SEPARATE SHEET.)

_____
_____
_____
_____

6) DESCRIBE PROCEDURES FOR HANDLING AND SECURING TOOLS, EQUIPMENT AND MATERIALS AND FOR PROVIDING OVERHEAD PROTECTION FOR WORKERS (IF ADDITIONAL SPACE IS REQUIRED, COMPLETE ON THE BACK OF THIS FORM OR SEPARATE SHEET):

_____
_____
_____
_____

7) DESCRIBE THE METHOD FOR PROMPT, SAFE REMOVAL OF INJURED WORKER(S): (Calling 911 is not sufficient as a means of rescue)

_____
_____
_____
_____

8) I CERTIFY THAT I HAVE RECEIVED FALL PROTECTION ORIENTATION INCLUDING THE MATERIAL COVERED IN THIS FALL PROTECTION WORK PLAN.

EMPLOYEE NAME:	DATE:
_____	_____
_____	_____
_____	_____

CREW LEADER SAFETY MEETING

Firm Name		Address
Date	Time	# of employees
Subject discussed		

Minutes:

Crew Leader Comments:

Walk-around Safety Inspection

- ☐ **Power lines**: Minimum 10' clearance / insulate – de-energize, under 50 kw; over 50 kw – refer to Chapter 155
- ☐ **Trench/excavation**: Any trench four feet or must be sloped, shored or braced
- ☐ **Guardrails**: Any opening four feet or more above ground level must be guarded
- ☐ **Standard guardrail**: Top rail = 39" to 45" above working surface. Midrail = halfway between top rail and floor. Toe board = 4".
- ☐ **Scaffold**: Fully planked
- ☐ **Scaffold**: Fall protection provided if fall hazards over 10 feet exist
- ☐ **Stairs**: Four or more risers must have handrails
- ☐ **Fall protection**: Any exposure to fall hazards of 10' or greater must be eliminated by the use of safety harness/belt, lanyard or lifeline, horizontal lines, or cantenary lines. Positive fall restraint/protection must be utilized at all times. Two lanyards may be necessary at the beam/upright traverse points. No exposure at any time is allowed.
- ☐ **Fall protection work plan**: Job specific, in writing; available on-site for all fall hazards above 10'.
- ☐ **Open belts and pulleys, chains and sprockets, points of operation** must be guarded to prevent accidental contact. Air compressors and electric motor pulleys are the most common hazards.
- ☐ **Radial saws**: Cutting head must return easily to start position when released; blade must not extend past the edge of the worktable; off/on switch should be at front of operator's position.
- ☐ **Table saws**: Upper hood guard; anti-kickback, push stick, belt and pulley guarded
- ☐ **Circular saws**: Blade guard instantly returns to covering position
- ☐ **Never wedge or pin a guard.**
- ☐ **Ladders**: Extended 36" above landing and secured to prevent displacement
- ☐ **Floor holes/openings**: Covered and secured; be sure no tripping hazards in the area.
- ☐ **Extension cords/electric power tools**: Marked/covered by Assured Grounding Program
- ☐ **Clothing**: Minimum of short sleeve shirts, long pants, and substantial footwear; no recreational shoes
- ☐ **Hard hats**: readily accessible at all times; worn when overhead hazard exists
- ☐ **Oxygen/acetylene storage areas**: Cylinders chained and separated
- ☐ **Personal protective equipment**: Head, eye, ear, respiratory, and leg protection – high visibility vests when required
- ☐ **Housekeeping**: Workers are responsible for their own area of exposure
- ☐ **First aid/fire extinguishers**: Available and readily accessible

Other hazards observed: _____

_____

_____

_____

_____

_____ _____

Supervisor's signature Date

_____ _____

Employee's signature Date

Equipment Safety Inspection Checklist

Date: _____

Project: _____

Equipment: _____

All guards and fenders	_____	OK	_____	Needs Repair
Brakes	_____	OK	_____	Needs Repair
Lights – front, rear, side, dash	_____	OK	_____	Needs Repair
Back-up alarm – horn	_____	OK	_____	Needs Repair
Ladders, stairs, hand holds	_____	OK	_____	Needs Repair
ROPS (Roll-over protection)	_____	OK	_____	Needs Repair
Seat belts	_____	OK	_____	Needs Repair
Fire extinguisher	_____	OK	_____	Needs Repair
Glass	_____	OK	_____	Needs Repair
Tires	_____	OK	_____	Needs Repair
Electrical cords	_____	OK	_____	Needs Repair
Ground fault circuit interrupters	_____	OK	_____	Needs Repair
Electrical hand tools	_____	OK	_____	Needs Repair
Powder actuated tools	_____	OK	_____	Needs Repair
Condition of pneumatic hand tools	_____	OK	_____	Needs Repair

Other Items Checked:

Oil level and leaks	___	OK	___	Needs Repair	___	Add	___	Change
Hydraulic oil level and leaks	___	OK	___	Needs Repair	___	Add	___	Change
Anti-freeze level and leaks	___	OK	___	Needs Repair	___	Add	___	Change
Fuel level and leaks	___	OK	___	Needs Repair	___	Add	___	Change
First aid kit	___	OK	___	Needs Repair	___	Add	___	Change

Repaired by: _____

Checked by: _____

IMPACT POWER SOLUTIONS

Building Better Energy.

Jobsite Inspection

Employer Impact Power Solutions, Inc.__ **Report Number: _____**

Inspector's name: _____ **Date of inspection: _____**

		YES	NO	N/A
FALL PROTECTION				
Is fall protection used when exposed to 10' fall hazard?				
Are fall protection anchorage points installed properly?				
Is fall protection work plan available and implemented?				
LADDERS / STAIRWAYS				
Stairway installed before 2nd floor studs raised?				
Guardrail and handrail on stairways with 4 or more risers?				
Ladders extend 3 ft beyond upper landing?				
Ladders used for purpose they were designed for?				
Top of ladder used as step?				
Defective ladder marked and removed from service?				
Ladder/stairway safety training program implemented?				
GUARDING				
Hand-held power circular saws properly guarded?				
Table saws properly guarded?				
Radial saws properly guarded?				
Power miter saws properly guarded?				
Pneumatic nailer/stapler have safety device on muzzle?				
STRUCTURE CONSTRUCTION				
Walls braced to prevent collapse?				
Scaffolds fully planked and guarded?				
Floor openings guarded (12" or more)?				
Wall openings guarded by standard railing or equivalent?				
Open sided surfaces guarded by standard railing or equivalent?				
Stair or ramp provided for break in elevation >19""?				
Ramp used for access is at least 18" wide?				
PERSONAL PROTECTIVE EQUIPMENT (PPE)				
Individual hard hats available on site?				
Hard hats used when exposed to flying or falling objects?				
Eye protection worn?				
Suitable clothing -short sleeved shirt and long pants worn?				
Proper footwear worn?				
Is leg protection used during chainsaw usage?				
ELECTRICAL				
Extension cords with ground pin?				
Extension cords free of improper splices?				

Multi-outlet J-Box are waterproof?				
GFCI or assured grounding program?				
RELATED PROGRAM REQUIREMENTS				
Is a Crew Leader-Crew Safety meeting held at beginning of job & weekly thereafter?				
Are safety meetings tailored to the operations?				
Are safety meetings documented?				
Are safety walk-around inspections conducted at the beginning of the job and weekly thereafter?				
Are walk-around inspections documented and available for inspection?				
Do employees work with hazardous chemicals/materials?				
Is there a hazard communication program that is written and implemented?				
FIRST-AID				
Are first-aid supplies available on-site?				
Is there a first-aid trained person or persons on site?				
Are crew leaders and supervisors first aid trained?				
HOUSEKEEPING				
Is proper housekeeping maintained at the jobsite?				
SANITATION				
Adequate supply of potable water provided?				
Toilets provided and maintained at jobsite?				

VERSION 2.0a

VIRGINIA POLLINATOR-SMART/ BIRD HABITAT SCORECARD

Proposed or Retrofit Solar Sites

A successful Pollinator-Smart habitat will provide benefits to the environment and the solar site owner/operator in a number of key areas, including:

1. Pollinator services,
2. Biodiversity and habitat enhancement,
3. Carbon sequestration,
4. Erosion and sediment control, and;
5. Reduced vegetation maintenance over time.

The Virginia Solar Site Pollinator/Bird Habitat Scorecard is used to establish target conditions and/or evaluate the effectiveness of Pollinator-Smart measures once implemented. If the score thresholds are met, a site is deemed Pollinator-Smart provided the activities described herein are implemented **over at least 10% of the project area**.

DEFINITIONS

Open Area: Any area beyond the panel zone, within the property boundary.

Panel Zone: The area underneath the solar arrays, including inter-row spacing.

Project Area: Open Area + Panel Zone + Screening Zone.

Screening Zone: A vegetated visual barrier.

Solar Native Plant Finder: The Virginia Solar Site Native Plant Finder (**link**), an online research tool developed by the DCR Natural Heritage Program.

Virginia Pollinator-Smart Seed Mix: A seed mix that includes native local ecotypes and conforms with the Solar Native Plant Finder.

RESOURCES

Virginia Solar Site Native Plant Finder

Virginia's Pollinator-Smart Solar Portal

Comprehensive Manual

Monitoring Plan

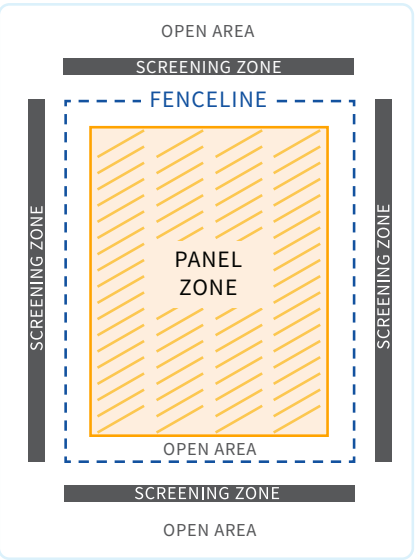
INSTRUCTIONS

For detailed instructions on how to implement the scorecard, please refer to the **Comprehensive Manual**.

1. All questions and fields must be filled out.
2. Submit your scorecard and associated documents via email to: **pollinator.smart@dcr.virginia.gov**
3. A Proposed or Retrofit Solar Site Scorecard should be submitted during the initial planting year. To remain certified, an Established Sites Scorecard should be submitted in years 2, 4, 6, 8, and 10. A long-term management plan should also be submitted with the Established Sites Scorecard during year 10. If all criteria are met during year 10, the site will be considered pollinator-friendly for the life of the project.

ATTACHMENTS PROVIDED

- ☐ Project Vicinity Map/Planting Plan
- ☐ Seed Mix and Seeding Rates
- ☐ Vegetation Management Plan
- ☐ Vegetation Monitoring Plan
- ☐ Invasive Species Mapping
- ☐ Research Collaboration Documentation
- ☐ Site Photos



PROJECT DETAILS & CONTACT INFORMATION

DATE: _____

SITE OWNER OR DESIGNEE:

_____

PROJECT ADDRESS:

_____

_____

_____

PROJECT SIZE (ACS AND MW):

_____

POINT OF CONTACT:

_____

_____

EMAIL/PHONE:

_____

_____

VEGETATION CONSULTANT:

_____

SEED SUPPLIER (IF KNOWN):

_____

TARGET SEEDING DATE:

_____

FINAL SCORE

0

Certified VA Pollinator-Smart: 80-99 pts

Gold Certified VA Pollinator-Smart: 100+ pts

CLEAR FORM

For questions, comments, and feedback, please contact pollinator.smart@dcr.virginia.gov

VERSION 2.0a

VIRGINIA POLLINATOR-SMART/ BIRD HABITAT SCORECARD

Proposed or Retrofit Solar Sites

VEGETATION

PANEL ZONE

1. Percent of panel zone to be planted with a seed mix of native species developed using the Solar Native Plant Finder (**max 15 pts**)
   - ◯ <5 percent (0)
   - ◯ 5-25 percent (5)
   - ◯ 26-50 percent (8)
   - ◯ 51-75 percent (10)
   - ◯ greater than 75 percent (15)
2. Planned native grass diversity in panel zone (**max 5 pts**)
   - ◯ 1 or fewer species (0)
   - ◯ 2 species (2)
   - ◯ 3 or more species (5)

OPEN AREA

3. Percent of open area to be planted with Virginia Pollinator-Smart Seed Mix developed using the Solar Plant Finder (**max 15 pts**)
   - ◯ <5 percent (0)
   - ◯ 5-25 percent (5)
   - ◯ 26-50 percent (8)
   - ◯ 51-75 percent (10)
   - ◯ greater than 75 percent (15)
4. Total *number* of Solar Native Plant Finder species in the seed mix to be used within the open area (**max 15 pts**)
   - ◯ 4 or fewer species (0)
   - ◯ 5-9 species (5)
   - ◯ 10-14 species (8)
   - ◯ 15-19 species (10)
   - ◯ 20 or greater species (15)
5. For the seed mix to be used within the open area, seasons with at least three (3) Solar Native Plant Finder species in flower (**max 10 pts**) **[CHECK ALL THAT APPLY]**
   - ☐ Spring (March-May) (2)
   - ☐ Early Summer (June-July 15) (2)
   - ☐ Late Summer (July 15-August) (4)
   - ☐ Fall (September-November) (2)

SCREENING ZONE

6. Within the screening zone, percent to be planted with Solar Native Plant Finder species (**max 15 pts**)
   - ◯ <5 percent (0)
   - ◯ 5-25 percent (5)
   - ◯ 26-50 percent (8)
   - ◯ 51-75 percent (10)
   - ◯ greater than 75 percent (15)

SITE MANAGEMENT

PLANNING AND MAINTENANCE PRACTICES

7. **[CHECK ALL THAT APPLY]** (**max 25 pts**)
   - ☐ Site has an Approved[1] Vegetation Management Plan (15)
   - ☐ Vegetation monitoring[2] is proposed annually (5)
   - ☐ Invasive species mapping and control proposed annually (5)
   - ☐ Planned on-site use of insecticide or pre-planting seed/plant insecticide treatment (excluding buildings/electrical boxes, etc.) (-40)

INVASIVE SPECIES RISK

8. **[CHECK ALL THAT APPLY]** (**-20 pts possible**)
   - ☐ Combined cover of tall fescue across all three zones planned to be >10 percent (-10)
   - ☐ Combined cover of species on DNH Virginia Invasive Plant Species List across all three zones planned to be >10 percent (-10)

PUBLIC ENGAGEMENT AND RESEARCH

9. **[CHECK ALL THAT APPLY]** (**max 10 pts**)
   - ☐ 2 or more legible and accessible signs identifying pollinator and bird habitat proposed on-site (2.5)
   - ☐ Accessible bench and educational display proposed on-site (2.5)
   - ☐ Research collaboration with college, university, school, or research institute (5)

POLLINATOR/BIRD NESTING HABITAT ON-SITE

10. **[CHECK ALL FEATURES THAT ARE PRESENT ON-SITE]** (**20+ pts**)
    - ☐ Existing bare ground patches one square foot or larger, with undisturbed and well-drained soil (2)
    - ☐ Preserved upland forested communities or forest edge habitat that includes native flowering shrubs and young trees (8)
    - ☐ Cavity nesting sites (e.g. dead trees, snags, fallen logs, shrubs, plants with pithy-stemmed twigs such as native sumacs, roses, blackberries) (2)
    - ☐ Created bee/bird nesting habitat features (e.g., boxes, tunnels, etc.) (0.2 pts per feature)[3] # features: **x 0.2 = 0 pts.**
    - ☐ Preserved wetland communities/presence of clean water source(s) (8)

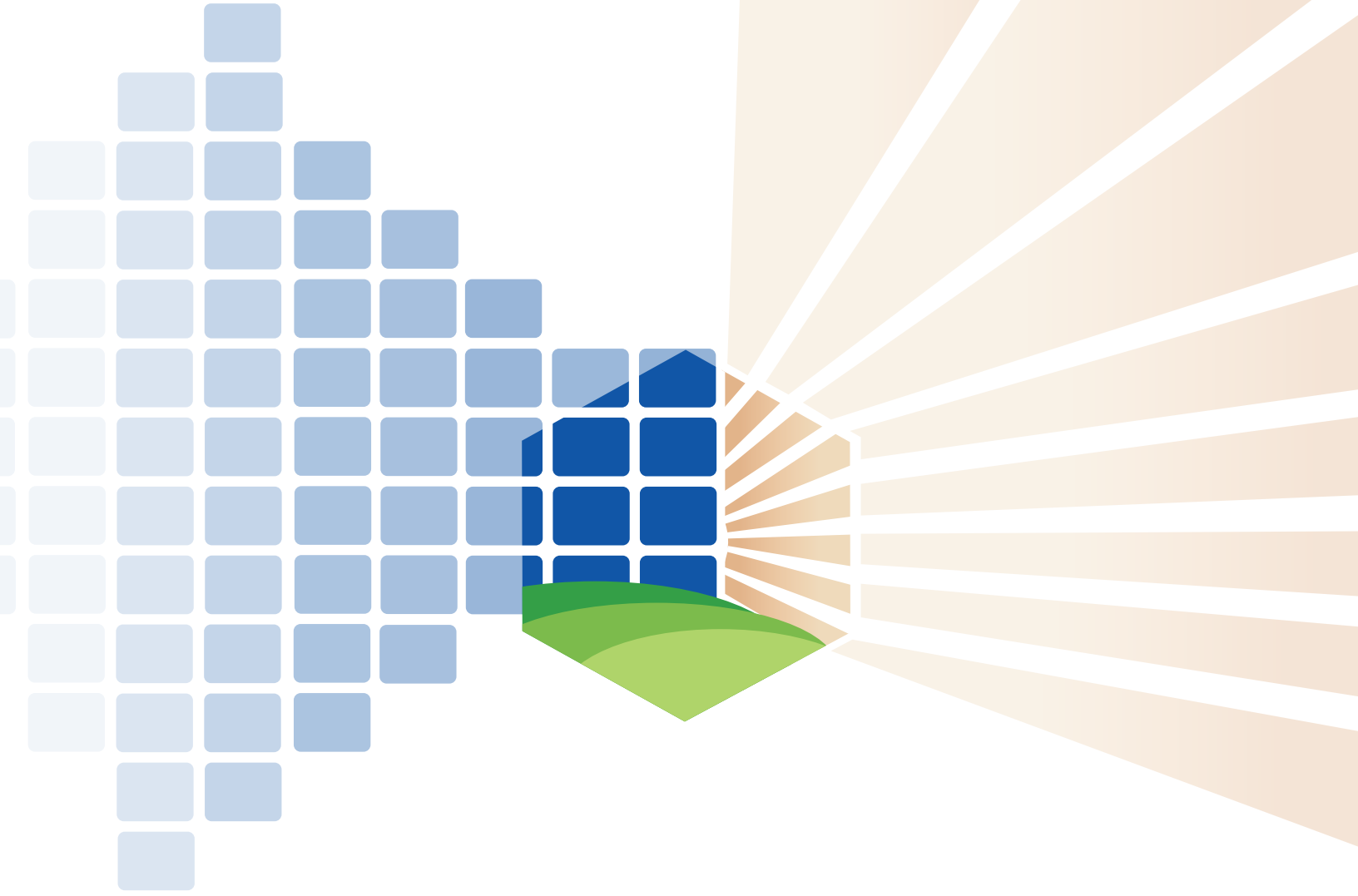
[1] See guidelines for development of a Vegetation Management Plan here. Vegetation Management Plans for solar sites are approved by the Virginia Pollinator-Smart Solar Industry Review Board. Vegetation Management Plans may be submitted here.

[2] Vegetation monitoring should be conducted in accordance with the methods described here. For the purposes of compliance, monitoring is only required every two years; therefore, annual monitoring is incentivized with additional points in the Scorecard.

[3] Up to a maximum of 10 points (50 features)

VERSION 1.0 | OCTOBER 2019

Virginia Pollinator-Smart Solar Industry



POLLINATOR–SMART

Monitoring Plan

DCR Virginia Department of Conservation & Recreation

DEQ Virginia Department of Environmental Quality

On-site Monitoring Guidance for Pollinator-Smart/Bird Habitat Solar Facilities in Virginia

At a Glance...

This document outlines the recommended monitoring procedures for assessing “Pollinator-Smart” solar facilities in Virginia.

A Pollinator-Smart solar facility is one that meets performance standards established in the Virginia Pollinator-Smart Solar Industry program (“Pollinator-Smart program”), with joint oversight from the Virginia Department of Environmental Quality (DEQ) and the Virginia Department of Conservation and Recreation (DCR).

Performance standards are given in the most current version of the Established Solar Sites Virginia Pollinator Smart/Bird Habitat Scorecard, (“Scorecard”), and monitoring data will be collected on established solar sites to determine continued compliance with Pollinator-Smart performance standards. This includes sites that were either: 1) established as approved Pollinator-Smart solar facilities when constructed; or, 2) retrofitted as approved Pollinator-Smart solar facilities. The approval process is outlined in the **Virginia Pollinator-Smart Solar Industry Comprehensive Manual**. In all cases, for new sites or retrofits the mode of entry for the Pollinator-Smart program is the **Proposed or Retrofit Solar Sites Scorecard**; likewise, for established sites, the test for continued compliance with the Pollinator-Smart program is the **Established Solar Sites Scorecard**.

At a minimum, the following data will need to be collected on established sites in order to complete the Established Solar Sites Scorecard:

1. **Vegetation Monitoring**
    a. Identity, species richness, percent cover, and reproductive phenology of plant species from vegetation sampling plots within each of the planting zones on-site
        ii. Panel Zone
        iii. Open Area
        iv. Screening Area
2. **Site Management Monitoring**
    a. Documentation of management activities and planning-level documents completed to promote Pollinator-Smart habitats on-site
        ii. Planning and Maintenance
            1. Vegetation Management Plan
            2. Annual vegetation monitoring
            3. Annual invasive species mapping and control efforts
            4. Banned use of insecticides on-site
        iii. Invasive Species Cover
            1. Percent of site covered with tall fescue
            2. Percent of site covered with listed invasive species
        iv. Public Engagement and Research
            1. Signage, educational displays and benches
            2. Research collaboration with institution
        v. Pollinator Habitat Features
            1. Ground-nesting bee habitat
            2. Edge habitat in with flowering native species
            3. Cavity nesting sites
            4. Constructed pollinator/bird nesting habitat
            5. On-site wetlands or water source(s)

A site that continues to meet the standards for a Pollinator-Smart solar facility in Virginia will be vegetated with a predominance of native species listed on the Solar Site Native Plant Finder and will have adequate documentation of site management activities focused on pollinator habitat.

Reporting requirements are minimal and include the following baseline components: executive summary; site map; vegetation data tables; representative photographs; and, site management documentation.

Table of Contents

Definitions

The Pollinator-Smart program employs a set of terms, methods, and plans that are specific to the solar industry in Virginia. A detailed list of definitions is provided in the Comprehensive Manual; however, there are certain terms used throughout this Monitoring Plan that merit definition because of their unique relevance to the Scorecard. For convenience, definitions for these terms are provided below:

Open Area: Any area beyond the panel zone, within the property boundary.

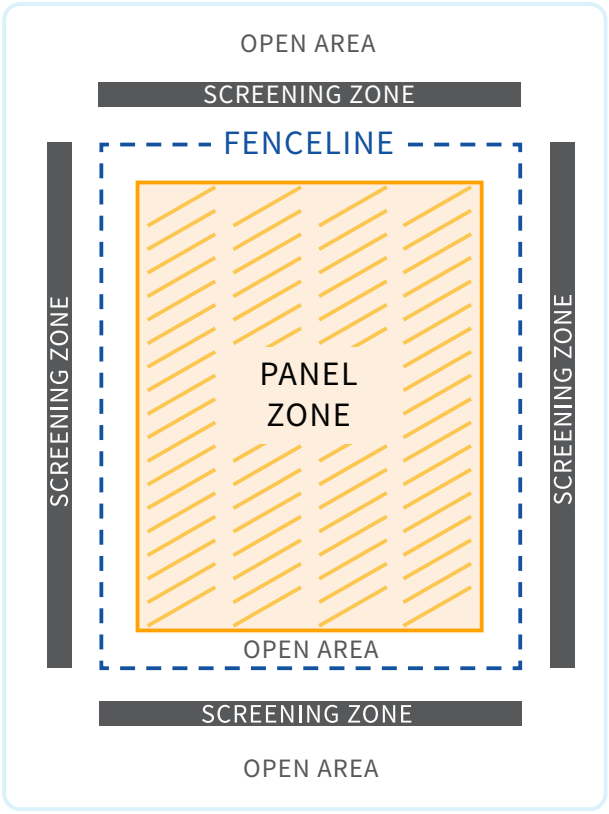
Panel Zone: The area underneath the solar arrays, including inter-row spacing.

Screening Zone: A vegetated visual barrier.

Qualified Professional: A person trained in plant identification, vegetation sampling, and vegetation assessment techniques.

Solar Native Plant Finder: The Virginia Solar Site Native Plant Finder, an online research tool developed by the DCR Natural Heritage Program (link).

Used by Pollinators: Plant species with a "pollinator" designation on the Virginia Solar Site Native Plant Finder.



Introduction

The Virginia Department of Environmental Quality (DEQ) and Department of Conservation and Recreation (DCR) have developed an ecologically-responsible program to encourage pollinator-smart solar energy developments throughout the Commonwealth of Virginia. The program is referred to as the **Virginia Pollinator-Smart Solar Industry** (paraphrased hereafter as "Pollinator-Smart program"), and its overall motivation and purpose are described in detail in the Virginia Pollinator-Smart Solar Industry Comprehensive Manual ("Comprehensive Manual"). For a more concise description, readers can visit the program website at Virginia's Pollinator-Smart Solar Portal.

In Virginia, a "Pollinator-Smart" solar facility is one that meets the goals and objectives of the Pollinator-Smart program. This determination is made through completion of the Virginia Pollinator Smart/Bird Habitat Scorecard ("**Scorecard**"), and the Scorecard also serves as the program's mode-of-entry for solar facilities. Details surrounding the Scorecard concept, including its inception and use in the solar industry, the science behind its development, the states that pioneered its use and functionality, and Virginia's approach to the concept, are provided in the Comprehensive Manual.

Virginia has established two versions of the Scorecard to be used in the following scenarios:

Proposed of Retrofit Solar Sites (Version 2.0a)– New solar facilities planned as Pollinator-Smart sites, or existing solar facilities planned to be retrofitted as Pollinator-Smart sites (link)

Established Solar Sites (Version 2.0b)– Established solar facilities already approved as Pollinator-Smart sites and being monitored for continued compliance with the Pollinator-Smart program (link)

For the purposes of determining compliance with performance standards, *established sites that have already been designated as Pollinator-Smart must be monitored using methods that will document site-specific conditions and generate the data required to complete the Established Solar Sites Scorecard*. This report outlines the recommended procedures for accomplishing this task in a given monitoring year.

The conceptual framework for the monitoring approach described herein was developed with four concurrent goals in mind: 1) ease of use; 2) repeatability; 3) scientific validity; and, 4) consistency with ecological sampling practice. Other state programs were consulted for general concepts, and these are outlined in the Comprehensive Manual. For field methods specific to documenting vegetation composition and relative dominance, ideas from existing programs within the State of Virginia were incorporated (notably, the DCR Natural Communities of Virginia, the "Mitigation Banking Instrument Template" jointly authored by DEQ and the U.S. Army Corps of Engineers, Norfolk District, and the DCR Rapid Assessment Field Survey for Ecological Community Groups within Proposed Wind Energy Project Areas). Other references used to develop practical monitoring concepts and procedures are cited where appropriate below.

Performance Standards

For *established sites that are being monitored to determine compliance with the Pollinator-Smart program*, ten performance metrics are rated in accordance with the most current version of the Established Solar Sites Scorecard as outlined below. Six of the metrics evaluate establishment of native vegetation communities, and four metrics evaluate site management practices that affect pollinator habitat.

VEGETATION METRICS

PANEL ZONE

1. Percent of overall existing cover in the panel zone vegetated with Solar Native Plant Finder species (15 points total)
2. Native grass diversity in panel zone (5 points total)

OPEN AREA

3. Percent of overall existing cover within the open area vegetated with Solar Native Plant Finder species that are used by pollinators (15 points total)
4. Total number of Solar Native Plant Finder species found within the open area (15 points total)
5. Within the open area, seasons with at least three (3) Solar Native Plant Finder species in flower (10 points total)

SCREENING ZONE

6. Percent of overall existing cover in the screening area vegetated with Solar Native Plant Finder species (15 points total)

SITE MANAGEMENT METRICS

PLANNING AND MAINTENANCE

7. Site planning and maintenance practices (25 points total)

INVASIVE SPECIES COVER

8. Invasive species risk (-20 points total)

PUBLIC ENGAGEMENT AND RESEARCH

9. Public engagement and research (10 points total)

POLLINATOR HABITAT FEATURES

10. Pollinator/bird nesting habitat on-site (20+ points total)

For facilities already established as Pollinator-Smart sites, performance standards are set by the overall score on the most current version of the Established Solar Sites Scorecard. **A minimum score of 80 must be achieved for a Pollinator-Smart designation, and 100+ points must be reached for Gold Certification.**

Monitoring Methods

The recommended methodology described below will provide the data necessary to fill out the Established Solar Sites Scorecard in a given monitoring year. Methods are divided into two categories: 1) vegetation monitoring; and, 2) site management monitoring. The approaches described under vegetation monitoring are based on existing programs within the Commonwealth as well as ecological sampling principles for vegetation assessment from the scientific literature. The approaches provided for site management involve adequate documentation of re-vegetation management practices used on-site throughout the year.

SAMPLING DESIGN

VEGETATION MONITORING

1 DETERMINE SIZE OF SAMPLING PLOTS

In Herbaceous Habitats: One of the most commonly used plot sizes in herbaceous community sampling is the 1 m^2 (10.8 ft^2) square sampling frame (Mueller-Dombois and Ellenberg 1974, Krebs 1999, Kindt and Coe 2005), although a variety of plot sizes and shapes may be used to assess herbaceous vegetation (Mueller-Dombois and Ellenberg 1974, Krebs 1999). One concern is that the use of smaller plot sizes on larger sites risks higher sample variances, perhaps to the point that an excessively large number of plots would need to be sampled to capture the overall community variability and minimize sample error (Krebs 1999). Alternatively, use of larger plots sizes could minimize this effect with fewer plots, but would require longer search times to adequately evaluate all species within the plot (Kenkel et al. 1989, Kenkel and Podani 1991). For this reason, vegetation ecologists over the years have sought a tradeoff between high variance for small plots and longer sampling times for larger plots. Based on the literature, the **1 m^2 (10.8 ft^2) square quadrat** represents a reasonable compromise for **herbaceous communities**, allowing for cover estimates to be evaluated relatively quickly in the field and still maintain statistical rigor.

In Forested or Scrub-shrub Habitats: In cases where the area is dominated by forested or scrub-shrub species (most often, this will be encountered in the screening zone), larger plots will need to be sampled to assess the additional structural complexity of the community. For **forested or scrub-shrub sampling** in the open area or screening zone, a plot size of **100 m^2 (1076 ft^2)** is recommended based on the standardization of this size in accepted protocols such as the North Carolina Vegetation Survey (Peet et al. 1998) and the National Wetland Condition Assessment (USEPA 2016). In terms of sampling efficiency for woody species (trees and shrubs/saplings), **circular plots** are easiest to lay out in the field (only one reference point is needed at the center), and circles minimize the number of edge decisions because they have the lowest perimeter-to-area ratio. The **radius** for a 100 m^2 (1076 ft^2) circle would be approximately **5.6 m (18.5 ft)**. While a circular plot is the preferred sampling method, if the area to be sampled is not wide enough to accommodate a 37-foot-wide circle, then the plot can be modified into a rectangular shape as long as it still encompasses a 100 m^2 area.

RECOMMENDED PLOT SIZES

Herbaceous Plots: 1 m^2 (10.8 ft^2) quadrat

Woody Plots: 5.6 m (18.5 ft) radius circular plots

2 DETERMINE NUMBER OF SAMPLING PLOTS

To initiate sampling, qualified professionals conducting the sampling must determine *a minimum number of plots* that will provide an initial sample upon which to evaluate sample adequacy (see Step 5 below). Several authors recommend establishing a minimum sample area as a baseline for determining initial plot number (Mueller-Dombois and Ellenberg 1974, Krebs 1999, Gardener 2017).

In Herbaceous Habitats: For homogeneous cover types, the minimum sample area recommended for herbaceous communities is 25 m^2, or 25 plots at 1m^2 per plot (Mueller-Dombois and Ellenberg 1974). This density would likely result in oversampling for smaller sites (e.g., < 5ac); therefore, a recommended plot density for smaller sites is to sample **5 plots per acre for sites up to 5 acres** in size. At this point, the 25 m^2 minimum sample area is achieved. Provided that the sample effort does not cross a community boundary, **25 plots should provide a baseline sample for homogeneous cover types of any size greater than 5 acres**, at which time the data should be evaluated to confirm sample adequacy and determine if additional sampling is needed (see Step 5 below). A list of minimum plots per acre of sample area is provided in Table 1.

Table 1. Minimum number of plots per herbaceous sample area size.

Sample Area (ac.)	Number of Plots
1	5
2	10
3	15
4	20
5+	25

In Forested or Scrub-shrub Habitats: The minimum sample area recommendations for forests is around 500 m^2 (Mueller-Dombois and Ellenberg 1974). At a plot size of 100 m^2, this equates to 1 plot per acre up to 5 acres, at which point the recommended minimum sample area of 500 m^2 is achieved, and the data collected can be assessed to confirm sample adequacy and determine if additional sampling is required (see Step 5 below).

3 DETERMINE LOCATION OF SAMPLING PLOTS

The recommended technique for vegetation monitoring is to use a stratified-random approach. A stratified-random sampling design is one in which the study area is divided into a number of non-overlapping subdivisions (or strata) and samples are randomly selected from each subdivision (Manly 2015, Henderson and Southwood 2016). The benefit of this approach is that investigators are able to sample the plant community in a non-biased manner (due to the randomization component) while also ensuring that the sampling effort adequately covers the entire study site (due to the stratification component) (Mueller-Dombois and Ellenberg 1974, Tiner 1999, Henderson and Southwood 2016).

SAMPLING DEFINED, SAMPLE UNITS, AND ECOLOGICAL SAMPLING THEORY

For most scientific measurements of vegetation communities, a sample is defined as a collection of sample units (SU), the latter of which can be defined as discrete portions of an aggregate (i.e., community) from which repeatable observations can be made (Pielou 1984, Ludwig and Reynolds 1988, Krebs 1999). Sampling is therefore defined as the collection and analysis of data from SUs to make informed assumptions about the overall community (Ludwig and Reynolds 1988).

Ultimately, the purpose of sampling vegetation communities is to develop summary data about the sample based on statistics calculated from measurements or observations of the SUs (e.g., "central-tendency" statistics like arithmetic mean, etc.). Although these summary data represent the sample, they are assumed to also be representative of the overall community as long as certain assumptions of ecological sampling theory are upheld. The most important of these are listed below (Krebs 1999):

1. All SUs should have an equal chance of being selected.
2. The sample (collection of SUs) should not cross community boundaries (i.e., the sample should be taken from a relatively homogeneous cover type).
3. Sample adequacy should be demonstrated (see discussion below).

If the above assumptions are met, a sample (and its associated statistical derivations) can be said to represent the underlying community with respect to the measurements or observations collected in the field. Vegetation sampling strategies are conformable to the above criteria as long as locations of SUs are randomized, the site is "stratified" (i.e., divided) by planting zone or community type with respect to sample area (see Stratification), and sample adequacy is evaluated via the species-area relationship or equivalent technique (see discussion below).

STRATIFICATION

Using a stratified-random sampling technique on Pollinator-Smart solar sites in Virginia, sites are initially divided into the three zones based on the definitions provided above: panel zone, transition zone, and screening zone. Each zone will be considered one "sample area," but zones may be further subdivided into unique community types if necessary (see discussion on sample adequacy in Step 5 below).

Plot locations are then determined using a randomization approach. Examples of randomization procedures are provided below.

Randomization Procedure #1 – Baseline/ Transect Approach

1. Within each sample area, establish a baseline along one edge. Subdivide the baseline into equal segments (a second "stratification"). The segments may be any size but should be spaced in a manner that will allow the minimum number of plots to be sampled (see discussion on minimum plot number below), taking into account the plot size and shape.
2. Within each segment, locate a single random point along the baseline. Random points are determined using a random numbers generator and setting the minimum value at 1 and the maximum value at the overall length of the segment.
3. From the random baseline point within each segment, establish a sampling transect perpendicular to the baseline extending across the width of the sample area.
4. Along each transect within each segment, determine the locations of sampling plots using the same randomization procedure described above but taking the overall transect length as the maximum value for the random numbers generator. The number of plots per transect will vary depending on the overall length of each transect and the total minimum number of plots required for the site.

Randomization Procedure #2 – GIS

1. Once the site has been stratified into separate vegetation zones, most GIS-based applications have a random point generator function that allows users to establish a pre-determined number of random points within a polygon or

feature in GIS. Taking this approach, determine the number of points needed within each zone (stratum) and have the GIS application randomly select locations for the points.

2. The GIS technique carries the risk that the randomization procedure will inadvertently cluster sampling points without having plots "spread out" across the zone as in the baseline/transect approach above. One solution to this problem is to subdivide the zone into equal segments as describe above and subject each segment to the GIS random point routine.

Using either approach outlined above, investigators can complete a desktop assignment of random plots within a selected area prior to fieldwork. This information can be incorporated into a data collection platform using mobile technology coupled with GPS receivers, which can then be used to wayfind to the location of each point while sampling. This type of approach allows investigators to accommodate a stratified-random sampling design while alleviating the need to lay out baselines and transects. An example of a stratified-random approach is provided in Appendix A.

Once the plots have been laid out, sampling proceeds based on a predetermined minimum plot density, and sample adequacy is assessed (see Step 5 below). If the sample for each zone is determined to be inadequate, plots are added until sample adequacy is achieved.

4 SAMPLE EACH PLOT

TIMING OF YEAR AND SAMPLING LEVEL-OF-EFFORT

It is recommended that vegetation sampling be performed during peak growing season, which corresponds to the mid- to late-summer months in the mid-Atlantic region (DeBerry and Perry 2004).

The benefit of a peak growing season sampling window is that it allows reviewers to observe the site when aboveground biomass accumulation and plant species richness are expected to be highest. One concern is that certain spring-flowering species could be missed during a mid- to late-summer site visit; however, in most cases, early flowering species are identifiable from vegetative organs (e.g., leaves, stems, roots), and many of Virginia's spring-flowering species have persistent fruits that may be used for identification later in the summer (Weakley et al. 2012).

Using the 1 m^2 plot size in combination with a cover class scale, the average time to estimate cover for all species within a plot should be less than 10 minutes, which would allow a professional to complete approximately 6+ plots per hour or around 50 plots per day. In addition, experience has shown that even though the woody species plots are larger, the time investment is approximately the same. Alternatively, we estimate that a team of two or more professionals could increase sampling efficiency by 25-50%.

VEGETATION MONITORING

All species present within plots should be identified to species level (or subspecific taxon, if applicable). It is recommended that species nomenclature follow the *Flora of Virginia* (Weakley et al. 2012), the most current version of which is accessible via the Flora of Virginia App. For each species in the plot, **percent cover** will be estimated and recorded. For this purpose, a **cover class scale** is recommended, because it allows percent cover to be estimated based on ranges of cover values that are easily perceived in the context of a square herbaceous plot or a circular woody species plot. Using this approach, the midpoints of the classes are recorded for analysis (for non-integer midpoints, cover classes are rounded to the nearest whole integer). **Cover estimates are then averaged across the zone** to develop relative cover values (i.e., the percentage of the total cover across the entire zone that each species comprises; see example,

Appendix C). Once this is calculated, questions on the scorecard that relate directly to percentage may be answered based on the composition of the species and the relative cover values. Qualified professionals conducting the analysis should also treat any area of exposed soil within the plot as "bare ground" and assign a cover value.

A simple cover class scale that would be appropriate for herbaceous vegetation is shown in Table 2 below.

Table 2. Modified Daubenmire Cover Class Scale (Mueller-Dombois and Ellenberg 1974).

Cover Class ID	Percent Cover Range (%)	Cover Class Midpoint (%)
1	0-1%	1
2	1-5%	3
3	5-25%	15
4	25-50%	38
5	50-75%	63
6	75-95%	85
7	95-100%	98

In addition to species identification, plot cover estimates, and relative cover calculations, qualified professionals conducting the sampling will need to document the following characteristics of each species encountered on-site in order to complete the vegetation community questions on the Scorecard:

1. Virginia Solar Site Native Plant Finder classification status, if applicable (i.e., pollinator species, warm-season grass, etc.);
2. native/non-native status;
3. invasive/nuisance species status; and,
4. reproductive phenology (seasonal timing of flowering).

Information on all of these characteristics is anticipated to be made available on the Solar Native Plant Finder, with portions currently under development. Solar Native Plant Finder classification status is already available online. Native/non-native status (and species-by-county distribution) can also be found in the Flora of Virginia (available hard copy or digital app) or on the Digital Atlas of the Virginia Flora. A list of invasive species that occur in Virginia is provided on the Virginia Natural Heritage Program website. Reproductive phenology is in the Flora of Virginia. For ease of use, a Virginia Pollinator-Smart Rapid Assessment Form has been developed and is available in Appendix B. In addition, an example of a completed vegetation data table is provided in Appendix C.

5 CONFIRM SAMPLING ADEQUACY HAS BEEN REACHED

Once the initial plot sampling has been completed, sample adequacy should be evaluated using an approach that demonstrates adequate coverage of the vegetative community. Sample adequacy is most frequently evaluated using the species-area relationship (Scheiner 2003), though other methods can be used (e.g., standard error ≤ 10% of the mean, McCune and Grace 2002). In species-area analyses, the cumulative total number of species is tracked as plots are sampled, and professionals conducting the sampling develop a graph with cumulative species richness (total number of species) on the Y-axis and cumulative area sampled on the X-axis (which can be approximated by cumulative number of plots). The curve generated by this approach is an example of a "**species-area curve**," and it is considered to be stabilized when the curve flattens out toward the top right-hand side (as if to approach an upper asymptote). In practice, the inflection point of the curve is used to approximate an adequate sample size for vegetation research (McCune and Grace 2002). During sampling, scientists create a species-

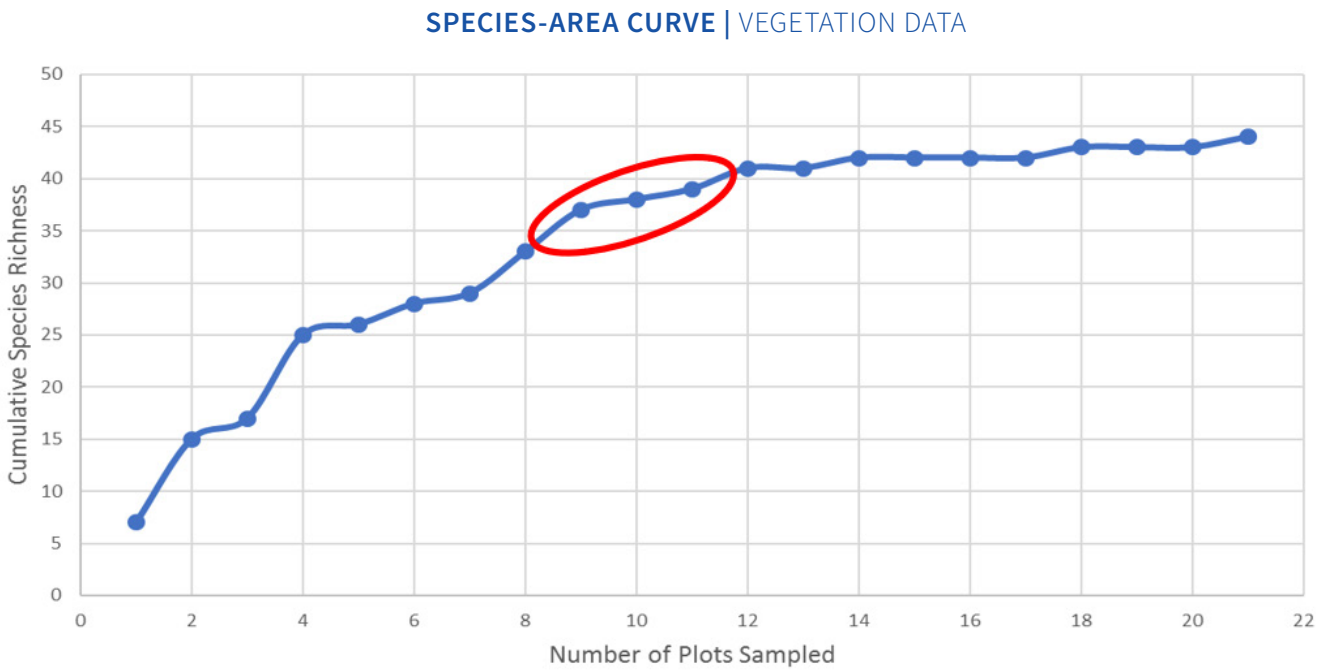


Figure 1. Species-area curve plotted on a simple line graph with markers created in Excel. This graph is easily interpreted as leveling off in the upper half, suggesting that a sample size of 9-11 plots represents the minimum adequate number of sample units for this site (corresponding to the inflection point on the graph shown by the red circle).

area curve after the initial sampling effort (the initial number of plots can be estimated from the literature; see Initial Plot Density below). By entering cumulative species richness and plot number into a simple graphing program (Excel, etc.), a species-area curve can be generated "on the fly" as a simple scatterplot/trendline graph and interpreted in the field, and scientists can add plots as necessary until the curve stabilizes. An example of a species-area curve generated for data collected on a mid-Atlantic region native meadow restoration project is shown in Figure 1.

If the Curve Doesn't Stabilize: On sites with high species richness, it is possible that the species-area curve will not flatten out to the right after completing the minimum number of sample plots. When this occurs, random plots should be added to each stratum (zone or subdivision) until the curve levels off.

"Stairstep" Curves: In other cases, the species-area curve may produce a "stairstep" pattern such as the one show in Figure 2. A stairstep pattern typically means that the species-area phenomenon has been tracked across community boundaries. When this occurs, professionals conducting the sampling should re-stratify the site into discrete, homogeneous cover types and re-sample using the stratified-random approach described above. In most cases, plots already sampled may be retained in the data sets for the remapped community types.

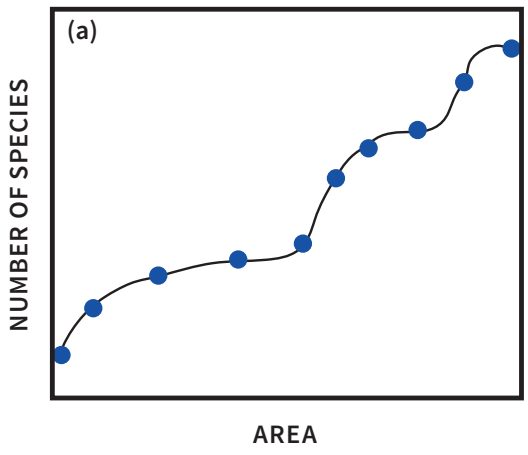


Figure 2: "Stairstep" species-area curve. From Scheiner (2003).

6 ESTABLISH PERMANENT PHOTO STATIONS AND PHOTO-DOCUMENT SITE

Permanent photostations should be established within each of the three zones, and representative photographs of the developing vegetation should be taken in each monitoring year. For smaller vegetation zones, one photostation per acre is recommended up to 5 acres. For larger zones, a minimum of five photostations should be established across the zone, distributed in a manner that will allow adequate spatial coverage. Photographs should be taken from the same height and direction for year-to-year comparisons.

7 CONDUCT SITE MANAGEMENT MONITORING

Most of the site management documentation required to complete the Established Solar Sites Scorecard can be compiled as management activities are completed on-site. Records and photographic evidence of the re-vegetation implementation sequence including site prep, initial planting, supplemental overseeding, habitat enhancement, public engagement and research, and invasive or nuisance species management can be recorded in the form of activity logs and/or site photographs. These documents can be sourced from the planting contractor, the solar site manager, or an environmental consultant.

8 MAP INVASIVE AND/OR NUISANCE SPECIES

In addition to site management documentation, invasive and/or nuisance species mapping is recommended annually. This includes documenting any dominant zones of non-native invasive species listed on the Virginia Invasive Plant Species List (Heffernan et al. 2014), as well as zones of any nuisance species identified in Table 3 below. The distribution of invasive/nuisance species should be shown on a scaled, spatially-correct plan view map of the site, with the total area for each species expressed in acres and percentage of the total study area.

Table 3. Nuisance Species Not on Virginia Invasive Plant Species List

	TABLE UNDER DEVELOPMENT	

Reporting

Because the site-level documentation described in this monitoring plan is ultimately intended to support completion of the Established Solar Sites Scorecard, reporting should be considered supplemental information to the Scorecard and should be concise and easily searchable. The format presented in Appendix C is recommended for the vegetation data. At a minimum, the report should include:

- ☑ **Executive Summary**
  - Short (1-page) narrative summarizing monitoring results
- ☑ **Map**
  - Scaled, spatially-correct plan view of the site showing the following:
    - » Project boundary
    - » Vegetation zones (acres identified)
    - » Vegetation plot locations (including transects, if used in plot layout)
    - » Permanent photostations
    - » Invasive/nuisance species polygons (acres and percentage identified)
    - » Pollinator habitat features (if relevant)
- ☑ **Vegetation data**
  - Presented in tabular format
- ☑ **Representative photographs**
- ☑ **Site management documentation**

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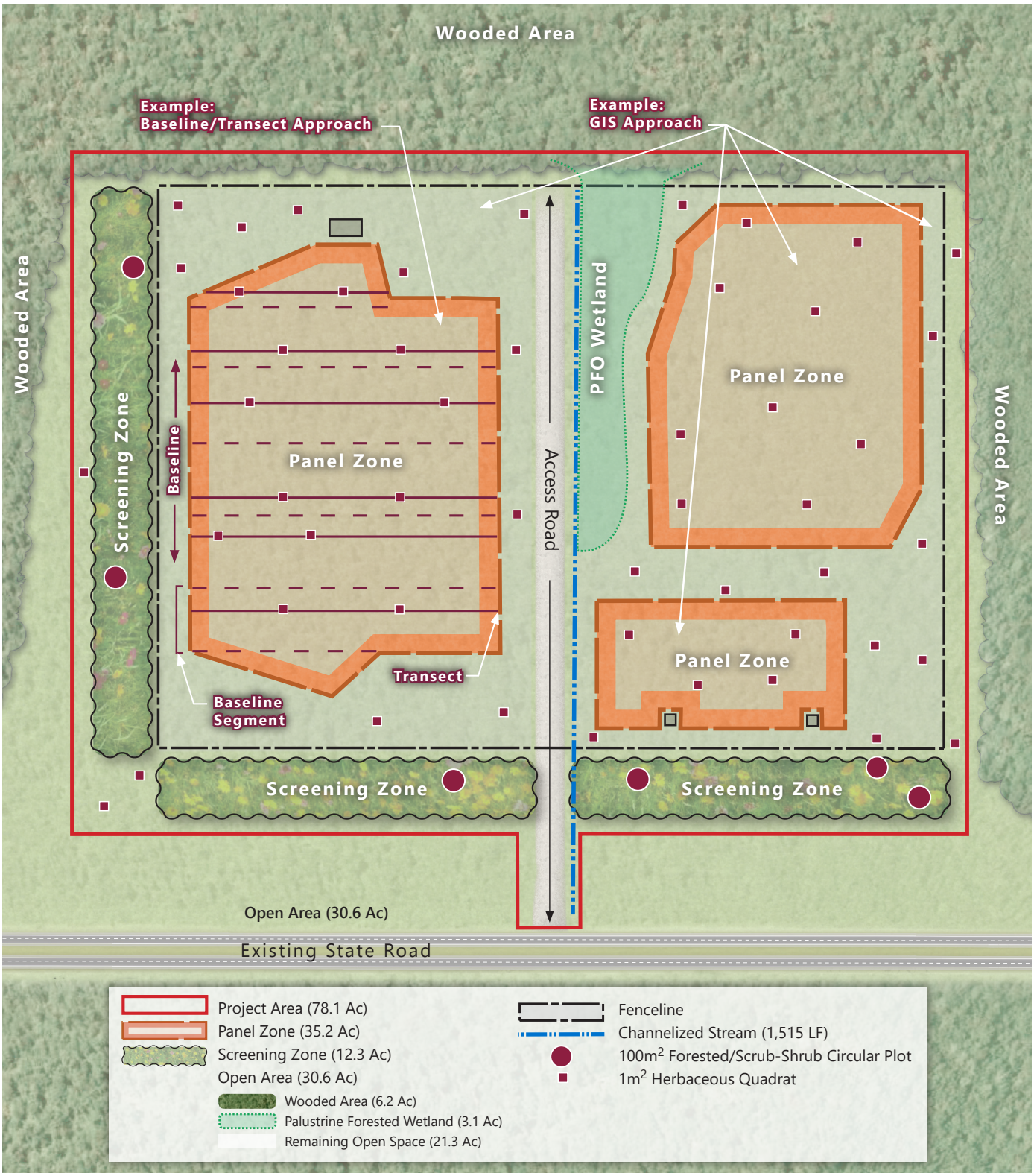
Appendix A

Example of Stratified-Random Study Design

Virginia Pollinator-Smart Solar Industry

EXAMPLE OF STRATIFIED-RANDOM STUDY DESIGN



Virginia Pollinator-Smart Solar Industry
Example of Stratified-Random Study Design
0 200 400 Feet

Appendix B

Virginia Pollinator-Smart Rapid Assessment Form

COMPLETE THIS PAGE FOR EACH SAMPLING PLOT

GENERAL INFORMATION

Plot Code/Identifier:	Project:
Zone:	Surveyors:
Date:	

COMMUNITY NAME

OBSERVATION AREA *[100 m^2 circular plot recommended for woody plants; 1 m^2 plot recommended for herbaceous species]*

Circle of radius m; or m by m; or area =

PLOT DOCUMENTATION

of Photos: ☐ No Photos Taken

Photo Descriptions:

GPS DATA *[Decimal Degrees]*

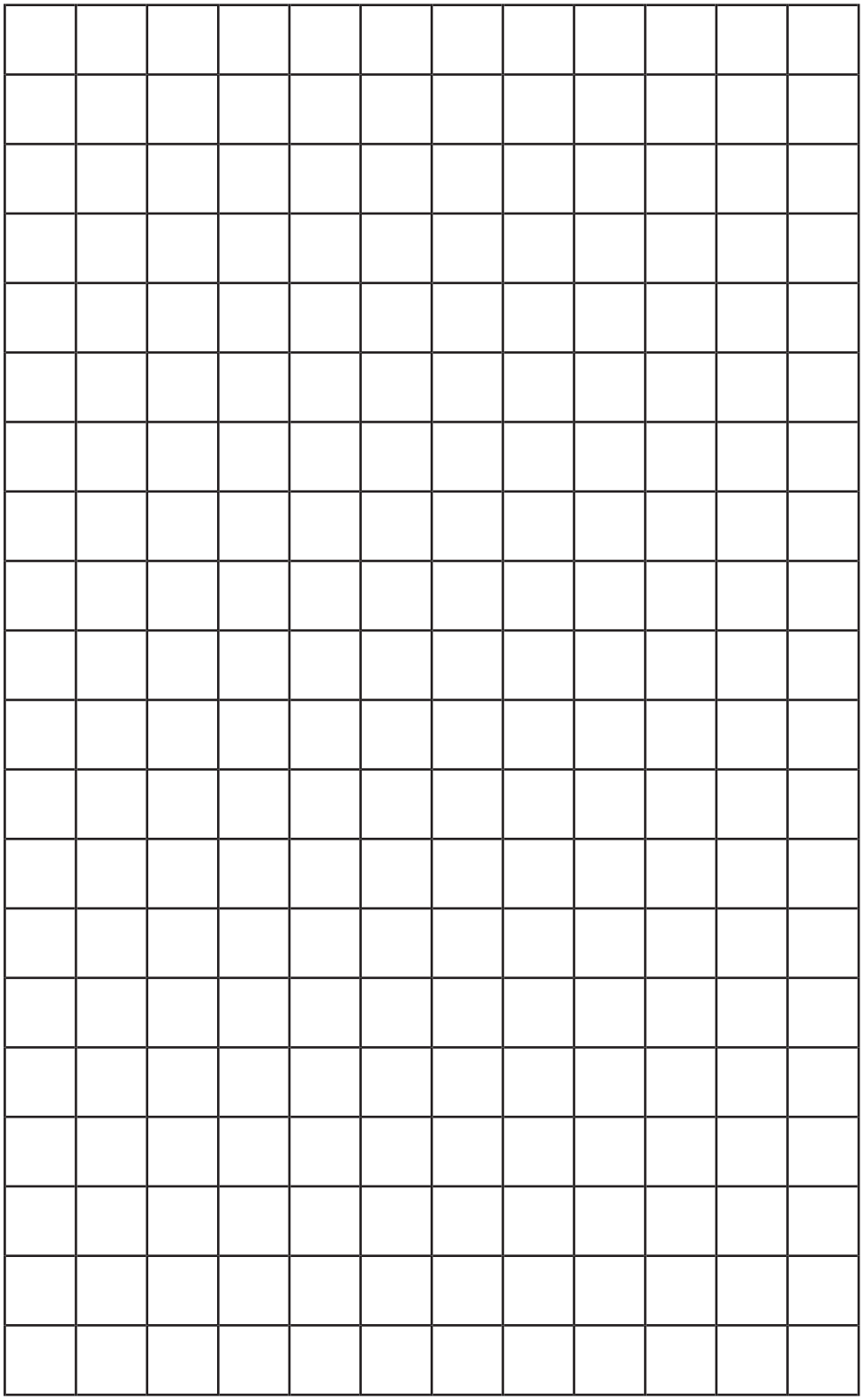
GPS Unit: GPS Datum:

LAT: LONG:

GENERAL NOTES

USE THIS PAGE TO ASSESS SAMPLING ADEQUACY ON-THE-FLY

SPECIES AREA CURVE



NUMBER OF PLOTS SAMPLED

CUMULATIVE SPECIES RICHNESS

SPECIES COMPOSITION AND ABUNDANCE

List all plant species within your observation area and indicate relative abundance.

PLOT ID:														
Zone: *[P = panel, S = screen, O = open area]*														
Habitat: *[H = herbaceous, SS = scrub-shrub, F = forested, W = wetland, O = other*]*														
Ground														
% Bare Ground														
% Rock														
Taxon														

SPECIES COMPOSITION AND ABUNDANCE

List all plant species within your observation area and indicate relative abundance.

PLOT ID:														
Zone: *[P = panel, S = screen, O = open area]*														
Habitat: *[H = herbaceous, SS = scrub-shrub, F = forested, W = wetland, O = other*]*														
Ground														
% Bare Ground														
% Rock														
Taxon														

Appendix C

Completed Vegetation Data Table

VEGETATION MONITORING DATA

Sample Solar Site Facility | Establishment Year 2 (2019)

					PANEL ZONE														
SCIENTIFIC NAME	COMMON NAME	SPF?	FLOWERING PERIOD*	INV SPP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
Bare Ground						15.0										0.5			
Achillea millefolium	Common Yarrow	Y	S, ES, LS, F						15.0										
Amaranthus hybridus	Slender Pigweed	N	N/A																
Ambrosia artemisiifolia	Annual Ragweed	Y	LS, F		15.0	63.0	38.0			63.0	38.0	3.0	38.0	85.0	15.0	63.0	15.0	38.0	38.0
Andropogon virginicus	Broom-Sedge	Y	N/A			38.0			38.0		0.5	15.0		3.0					63.0
Apocynum cannibinum	Indian Hemp	Y	S, ES, LS																
Bromus racemosus	Bald Brome	N	N/A																
Cirsium arvense	Canadian Thistle	N	N/A	✓		15.0													
Conyza canadensis	Horseweed	Y	ES, LS, F		15.0		63.0	15.0			63.0	3.0	15.0	38.0	15.0	38.0	38.0	38.0	
Dactylis glomerata	Orchard Grass	N	N/A		0.5														38.0
Daucus carota	Queen Anne's-Lace	N	N/A																
Dichanthelium clandestinum	Deer-Tongue Rosette Grass	Y	N/A																
Dichanthelium dichotomum	Cypress Rosette Grass	Y	N/A														38.0		
Digitaria ciliaris	Southern Crab Grass	N	N/A																
Digitaria ischaemum	Smooth Crabgrass	N	N/A			15.0													
Eragrostis hirsuta	Big-top Lovegrass	Y	N/A				3.0												
Eragrostis spectabilis	Purple Lovegrass	Y	N/A																
Eupatorium capillifolium	Dog-Fennel	Y	LS, F						3.0		38.0					3.0	3.0		
Juncus effusus	Lamp Rush	Y	N/A																
Juncus tenuis	Lesser Poverty Rush	Y	N/A						3.0			0.5							
Lespedeza cuneata	Chinese Bush-Clover	N	N/A	✓			15.0		15.0										
Lespedeza frutescens	Shrubby Lespedeza	Y	ES, LS, F						15.0										
Lespedeza procumbens	Trailing Lespedeza	Y	ES, LS, F						63.0										15.0
Lespedeza repens	Creeping lespedeza	Y	S, ES, LS, F																
Lobelia inflata	Indian-tobacco	Y	ES, LS, F																
Lonicera japonica	Japanese Honeysuckle	N	N/A	✓								0.5							
Oxalis stricta	Upright Yellow Wood-Sorrel	Y	S, ES, LS, F			3.0											3.0		
Panicum virgatum	Wand Panic Grass	Y	N/A							38.0									
Persicaria longiseta	Bristly Lady's Thumb	N	N/A	✓															
Physalis heterophylla	Clammy Ground-Cherry	Y	S, ES, LS												3.0				
Phytolacca americana	American Pokeweed	Y	S, ES, LS, F																
Plantago lanceolata	English Plantain	N	N/A									3.0					0.5		
Potentilla indica	Indian-Strawberry	N	N/A																
Pseudognaphalium obtusifolium	Sweet Everlasting	Y	LS, F											3.0		3.0	3.0	3.0	
Rubus flagellaris	Whiplash Dewberry	Y	S, ES																
Rubus pensilvanicus	Pennsylvania Blackberry	Y	S, ES						3.0			0.5						3.0	
Rudbeckia hirta	Black Eyed-Susan	Y	S, ES, LS						0.5	3.0	3.0								
Schedonorus arundinaceus	Tall False Rye Grass	N	N/A																

VEGETATION MONITORING DATA *CONT...*

Sample Solar Site Facility | Establishment Year 2 (2019)

					PANEL ZONE														
SCIENTIFIC NAME	COMMON NAME	SPF?	FLOWERING PERIOD*	INV SPP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
Solanum carolinense	Carolina Horse-Nettle	Y	S, ES, LS									15.0			38.0				
Solanum ptycanthum	Eastern Black Nightshade	Y	S, ES, LS, F																
Solidago altissima	Tall Goldenrod	Y	LS, F					38.0	3.0			15.0				15.0			
Solidago rugosa	Rough-leaved Goldenrod	Y	LS, F																
Stellaria media	Common Chickweed	N	N/A	✓															
Symphoricarpos orbiculatus	Coral-Berry	Y	N/A																
Symphyotrichum lateriflorum	Farewell-Summer	Y	LS, F																
Taraxacum officinale	Common Dandelion	N	N/A		7.5														
Thlaspi arvense	Field Pennycress	N	N/A									0.5						15.0	
Tridens flavus	Tall Redtop	Y	N/A				38.0												
Trifolium arvense	Rabbit-foot Clover	N	N/A											15.0					
Trifolium repens	White Clover	N	N/A		63.0		38.0	38.0		15.0	15.0	38.0	86.0	15.0	63.0	3.0	63.0	38.0	
Ulmus rubra	Slippery Elm	Y	N/A		0.5	15.0		0.5	0.5								0.5	3.0	
Verbascum thapsus	Great Mullein	N	N/A				15.0					38.0		3.0			15.0		
Verbena brasiliensis	Brazilian Vervain	N	N/A					63.0								15.0			
% Cover of Solar Native Plant Finder Species					**99.6**														
Total Number of Native Plant Finder Species					**20**														
Total Number of Native Grass Species					**5**														
% Cover of Invasive Species					**3**														
% Cover of Fescue					**0**														
Flowering Phenologies					**S= 6, ES=9, LS=11, F=9**														

***S=Spring, ES=Early Summer, LS=Late Summer, F=Fall**

VEGETATION MONITORING DATA *CONT...*

		OPEN AREA									SCREENING ZONE											
SCIENTIFIC NAME	COMMON NAME	O1	O2	O3	O4	O5	O6	O7	O8	O9	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
Bare Ground																			15.0			
Achillea millefolium	Common Yarrow												0.5						3.0			
Amaranthus hybridus	Slender Pigweed										63.0	63.0										
Ambrosia artemisiifolia	Annual Ragweed	15.0			38.0	63.0	38.0	38.0	63.0	38.0											15.0	
Andropogon virginicus	Broom-Sedge	3.0				3.0	15.0		15.0	15.0			15.0		15.0					3.0		15.0
Apocynum cannibinum	Indian Hemp						15.0															
Bromus racemosus	Bald Brome						0.5		3.0	38.0												
Cirsium arvense	Canadian Thistle																		15.0		15.0	
Conyza canadensis	Horseweed	85.0	15.0	63.0	63.0	38.0		38.0	15.0					63.0	38.0	63.0	63.0	63.0	63.0		38.0	
Dactylis glomerata	Orchard Grass						15.0								15.0			15.0				15.0
Daucus carota	Queen Anne's-Lace												15.0									
Dichanthelium clandestinum	Deer-Tongue Rosette Grass																15.0					
Dichanthelium dichotomum	Cypress Rosette Grass															3.0	3.0					
Digitaria ciliaris	Southern Crab Grass										63.0											
Digitaria ischaemum	Smooth Crabgrass					38.0	15.0		38.0	63.0												
Eragrostis hirsuta	Big-top Lovegrass			38.0								15.0										
Eragrostis spectabilis	Purple Lovegrass								15.0													
Eupatorium capillifolium	Dog-Fennel				3.0	0.5							0.5	15.0				15.0	3.0	3.0		38.0
Juncus effusus	Lamp Rush																			38.0		
Juncus tenuis	Lesser Poverty Rush			3.0	3.0				0.5												3.0	15.0
Lespedeza cuneata	Chinese Bush-Clover																					
Lespedeza frutescens	Shrubby Lespedeza																					
Lespedeza procumbens	Trailing Lespedeza																					
Lespedeza repens	Creeping lespedeza												15.0			3.0					3.0	
Lobelia inflata	Indian-tobacco			3.0										15.0								
Lonicera japonica	Japanese Honeysuckle												38.0									
Oxalis stricta	Upright Yellow Wood-Sorrel					3.0	0.5		3.0													15.0
Panicum virgatum	Wand Panic Grass																					
Persicaria longiseta	Bristly Lady's Thumb				15.0																	
Physalis heterophylla	Clammy Ground-Cherry																					
Phytolacca americana	American Pokeweed										38.0						38.0					
Plantago lanceolata	English Plantain																	15.0				
Potentilla indica	Indian-Strawberry																		15.0			
Pseudognaphalium obtusifolium	Sweet Everlasting				15.0					15.0										3.0	15.0	
Rubus flagellaris	Whiplash Dewberry												15.0			15.0	15.0					
Rubus pensilvanicus	Pennsylvania Blackberry	15.0																	0.5			
Rudbeckia hirta	Black Eyed-Susan														63.0						15.0	
Schedonorus arundinaceus	Tall False Rye Grass									15.0			38.0									

VEGETATION MONITORING DATA *CONT...*

		OPEN AREA									SCREENING ZONE											
SCIENTIFIC NAME	COMMON NAME	O1	O2	O3	O4	O5	O6	O7	O8	O9	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
Solanum carolinense	Carolina Horse-Nettle												3.0				38.0					3.0
Solanum ptycanthum	Eastern Black Nightshade	38.0																				
Solidago altissima	Tall Goldenrod											15.0		15.0			15.0					
Solidago rugosa	Rough-leaved Goldenrod		15.0			0.5	38.0															
Stellaria media	Common Chickweed	63.0																				
Symphoricarpos orbiculatus	Coral-Berry						15.0															
Symphyotrichum lateriflorum	Farewell-Summer	15.0																				
Taraxacum officinale	Common Dandelion					3.0				3.0		3.0		15.0				3.0			15.0	
Thlaspi arvense	Field Pennycress																					
Tridens flavus	Tall Redtop				0.5				15.0						15.0							15.0
Trifolium arvense	Rabbit-foot Clover																					
Trifolium repens	White Clover	15.0	98.0	38.0	85.0			85.0		38.0		15.0		15.0	15.0					85.0	15.0	38.0
Ulmus rubra	Slippery Elm							3.0	15.0													
Verbascum thapsus	Great Mullein	18		3.0	15.0			15.0								15.0		3.0	38.0		3.0	
Verbena brasiliensis	Brazilian Vervain																					
% Cover of Solar Native Plant Finder Species		**105.4**									**84.3**											
Total Number of Native Plant Finder Species		**18**									**22**											
Total Number of Native Grass Species		**4**									**5**											
% Cover of Invasive Species		**8.7**									**5.7**											
% Cover of Fescue		**1.7**									**3.2**											
Flowering Phenologies		**S= 3, ES=6, LS=10, F=9**									**S= 8, ES=10, LS=11, F=10**											

***S=Spring, ES=Early Summer, LS=Late Summer, F=Fall**


DCR
Virginia Department of Conservation & Recreation


DEQ
Virginia Department of
Environmental Quality

VERSION 2.0b

VIRGINIA POLLINATOR-SMART/ BIRD HABITAT SCORECARD

Established Solar Sites

A successful Pollinator-Smart habitat will provide benefits to the environment and the solar site owner/operator in a number of key areas, including:

1. Pollinator services,
2. Biodiversity and habitat enhancement,
3. Carbon sequestration,
4. Erosion and sediment control, and;
5. Reduced vegetation maintenance over time.

The Virginia Solar Site Pollinator/Bird Habitat Scorecard is used to establish target conditions and/or evaluate the effectiveness of Pollinator-Smart measures once implemented. If the score thresholds are met, a site is deemed Pollinator-Smart.

DEFINITIONS

Open Area: Any area beyond the panel zone, within the property boundary.

Panel Zone: The area underneath the solar arrays, including inter-row spacing.

Screening Zone: A vegetated visual barrier.

Solar Native Plant Finder: The Virginia Solar Site Native Plant Finder (**link**), an online research tool developed by the DCR Natural Heritage Program.

Used by Pollinators: Plant species with a "pollinator" designation on the Virginia Solar Site Native Plant Finder.

RESOURCES

Virginia Solar Site Native Plant Finder

Virginia's Pollinator-Smart Solar Portal

Comprehensive Manual

Monitoring Plan

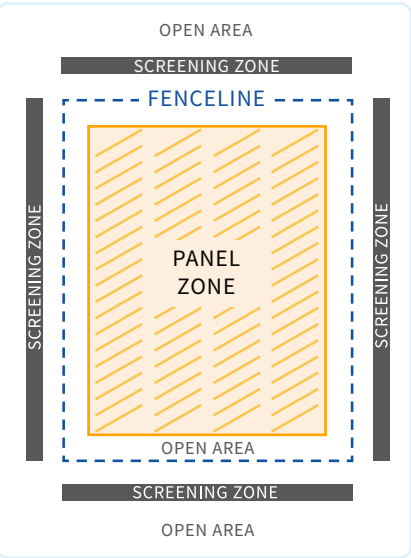
INSTRUCTIONS

For detailed instructions on how to implement the scorecard, please refer to the **Comprehensive Manual**.

1. All questions and fields must be filled out.
2. Submit your scorecard and associated documents via email to: **pollinator.smart@dcr.virginia.gov**
3. A Proposed or Retrofit Solar Site Scorecard should be submitted during the initial planting year. To remain certified, an Established Sites Scorecard should be submitted in years 2, 4, 6, 8, and 10. A long-term management plan should also be submitted with the Established Sites Scorecard during year 10. If all criteria are met during year 10, the site will be considered pollinator-friendly for the life of the project.

ATTACHMENTS PROVIDED

- ☐ Project Vicinity Map
- ☐ Vegetation Management Plan
- ☐ Vegetation Monitoring Report
- ☐ Invasive Species Mapping
- ☐ Research Collaboration Documentation
- ☐ Site Photos
- ☐ Long-term management plan (Year 10 only)



PROJECT DETAILS & CONTACT INFORMATION

DATE: _____

SITE OWNER OR DESIGNEE:

_____

PROJECT ADDRESS:

_____

_____

_____

PROJECT SIZE (ACS AND MW):

_____

POINT OF CONTACT:

_____

_____

EMAIL/PHONE:

_____

_____

VEGETATION CONSULTANT:

_____

FINAL SCORE

0

Certified VA Pollinator-Smart: 80-99 pts

Gold Certified VA Pollinator-Smart: 100+ pts

CLEAR FORM

For questions, comments, and feedback, please contact pollinator.smart@dcr.virginia.gov

VERSION 2.0b

VIRGINIA POLLINATOR-SMART/ BIRD HABITAT SCORECARD

Established Solar Sites

VEGETATION

PANEL ZONE

1. Percent of overall existing cover in the panel zone vegetated with Solar Native Plant Finder species (**max 15 pts**)
   - ◯ <5 percent (0)
   - ◯ 5-25 percent (5)
   - ◯ 26-50 percent (8)
   - ◯ 51-75 percent (10)
   - ◯ greater than 75 percent (15)
2. Native grass diversity in panel zone (**max 5 pts**)
   - ◯ 1 or fewer species (0)
   - ◯ 2 species (2)
   - ◯ 3 or more species (5)

OPEN AREA

3. Percent of overall existing cover within the open area vegetated with Solar Native Plant Finder species used by pollinators (**max 15 pts**)
   - ◯ <5 percent (0)
   - ◯ 5-25 percent (5)
   - ◯ 26-50 percent (8)
   - ◯ 51-75 percent (10)
   - ◯ greater than 75 percent (15)
4. Total *number* of Solar Native Plant Finder species found within the open area (**max 15 pts**)
   - ◯ 9 or fewer species (0)
   - ◯ 10-19 species (5)
   - ◯ 20-29 species (8)
   - ◯ 30-39 species (10)
   - ◯ 40 or greater species (15)
5. Within the open area, seasons with at least three (3) Solar Native Plant Finder species in flower (**max 10 pts**) **[CHECK ALL THAT APPLY]**
   - ☐ Spring (March-May) (2)
   - ☐ Early Summer (June-July 15) (2)
   - ☐ Late Summer (July 15-August) (4)
   - ☐ Fall (September-November) (2)

SCREENING ZONE

6. Percent of overall existing cover in the screening area vegetated with Solar Native Plant Finder species (**max 15 pts**)
   - ◯ <5 percent (0)
   - ◯ 5-25 percent (5)
   - ◯ 26-50 percent (8)
   - ◯ 51-75 percent (10)
   - ◯ greater than 75 percent (15)

SITE MANAGEMENT

PLANNING AND MAINTENANCE PRACTICES

7. **[CHECK ALL THAT APPLY]** (**max 25 pts**)
   - ☐ Site has an Approved[1] Vegetation Management Plan (15)
   - ☐ Vegetation monitoring[2] conducted annually (5)
   - ☐ Invasive species mapping and control conducted annually (5)
   - ☐ On-site use of insecticide (excluding safety/hazard spot treatment around buildings/electrical boxes, etc.) (-40)

INVASIVE SPECIES RISK

8. **[CHECK ALL THAT APPLY]** (**-20 pts possible**)
   - ☐ Combined cover of tall fescue across all three zones >10 percent (-10)
   - ☐ Combined cover of species on DNH Virginia Invasive Plant Species List across all three zones >10 percent (-10)

PUBLIC ENGAGEMENT AND RESEARCH

9. **[CHECK ALL THAT APPLY]** (**max 10 pts**)
   - ☐ 2 or more legible and accessible signs identifying pollinator and bird habitat present on-site (2.5)
   - ☐ Accessible bench and educational display present on-site (2.5)
   - ☐ Research collaboration with college, university, school, or research institute (5)

POLLINATOR/BIRD NESTING HABITAT ON-SITE

10. **[CHECK ALL FEATURES THAT ARE PRESENT ON-SITE]** (**20+ pts**)
    - ☐ Existing bare ground patches one square foot or larger, with undisturbed and well-drained soil (2)
    - ☐ Preserved upland forested communities or forest edge habitat that includes native flowering shrubs and young trees (8)
    - ☐ Cavity nesting sites (e.g. dead trees, snags, fallen logs, shrubs, plants with pithy-stemmed twigs such as native sumacs, roses, or blackberries) (2)
    - ☐ Created bee/bird nesting habitat features (e.g., boxes, tunnels, etc.) (0.2 pts per feature)[3] # feature: **x 0.2 = 0 pts.**
    - ☐ Preserved wetlands communities/presence of clean water source(s) (8)

[1] See guidelines for development of a Vegetation Management Plan here. Vegetation Management Plans for solar sites are approved by the Virginia Pollinator-Smart Solar Industry Review Board. Vegetation Management Plans may be submitted here.

[2] Vegetation monitoring should be conducted in accordance with the methods described here. For the purposes of compliance, monitoring is only required every two years; therefore, annual monitoring is incentivized with additional points in the Scorecard.

[3] Up to a maximum of 10 points (50 features)

IMPACT POWER SOLUTIONS

Building Better Energy.

Letter of Support

11/24/2021

Andrew Elder
PO Box 1294
Pamplin, VA 23958
434-391-4635

Dear Mr. Elder,

My name is Jesse Dimond. We have discussed the proposed community solar garden on Frances Reeve's property and would like your support of the project. The project would be located on PID 043 A 36, which is located to the east of your property off Llama Road in Pamplin, VA. The project will use the existing easement on your property along the west and north portion of PID 043 A 36A.

Please sign below to show that we have discussed the project and your support of the project.

Owner's Signature — Date: 11/30/2021

Owner's Signature — Date

1st Owner's Printed Name — 2nd Owners Printed Name

August 16, 2021

Jamie Borell

IPS Development Virginia LLC

2530 Riva Road, Suite 200

Annapolis, MD 21401

Re: Shared Solar Program in the service territory of Dominion Energy Arcadia

Dear Mr. Borell,

This Memorandum of Understanding ("MOU") sets forth the preliminary intentions of Arcadia's support for IPS Development Virginia LLC's participation in the Shared Solar Program being hosted by Dominion Energy Virginia. Arcadia plans to provide subscriber management services for Virginia Shared Solar projects developed by IPS Development Virginia LLC. It is understood that a minimum of 30% of the subscribed solar energy must be allocated to low-income customers.

First and foremost, our customer-friendly product offering was designed to make shared solar a good fit for everyone, particularly Low to Moderate Income (LMI) households, who are more likely to face a high energy cost burden, move more frequently, and have lower credit scores. There is no doubt that a LMI household struggling to make ends meet would be better off if they subscribed to a shared solar project managed by Arcadia.

IPS Development Virginia LLC is particularly excited about some of the successes Arcadia has had in reaching out directly to LMI customers. For example, Arcadia is working with a housing authority in New York, affordable housing properties in Maryland and Rhode Island, and signing up low- to moderate-income customers directly across all our active shared solar markets.

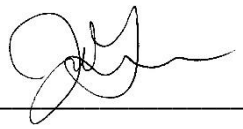
Arcadia is extremely excited to subscribe low-income customers in this partnership with IPS Development Virginia LLC. We understand the importance of democratizing solar access and have the technical and financial experience necessary to ensure that this takes place.

Contact:

Madeline Gould
Policy Manager, Arcadia
madeline.gould@arcadia.com
866-526-0083

Signature page follows

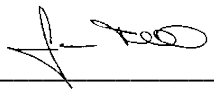
Arcadia Power, Inc

By: 

Name: Joel Gamoran

Title: General Manager

IPS Development Virginia LLC

By: 

Name: Jamie Borell

Title: Manager

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

March 2, 2022

Mr. Jesse Dimond
Impact Power Solutions
2670 Patton Road
Rolesville, MN 55113

RE: Reeve Solar Project – Property Value Impact Study

Mr. Jesse Dimond

At your request, I have considered the impact of a 5 MW solar farm proposed to be constructed on a portion of a 164.70-acre tract of land on Buffalo Forest Road, Pamplin, Prince Edward County, Virginia. Specifically, I have been asked to give my professional opinion on whether the proposed solar farm will have any impact on adjoining property value 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 Virginia as well as other states, 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 Impact Power Solutions, represented to me by Mr. Jesse Dimond. My findings support the Application. The effective date of this consultation is March 2, 2022.

Conclusion

The adjoining properties are well set back from the proposed solar panels and most of the site has good existing landscaping for screening the proposed solar farm. The closest home will be over 1,000 feet from the nearest solar panel.

The matched pair analysis shows no impact on home values due to abutting or adjoining a solar farm as well as no impact to abutting or adjacent vacant residential or agricultural land where the solar farm is properly screened and buffered. The criteria that typically correlates with downward adjustments on property values such as noise, odor, and traffic all indicate that a solar farm is a compatible use for rural/residential transition areas and that it would function in a harmonious manner with this area.

Data from the university studies, broker commentary, and other appraisal studies support a finding of no impact on property value adjoining a solar farm with proper setbacks and landscaped buffers.

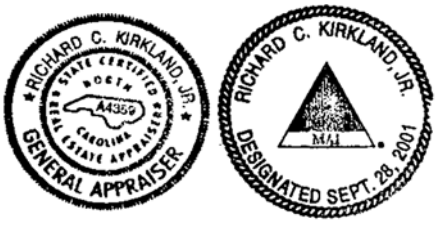
Very similar solar farms in very similar areas have been found by hundreds of towns and counties not to have a substantial negative effect to abutting or adjoining properties, and many of those

findings of no impact have been upheld by appellate courts. Similar solar farms have been approved with adjoining agricultural uses, schools, churches, and residential developments.

Based on the data and analysis in this report, it is my professional opinion that the solar farm proposed at the subject property will have no impact on the value of adjoining or abutting properties and that the proposed use is in harmony with the area in which it is located. I note that some of the positive implications of a solar farm that have been expressed by people living next to solar farms include protection from future development of residential developments or other more intrusive uses, reduced dust, odor and chemicals from former farming operations, protection from light pollution at night, it's quiet, and there is minimal traffic.

If you have any questions, please let me know.

Sincerely,



Richard C. Kirkland, Jr., MAI
NC Certified General Appraiser #A4359
VA Certified General Appraiser # 4001017291

Table of Contents

I. Proposed Project and Adjoining Uses

Proposed Use Description

This 5 MW solar farm is proposed to be constructed on a portion of a 164.70-acre tract of land on Buffalo Forest Road, Pamplin, Prince Edward County, Virginia.

Adjoining Properties

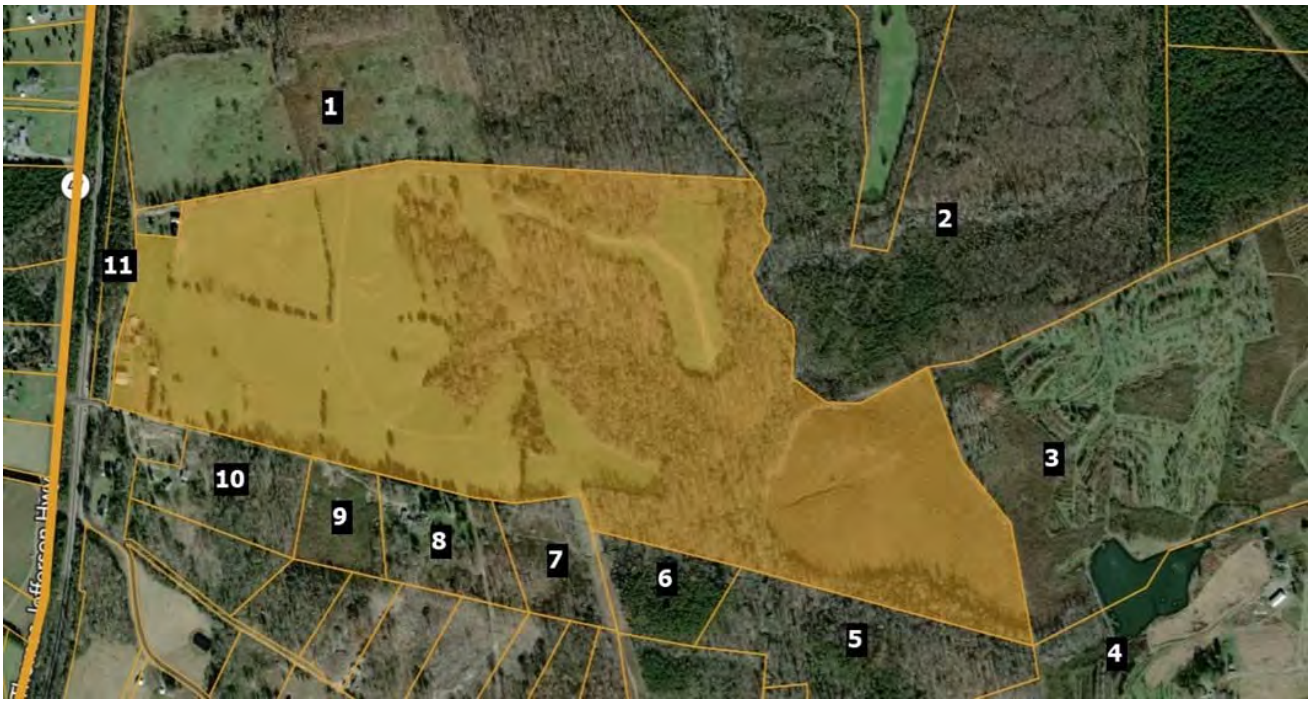
I have considered adjoining uses and included a map to identify each parcel's location. The closest adjoining home will be 1,195 feet from the closest solar panel and the average distance to adjoining homes will be 2,232 feet to the nearest solar panel.

Adjoining land is a mix of residential and agricultural uses.

The breakdown of those uses by acreage and number of parcels is summarized below.

Adjoining Use Breakdown

	Acreage	Parcels
Residential	7.40%	54.55%
Agricultural	70.98%	36.36%
Agri/Res	21.63%	9.09%
Total	**100.00%**	**100.00%**



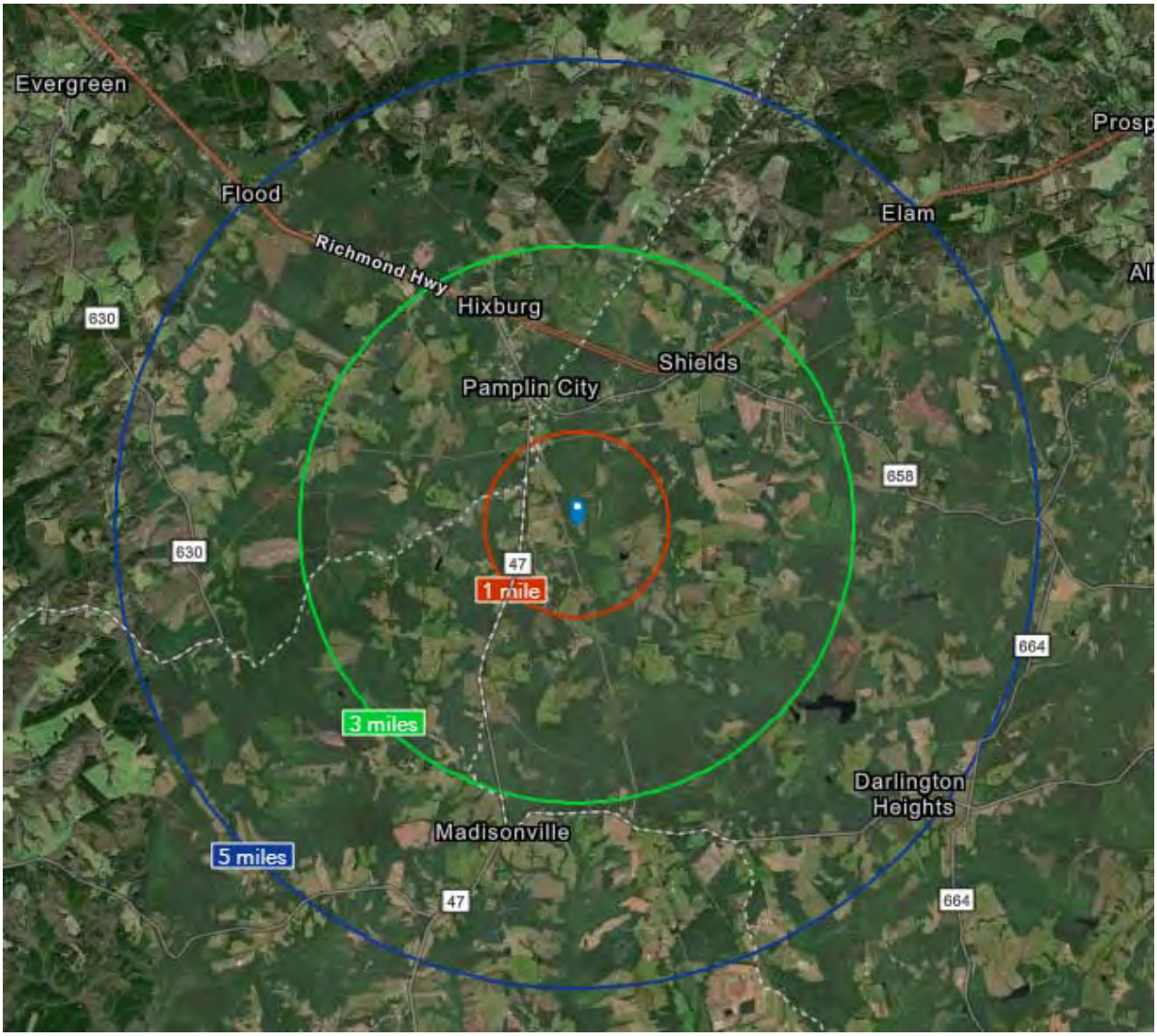
Surrounding Uses

#	MAP ID	Owner	GIS Data Acres	Present Use	Adjoin Acres	Adjoin Parcels	Distance (ft) Home/Panel
1	043 A 34	Mcclenney	146.10	Agricultural	25.67%	9.09%	N/A
2	044 A 83	Chaplain	145.10	Agricultural	25.49%	9.09%	N/A
3	044 A 84	Bennet	92.20	Agricultural	16.20%	9.09%	N/A
4	58-A-5	Unknown	123.10	Agri/Res	21.63%	9.09%	3,130
5	058 A 2	Wells	20.60	Agricultural	3.62%	9.09%	N/A
6	058 A 1	Khurram	7.10	Residential	1.25%	9.09%	N/A
7	058 A 1	Mohr	7.00	Residential	1.23%	9.09%	N/A
8	057 3 2	Mohr	8.80	Residential	1.55%	9.09%	1,195
9	057 3 1	Reeve	5.60	Residential	0.98%	9.09%	N/A
10	057 A 3	Mottley	9.40	Residential	1.65%	9.09%	2,370
11	043 A 35	Elder	4.20	Residential	0.74%	9.09%	N/A
		Total	**569.200**		**100.00%**	**100.00%**	2,232

Demographics Around Subject Property

I have pulled demographic data around a 1-mile, 3-mile and 5-mile radius from the middle of the project as shown on the following pages.

As can be seen in the following pages, the median income and average home price is fairly consistent in all 3 rings of this radius.



Housing Profile

23958, Pamplin, Virginia
Ring: 1 mile radius

Prepared by Esri
Latitude: 37.24236
Longitude: -78.67151

Population		Households	
2010 Total Population	103	2021 Median Household Income	$45,195
2021 Total Population	99	2026 Median Household Income	$50,761
2026 Total Population	96	2021-2026 Annual Rate	2.35%
2021-2026 Annual Rate	-0.61%		

	Census 2010		2021		2026	
Housing Units by Occupancy Status and Tenure	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Housing Units	56	100.0%	57	100.0%	59	100.0%
Occupied	45	80.4%	43	75.4%	42	71.2%
Owner	34	60.7%	33	57.9%	33	55.9%
Renter	11	19.6%	10	17.5%	9	15.3%
Vacant	11	19.6%	14	24.6%	17	28.8%

	2021		2026	
Owner Occupied Housing Units by Value	**Number**	**Percent**	**Number**	**Percent**
Total	34	100.0%	33	100.0%
<$50,000	1	2.9%	0	0.0%
$50,000-$99,999	2	5.9%	2	6.1%
$100,000-$149,999	6	17.6%	6	18.2%
$150,000-$199,999	12	35.3%	12	36.4%
$200,000-$249,999	2	5.9%	1	3.0%
$250,000-$299,999	2	5.9%	2	6.1%
$300,000-$399,999	8	23.5%	9	27.3%
$400,000-$499,999	1	2.9%	1	3.0%
$500,000-$749,999	0	0.0%	0	0.0%
$750,000-$999,999	0	0.0%	0	0.0%
$1,000,000-$1,499,999	0	0.0%	0	0.0%
$1,500,000-$1,999,999	0	0.0%	0	0.0%
$2,000,000+	0	0.0%	0	0.0%
Median Value	$183,333		$185,417	
Average Value	$213,971		$223,485	

Census 2010 Housing Units	**Number**	**Percent**
Total	56	100.0%
In Urbanized Areas	0	0.0%
In Urban Clusters	0	0.0%
Rural Housing Units	56	100.0%

Data Note: Persons of Hispanic Origin may be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2021 and 2026.

March 03, 2022

Housing Profile

23958, Pamplin, Virginia
Ring: 3 mile radius

Prepared by Esri
Latitude: 37.24239
Longitude: -78.67151

Population		Households	
2010 Total Population	1,017	2021 Median Household Income	$57,260
2021 Total Population	1,043	2026 Median Household Income	$61,087
2026 Total Population	1,049	2021-2026 Annual Rate	1.30%
2021-2026 Annual Rate	0.11%		

	Census 2010		2021		2026	
Housing Units by Occupancy Status and Tenure	Number	Percent	Number	Percent	Number	Percent
Total Housing Units	505	100.0%	540	100.0%	560	100.0%
Occupied	409	81.0%	422	78.1%	425	75.9%
Owner	323	64.0%	341	63.1%	347	62.0%
Renter	86	17.0%	81	15.0%	78	13.9%
Vacant	96	19.0%	118	21.9%	134	23.9%

	2021		2026	
Owner Occupied Housing Units by Value	Number	Percent	Number	Percent
Total	340	100.0%	346	100.0%
<$50,000	29	8.5%	17	4.9%
$50,000-$99,999	41	12.1%	29	8.4%
$100,000-$149,999	63	18.5%	50	14.5%
$150,000-$199,999	85	25.0%	81	23.4%
$200,000-$249,999	31	9.1%	33	9.5%
$250,000-$299,999	8	2.4%	8	2.3%
$300,000-$399,999	58	17.1%	69	19.9%
$400,000-$499,999	4	1.2%	4	1.2%
$500,000-$749,999	21	6.2%	55	15.9%
$750,000-$999,999	0	0.0%	0	0.0%
$1,000,000-$1,499,999	0	0.0%	0	0.0%
$1,500,000-$1,999,999	0	0.0%	0	0.0%
$2,000,000+	0	0.0%	0	0.0%
Median Value	$171,765		$197,531	
Average Value	$208,676		$268,714	

Census 2010 Housing Units	Number	Percent
Total	505	100.0%
In Urbanized Areas	0	0.0%
In Urban Clusters	0	0.0%
Rural Housing Units	505	100.0%

Data Note: Persons of Hispanic Origin may be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2021 and 2026.

March 03, 2022

Housing Profile

23958, Pamplin, Virginia
Ring: 5 mile radius

Prepared by Esri
Latitude: 37.24239
Longitude: -78.67151

Population		Households	
2010 Total Population	2,542	2021 Median Household Income	$57,061
2021 Total Population	2,622	2026 Median Household Income	$60,847
2026 Total Population	2,638	2021-2026 Annual Rate	1.29%
2021-2026 Annual Rate	0.12%		

	Census 2010		2021		2026	
Housing Units by Occupancy Status and Tenure	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Housing Units	1,220	100.0%	1,312	100.0%	1,359	100.0%
Occupied	1,008	82.6%	1,050	80.0%	1,060	78.0%
Owner	792	64.9%	843	64.3%	860	63.3%
Renter	216	17.7%	207	15.8%	200	14.7%
Vacant	212	17.4%	262	20.0%	299	22.0%

	2021		2026	
Owner Occupied Housing Units by Value	**Number**	**Percent**	**Number**	**Percent**
Total	844	100.0%	859	100.0%
<$50,000	75	8.9%	47	5.5%
$50,000-$99,999	117	13.9%	87	10.1%
$100,000-$149,999	164	19.4%	137	15.9%
$150,000-$199,999	180	21.3%	173	20.1%
$200,000-$249,999	94	11.1%	99	11.5%
$250,000-$299,999	31	3.7%	34	4.0%
$300,000-$399,999	123	14.6%	148	17.2%
$400,000-$499,999	8	0.9%	7	0.8%
$500,000-$749,999	51	6.0%	124	14.4%
$750,000-$999,999	0	0.0%	0	0.0%
$1,000,000-$1,499,999	1	0.1%	3	0.3%
$1,500,000-$1,999,999	0	0.0%	0	0.0%
$2,000,000+	0	0.0%	0	0.0%
Median Value	$168,333		$195,809	
Average Value	$203,910		$259,517	

Census 2010 Housing Units	**Number**	**Percent**
Total	1,220	100.0%
In Urbanized Areas	0	0.0%
In Urban Clusters	0	0.0%
Rural Housing Units	1,220	100.0%

Data Note: Persons of Hispanic Origin may be of any race.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2021 and 2026.

March 03, 2022

II. Methodology and Discussion of Issues

Standards and Methodology

I conducted this analysis using the standards and practices established by the Appraisal Institute and that conform to the Uniform Standards of Professional Appraisal Practice. The analyses and methodologies contained in this report are accepted by all major lending institutions, and they are used in Virginia and across the country as the industry standard by certified appraisers conducting appraisals, market analyses, or impact studies and are considered adequate to form an opinion of the impact of a land use on neighboring properties. These standards and practices have also been accepted by the courts at the trial and appellate levels and by federal courts throughout the country as adequate to reach conclusions about the likely impact a use will have on adjoining or abutting properties.

The aforementioned standards compare property uses in the same market and generally within the same calendar year so that fluctuating markets do not alter study results. Although these standards do not require a linear study that examines adjoining property values before and after a new use (e.g. a solar farm) is developed, some of these studies do in fact employ this type of analysis. Comparative studies, as used in this report, are considered an industry standard.

The type of analysis employed is a Matched Pair Analysis or Paired Sales Analysis. This methodology is outlined in **The Appraisal of Real Estate**, Twelfth Edition by the Appraisal Institute pages 438-439. It is further detailed in **Real Estate Damages**, Third Edition, pages 33-36 by Randall Bell PhD, MAI. Paired sales analysis is used to support adjustments in appraisal work for factors ranging from the impact of having a garage, golf course view, or additional bedrooms. It is an appropriate methodology for addressing the question of impact of an adjoining solar farm. The paired sales analysis is based on the theory that when two properties are in all other respects equivalent, a single difference can be measured to indicate the difference in price between them. Dr. Bell describes it as comparing a test area to control areas. In the example provided by Dr. Bell he shows five paired sales in the test area compared to 1 to 3 sales in the control areas to determine a difference. I have used 3 sales in the control areas in my analysis for each sale developed into a matched pair.

Determining what is an External Obsolescence

An external obsolescence is a use of property that, because of its characteristics, might have a negative impact on the value of adjacent or nearby properties because of identifiable impacts. Determining whether a use would be considered an external obsolescence requires a study that isolates that use, eliminates any other causing factors, and then studies the sales of nearby versus distant comparable properties. The presence of one or a combination of key factors does not mean the use will be an external obsolescence, but a combination of these factors tends to be present when market data reflects that a use is an external obsolescence.

External obsolescence is evaluated by appraisers based on several factors. These factors include but are not limited to:

1) Traffic. Solar Farms are not traffic generators.

2) Odor. Solar farms do not produce odor.

3) Noise. Solar farms generate no noise concerns and are silent at night.

4) Environmental. Solar farms do not produce toxic or hazardous waste. Grass is maintained underneath the panels so there is minimal impervious surface area.

5) Appearance/Viewshed. This is the one area that potentially applies to solar farms. However, solar farms are generally required to provide significant setbacks and landscaping buffers to address that concern. Furthermore, any consideration of appearance of viewshed impacts has to be considered in comparison with currently allowed uses on that site. For example if a residential subdivision is already an allowed use, the question becomes in what way does the appearance impact adjoining property owners above and beyond the appearance of that allowed subdivision or other similar allowed uses.

6) Other factors. I have observed and studied many solar farms and have never observed any characteristic about such facilities that prevents or impedes neighbors from fully using their homes or farms or businesses for the use intended.

Relative Solar Farm Sizes

Solar farms have been increasing in size in recent years. Much of the data collected is from existing, older solar farms of smaller size, but there are numerous examples of sales adjoining 75 to 80 MW facilities that show a similar trend as the smaller solar farms. This is understandable given that the primary concern relative to a solar farm is the appearance or view of the solar farm, which is typically addressed through setbacks and landscaping buffers. The relevance of data from smaller solar farms to larger solar farms is due to the primary question being one of appearance. If the solar farm is properly screened, then little of the solar farm would be seen from adjoining property regardless of how many acres are involved.

Larger solar farms are often set up in sections where any adjoining owner would only be able to see a small section of the project even if there were no landscaping screen. Once a landscaping screen is in place, the primary view is effectively the same whether adjoining a 5 MW, 20 MW or 100 MW facility.

I have split out the data for the matched pairs adjoining larger solar farms only to illustrate the similarities later in this report.

Steps Involved in the Analysis

The paired sales analysis employed in this report follows the following process:

1. Identify sales of property adjoining existing solar farms.
2. Compare those sales to similar property that does not adjoin an existing solar farm.
3. Confirmation of sales are noted in the analysis write ups.
4. Distances from the homes to panels are included as a measure of the setbacks.
5. Topographic differences across the solar farms themselves are likewise noted along with demographic data for comparing similar areas.

There are a number of Sale/Resale comparables included in the write ups, but most of the data shown is for sales of homes after a solar farm has been announced (where noted) or after a solar farm has been constructed.

III. Research on Solar Farms

A. Appraisal Market Studies

I have also considered a number of impact studies completed by other appraisers as detailed below.

CohnReznick – Property Value Impact Study: Adjacent Property Values Solar Impact Study: A Study of Eight Existing Solar Facilities

Patricia McGarr, MAI, CRE, FRICS, CRA and Andrew R. Lines, MAI with CohnReznick completed an impact study for a proposed solar farm in Cheboygan County, Michigan completed on June 10, 2020. I am familiar with this study as well as a number of similar such studies completed by CohnReznick. I have not included all of these studies but I submit this one as representative of those studies.

This study addresses impacts on value from eight different solar farms in Michigan, Minnesota, Indiana, Illinois, Virginia and North Carolina. These solar farms are 19.6 MW, 100 MW, 11.9 MW, 23 MW, 71 MW, 61 MW, 40 MW, and 19 MW for a range from 11.9 MW to 100 MW with an average of 31 MW and a median of 31.5 MW. They analyzed a total of 24 adjoining property sales in the Test Area and 81 comparable sales in the Control Area over a five-year period.

The conclusion of this study is that there is no evidence of any negative impact on adjoining property values based on sales prices, conditions of sales, overall marketability, potential for new development or rate of appreciation.

Christian P. Kaila & Associates – Property Impact Analysis – Proposed Solar Power Plant Guthrie Road, Stuarts Draft, Augusta County, Virginia

Christian P. Kaila, MAI, SRA and George J. Finley, MAI developed an impact study as referenced above dated June 16, 2020. This was for a proposed 83 MW facility on 886 acres.

Mr. Kaila interviewed appraisers who had conducted studies and reviewed university studies and discussed the comparable impacts of other development that was allowed in the area for a comparative analysis of other impacts that could impact viewshed based on existing allowed uses for the site. He also discussed in detail the various other impacts that could cause a negative impact and how solar farms do not have such characteristics.

Mr. Kaila also interviewed county planners and real estate assessors in eight different Virginia counties with none of the assessor's identifying any negative impacts observed for existing solar projects.

Mr. Kaila concludes on a finding of no impact on property values adjoining the indicated solar farm.

Fred Beck, MAI, CCIM – Impact Analysis in Lincoln County 2013

Mr. Fred Beck, MAI, CCIM completed an impact analysis in 2013 for a proposed solar farm that concluded on a negative impact on value. That report relied on a single cancelled contract for an adjoining parcel where the contracted buyers indicated that the solar farm was the reason for the cancellation. It also relied on the activities of an assessment impact that was applied in a nearby county.

Mr. Beck was interviewed as part of the Christian Kalia study noted above. From that I quote "Mr. Beck concluded on no effect on moderate priced homes, and only a 5% change in his limited research of higher priced homes. His one sale that fell through is hardly a reliable sample. It also

was misleading on Mr. Beck's part to report the lower re-assessments since the primary cause of the re-assesments were based on the County Official, who lived adjacent to the solar farm, appeal to the assessor for reductions with his own home." In that Clay County Case study the noted lack of lot sales after announcement of the solar farm also coincided with the recession in 2008/2009 and lack of lot sales effectively defined that area during that time.

I further note, that I was present at the hearing where Mr. Beck presented these findings and the predominance of his argument before the Lincoln County Board of Commissioner's was based on the one cancelled sale as well as a matched pair analysis of high-end homes adjoining a four-story call center. He hypothesized that a similar impact from that example could be compared to being adjacent solar farm without explaining the significant difference in view, setbacks, landscaping, traffic, light, and noise. Furthermore, Mr. Beck did have matched pairs adjoining a solar farm in his study that he put in the back of his report and then ignored as they showed no impact on property value.

Also noted in the Christian Kalia interview notes is a response from Mr. Beck indicating that in his opinion "the homes were higher priced homes and had full view of the solar farm." Based on a description of screening so that "the solar farm would not be in full view to adjoining property owners. Mr. Beck said in that case, he would not see any drop in property value."

NorthStar Appraisal Company – Impact Analysis for Nichomus Run Solar, Pilesgrove, NJ, September 16, 2020

Mr. William J. Sapio, MAI with NorthStar Appraisal Company considered a matched pair analysis for the potential impact on adjoining property values to this proposed 150 MW solar farm. Mr. Sapio considered sales activity in a subdivision known as Point of Woods in South Brunswick Township and identified two recent new homes that were constructed and sold adjoining a 13 MW solar farm and compared them to similar homes in that subdivision that did not adjoin the solar farm. These homes sold in the $1,290,450 to $1,336,613 price range and these homes were roughly 200 feet from the closest solar panel.

Based on this analysis, he concluded that the adjoining solar farm had no impact on adjoining property value.

MR Valuation Consulting, LLC – The Kuhl Farm Solar Development and The Fischer Farm Solar Development – June 7, 2012

Mr. Mark Pomykacaz, MAI MRICS with MR Valuation Consulting, LLC considered a matched pair analysis for sales near these solar farms. The sales data presented supported a finding of no impact on property value for nearby and adjoining homes and concludes that there is no impact on marketing time and no additional risk involved with owning, building, or selling properties next to the solar farms.

Conclusion of Impact Studies

Of the five studies noted three included actual sales data to derive an opinion of no impact on value. The only study to conclude on a negative impact was the Fred Beck study based on no actual sales data adjoining solar farms, and he has since indicated that with landscaping screens he would not conclude on a negative impact.

I have relied on these studies as additional support for the findings in this impact analysis.

B. Articles

I have also considered a number of articles on this subject as well as conclusions and analysis as noted below.

Farm Journal Guest Editor, March 22, 2021 – Solar's Impact on Rural Property Values

Andy Ames, ASFMRA (American Society of Farm Managers and Rural Appraisers) published this article that includes a discussion of his survey of appraisers and studies on the question of property value related to solar farms. He discusses the university studies that I have cited as well as Patricia McGarr, MAI.

He also discusses the findings of Donald A. Fisher, ARA, who served six years at the Chair of the ASFMRA's National Appraisal Review Committee. He is also the Executive Vice President of the CNY Pomeroy Appraiser and has conducted several market studies on solar farms and property impact. He is quoted in the article as saying, "Most of the locations were in either suburban or rural areas, and all of those studies found either a neutral impact, or ironically, a positive impact, where values on properties after installation of solar farms went up higher than time trends."

Howard Halderman, AFM, President and CEO of Halderman Real Estate and Farm Management attended the ASFMRA solar talk hosted by the Indiana Chapter of the ASFMRA and he concludes that other rural properties would likely see no impact and farmers and landowners shown even consider possible benefits. "In some cases, farmers who rent land to a solar company will insure the viability of their farming operation for a longer time period. This makes them better long-term tenants or land buyers so one can argue that higher rents and land values will follow due to the positive impact the solar leases offer."

National Renewable Energy Laboratory – Top Five Large-Scale Solar Myths, February 3, 2016

Megan Day reports form NREL regarding a number of concerns neighbors often express. Myth #4 regarding property value impacts addresses specifically the numerous studies on wind farms that show no impact on property value and that solar farms have a significantly reduced visual impact from wind farms. She highlights that the appearance can be addressed through mitigation measures to reduce visual impacts of solar farms through vegetative screening. Such mitigations are not available to wind farms given the height of the windmills and again, those studies show no impact on value adjoining wind farms.

North Carolina State University: NC Clean Energy Technology Center White Paper: Balancing Agricultural Productivity with Ground-Based Solar Photovoltaic (PV) Development (Version 2), May 2019

Tommy Cleveland and David Sarkisian wrote a white paper for NCSU NC Clean Energy Technology Center regarding the potential impacts to agricultural productivity from a solar farm use. I have interviewed Tommy Cleveland on numerous occasions and I have also heard him speak on these issues at length as well. He addresses many of the common questions regarding how solar farms work and a detailed explanation of how solar farms do not cause significant impacts on the soils, erosion and other such concerns. This is a heavily researched paper with the references included.

North Carolina State University: NC Clean Energy Technology Center White Paper: Health and Safety Impacts of Solar Photovoltaics, May 2017

Tommy Cleveland wrote a white paper for NCSU NC Clean Energy Technology Center regarding the health and safety impacts to address common questions and concerns related to solar farms. This is a heavily researched white paper addressing questions ranging from EMFs, fire safety, as well as vegetation control and the breakdown of how a solar farm works.

C. Broker Commentary

In the process of working up the matched pairs used later in this report, I have collected comments from brokers who have actually sold homes adjoining solar farms indicating that the solar farm had no impact on the marketing, timing, or sales price for the adjoining homes. I have included comments from 12 such brokers within this report including brokers from Kentucky, Virginia, Tennessee, and North Carolina.

I have additional commentary from other states including New Jersey and Michigan that provide the same conclusion.

IV. University Studies

I have also considered the following studies completed by four different universities related to solar farms and impacts on property values.

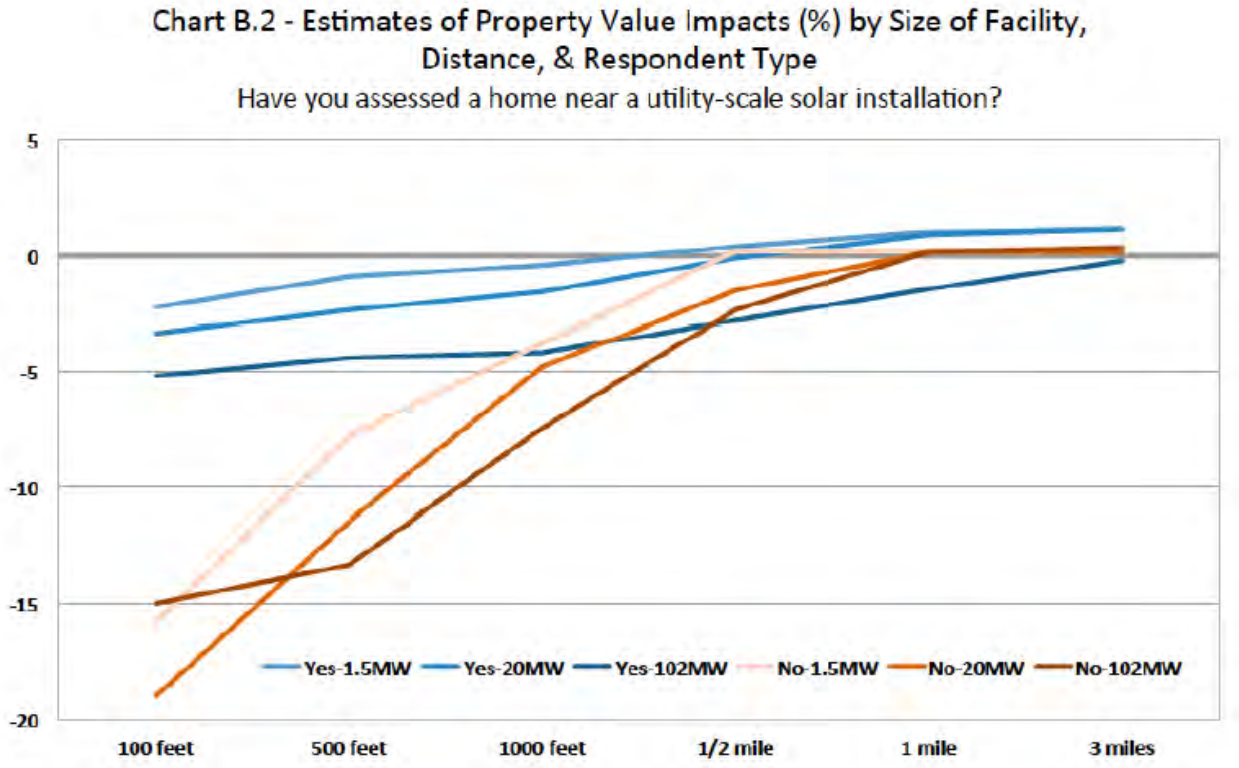
A. University of Texas at Austin, May 2018

An Exploration of Property-Value Impacts Near Utility-Scale Solar Installations

This study considers solar farms from two angles. First it looks at where solar farms are being located and concludes that they are being located primarily in low density residential areas where there are fewer homes than in urban or suburban areas.

The second part is more applicable in that they conducted a survey of appraisers/assessors on their opinions of the possible impacts of proximity to a solar farm. They consider the question in terms of size of the adjoining solar farm and how close the adjoining home is to the solar farm. I am very familiar with this part of the study as I was interviewed by the researchers multiple times as they were developing this. One very important question that they ask within the survey is very illustrative. They asked if the appraiser being surveyed had ever appraised a property next to a solar farm. There is a very noticeable divide in the answers provided by appraisers who have experience appraising property next to a solar farm versus appraisers who self-identify as having no experience or knowledge related to that use.

On Page 16 of that study they have a chart showing the responses from appraisers related to proximity to a facility and size of the facility, but they separate the answers as shown below with appraisers with experience in appraising properties next to a solar farm shown in blue and those inexperienced shown in brown. Even within 100 feet of a 102 MW facility the response from experienced appraisers were -5% at most on impact. While inexperienced appraisers came up with significantly higher impacts. This chart clearly shows that an uninformed response widely diverges from the sales data available on this subject.



Furthermore, the question cited above does not consider any mitigating factors such as landscaping buffers or screens which would presumably reduce the minor impacts noted by experienced appraisers on this subject.

The conclusion of the researchers is shown on Page 23 indicated that "Results from our survey of residential home assessors show that the majority of respondents believe that proximity to a solar installation has either no impact or a positive impact on home values."

This analysis supports the conclusion of this report that the data supports no impact on adjoining property values.

B. University of Rhode Island, September 2020

Property Value Impacts of Commercial-Scale Solar Energy in Massachusetts and Rhode Island

The University of Rhode Island published a study entitled **Property Value Impacts of Commercial-Scale Solar Energy in Massachusetts and Rhode Island** on September 29, 2020 with lead researchers being Vasundhara Gaur and Corey Lang. I have read that study and interviewed Mr. Corey Lang related to that study. This study is often cited by opponents of solar farms but the findings of that study have some very specific caveats according to the report itself as well as Mr. Lang from the interview.

While that study does state in the Abstract that they found depreciation of homes within 1-mile of a solar farm, that impact is limited to non-rural locations. On Pages 16-18 of that study under Section 5.3 Heterogeneity in treatment effect they indicate that the impact that they found was limited to non-rural locations with the impact in rural locations effectively being zero. For the study they defined "rural" as a municipality/township with less than 850 population per square mile.

They further tested the robustness of that finding and even in areas up to 2,000 population per square mile they found no statistically significant data to suggest a negative impact. They have not specifically defined a point at which they found negative impacts to begin, as the sensitivity study stopped checking at the 2,000-population dataset.

Where they did find negative impacts was in high population density areas that was largely a factor of running the study in Massachusetts and Rhode Island which the study specifically cites as being the 2nd and 3rd most population dense states in the USA. Mr. Lang in conversation as well as in recorded presentations has indicated that the impact in these heavily populated areas may reflect a loss in value due to the scarce greenery in those areas and not specifically related to the solar farm itself. In other words, any development of that site might have a similar impact on property value.

Based on this study I have checked the population for the District 501 of Prince Edward County, which has a population of 2,742 population for 2021 based on HomeTownLocator and a total area of 78.34 square miles. This indicates a population density of 35 people per square mile which puts this well below the threshold indicated by the Rhode Island Study.

I therefore conclude that the Rhode Island Study supports the indication of no impact on adjoining properties for the proposed solar farm project.

C. *Master's Thesis: ECU by Zachary Dickerson July 2018*

A Solar Farm in *My* Backyard? Resident Perspectives of Utility-Scale Solar in Eastern North Carolina

This study was completed as part of a Master of Science in Geography Master's Thesis by Zachary Dickerson in July 2018. This study sets out to address three questions:

1. Are there different aspects that affect resident satisfaction regarding solar farms?

2. Are there variations in satisfaction for residents among different geographic settings, e.g. neighborhoods adjacent to the solar farms or distances from the solar farms?

3. How can insight from both the utility and planning sectors, combined with knowledge gained from residents, fill gaps in communication and policy writing in regard to solar farms?

This was done through survey and interview with adjacent and nearby neighbors of existing solar farms. The positive to neutral comments regarding the solar farms were significantly higher than negative. The researcher specifically indicates on Page 46 "The results show that respondents generally do not believe the solar farms pose a threat to their property values."

The most negative comments regarding the solar farms were about the lack of information about the approval process and the solar farm project prior to construction.

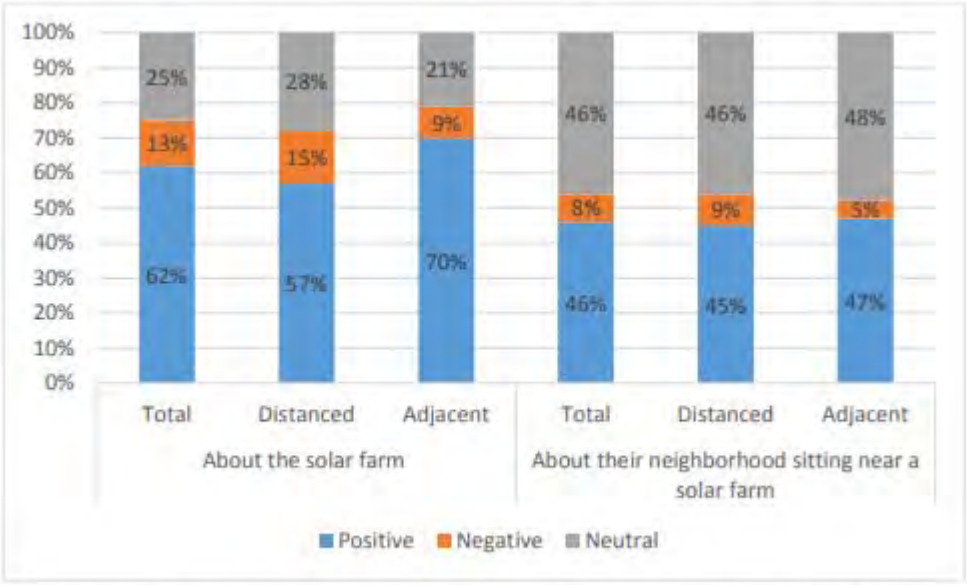


Figure 11: Residents' positive/negative word choices by geographic setting for both questions

D. Ernest Orlando Lawrence Berkeley National Laboratory, December, 2019

The Impact of Wind Power Projects on Residential Property Values in the United States: A Multi-Site Hedonic Analysis

This study addresses wind farms and not solar farms but it is a reasonable consideration. The activity on a wind farm is significantly different in terms of the mechanics and more particularly on the appearance or viewshed as wind farms cannot be screened from adjoining property owners. This study was commissioned by the Department of Energy and not by any developer. This study examined 7,500 home sales between 1996 and 2007 in order to track sales prices both before and after a wind energy facility was announced or built. This study specifically looked into possible stigma, nuisance, and scenic vista.

On page 17 of that study they conclude "Although the analysis cannot dismiss the possibility that individual homes or small numbers of homes have been or could be negatively impacted, it finds that if these impacts do exist, they are either too small and/or too infrequent to result in any widespread, statistically observable impact."

Given that solar farms are a similar use, but with a lower profile and therefore a lower viewshed than the wind farms, it is reasonable to translate these findings of no impact to solar farms.

V. Assessor Surveys

I have attempted to contact all of the assessor departments in North Carolina to determine how local assessors are handling solar farms and adjoining property values. I have spoken personally with a number of assessors, but much of this data was obtained via email. I have 39 counties in NC that have both responded to these questions on property value and also have solar farms in that county. I have excluded responses from assessors from counties where there are no current solar farms.

As can be seen in the chart below, of the 39 responses all of the responses have indicated that they make no adjustment to properties adjoining solar farms. Several assessors indicated that it would require an adjoining property owner to appeal their property value with data showing a negative impact before they would make any adjustment and to date they have not had that happen.

I also point out specifically Clay County. I spoke with the assessor there specifically about adjustments that were applied to some properties near a solar farm back in 2008. She was unaware of the details of that event as she was not in this position at that time. As discussed earlier in this report the lower re-assessments at that solar farm were based on a County Official, who owned property adjacent to the solar farm, who made an appeal to the assessor for reductions for his own property. The noted lack of lot sales after announcement of the solar farm however coincided with the recession in 2008/2009 and lack of lot sales effectively defined that area during that time, but without relying on any data the assessor made that change in that time frame based on conversations with the assessor. Since then, Clay County has confirmed that they do not currently make any changes to adjoining property values and the current county assessor was not even aware that they had in the past done so.

NC Assessor Survey on Solar Farm Property Value Impacts

County	Assessor's Name	Number of Farms	Change in Adjacent Property Value
Alexander	Doug Fox	3	No
Buncombe	Lisa Kirbo	1	No
Burke	Daniel Isenhour	3, 2 on 1 parcel, 1 on 3 parcels	No
Cabarrus	Justin	less than 10, more in the works	No
Caldwell	Monty Woods	3 small	No, but will look at data in 2025
Catawba	Lori Ray	14	No
Chatham	Jenny Williams	13	No
Cherokee	Kathy Killian	9	No
Chowan	Melissa Radke	3, I almost operational	No
Clay	Bonnie L. Lyvers		No
Davidson	Libby	1	No
Duplin	Gary Rose	34, 2 more in planning	No
Franklin	Marion Cascone	11	No
Gaston	Traci Hovis	3	No
Gates	Chris Hill	3	No
Granville	Jenny Griffin	8	No
Halifax	C. Shane Lynch	Multiple	No
Hoke	Mandi Davis	4	No
Hyde	Donnie Shumate	1 to supplement egg processing plant	No
Iredell	Wes Long	2, 3 others approved	No
Lee	Lisa Faulkner	8	No
Lincoln	Susan Sain	2	No
Moore	Michael Howery	10	No
New Hanover	Rhonda Garner	35	No
Orange	Chad Phillip	2 or 7 depending on breakdown	No
Pender	Kayla Bolick Futrell	6	No
Person	Russell Jones	9	No
Pitt	Russell D. Hill	8, 1 in planning	No
Randolph	Mark Frick	19	No
Rockingham	Mark C McClintock	6	No
Rutherford	Kim Aldridge	20	No
Sampson	Jim Johnson	9, 1 in construction	No
Scotland	James Brown	15, 1 in process	No
Stokes	Richard Brim	2	No
Surry	Penny Harrison	4, 2 more in process	No
Union	Robin E. Merry	6	No
Vance	Cathy E. Renn	13	No
Warren	John Preston	7	No
Wayne	Alan Lumpkin	32	No
Wilson	William (Witt) Putney	~16	No, mass appraisal standards applied

Responses: 39
Negative Impact on Adjoining Value = Yes: 0
Negative Impact on Adjoining Value = No: 39

I have also been working on a survey of Virginia Assessors regarding property values related to solar farms and whether or not the local assessors have found any data to support any changes to value on property adjoining solar farms. In this process I have contacted every assessor's office by email and I have received responses by email and by phone from a number of these counties. Many of the counties in Virginia rely on outside firms to assist in gathering data for the assessments and where that is the case we have contacted the outside firms regarding the question of whether or not the assessors are currently making any adjustments to properties adjoining solar farms.

I currently have response from 16 counties that have solar farms in them and of those 16 responses none of the assessors are currently applying a negative impact on property value. One response suggested that adjoining values may go up.

I did speak with Randy Willis with Pearson Assessors. His company assists in the assessments in many of the counties south of Richmond. He indicated that they had found no data to suggest a negative impact on property value and they have looked as they were concerned about that issue.

He indicated that they would make no negative impact adjustments and that he recognizes that there are a number of agricultural adjoining uses that have a greater impact on adjoining properties in terms of noise, dust and odor than a solar farm would have. He did indicate that there could be situations where an individual home might have a greater visual impact and those should be looked at on a case-by-case basis, but he also agreed that many allowed agricultural uses could have similar visual impacts on such properties as well.

VIRGINIA Commissioner of the Revenue

County	Assessor Name	Number of Farms in Operation	Change in adjacent property value
Appomattox	Sara Henderson	1, plus one in process	No
Augusta	W. Jean Shrewsbury	no operational	No
Buckingham	Stephanie D. Love	1	No
Charlotte	Naisha Pridgen Carter	1, several others in the works	No
Clarke	Donna Peake	1	No
Frederick	Seth T. Thatcher	none, 2 appoved for 2022	No, assuming compatible with rural area
Goochland	Mary Ann Davis		No
Hanover	Ed Burnett	1	No
Louisa	Stacey C. Fletcher	2 operational by end of year	No, only if supported by market data
Mecklenburg	Joseph E. "Ed" Taylor		No
Nottoway	Randy Willis with Pearson Assessors		No
Powhatan	Charles Everest	2 approved, 1 built	Likely increase in value
Rockingham	Dan Cullers	no operational	Likely no
Southampton	Amy B. Carr	1	Not normally
Surry	Jonathan F. Judkins	1	None at this time
Westmoreland	William K. Hoover	4	No

Responses: 16
Negative Impact on Adjoining Value = Yes: 0
Negative Impact on Adjoining Value = No: 16

VI. Summary of Solar Projects In Virginia

I have researched the solar projects in Virginia. I identified the solar farms through the Solar Energy Industries Association (SEIA) Major Projects List and then excluded the roof mounted facilities. I focused on larger solar farms over 10 MW though I have included a couple of smaller solar farms as shown in the chart below.

I was able to identify and research 50 solar farms in Virginia as shown below. These are primarily over 20 MW in size with adjoining homes as close as 100 feet and the mix of adjoining uses is primarily agricultural and residential.

Parcel #	Name	County	City	Output (MW)	Total Acres	Used Acres	Avg. Dist to home	Closest Home	Adjoining Use by Acre			
									Res	Agri	Agri/Res	Com
115	Buckingham I	Buckingham	Cumberland	19.8	481.18		N/A	N/A	8%	73%	18%	0%
121	Scott	Powhatan	Amelia Court Hou	20	898.4		1,421	730	29%	28%	44%	0%
204	Walker-Correctional	New Kent	Barhamsville	20	484.65	484.65	516	103	13%	68%	20%	0%
205	Sappony	Sussex	Stony Creek	20	322.68	322.68			2%	98%	0%	0%
216	Beetle	Southampton	Boykins	40	422.19	422.19	1,169	310	0%	10%	90%	0%
222	Grasshopper	Mecklenburg	Chase City	80	946.25	946.25			6%	87%	5%	1%
226	Belcher	Louisa	Louisa	88	1238.11	1238.11		150	19%	53%	28%	0%
228	Bluestone Farm	Mecklenburg	Chase City	4.99	332.5	332.5			0%	100%	0%	0%
257	Nokesville	Prince Willia	Nokesville		331.01	331.01			12%	49%	17%	23%
261	Buckingham II	Buckingham	Buckingham	19.8	460.05	460.05			6%	79%	15%	0%
262	Mount Jackson	Shenandoah	Mount Jackson	15.65	652.47	652.47			21%	51%	14%	13%
263	Gloucester	Gloucester	Gloucester	20	203.55	203.55	508	190	17%	55%	28%	0%
267	Scott II	Powhatan	Powhatan		701	701			41%	25%	34%	0%
272	Churchview	Middlesex	Church View	20	567.91	567.91			9%	64%	27%	0%
303	Turner	Henrico	Henrico	20	463.12	463.12	N/A	N/A	21%	37%	0%	42%
311	Sunnybrook Farm	Halifax	Scottsburg		527.88	527.88	N/A	N/A	15%	59%	26%	0%
312	Powell Creek	Halifax	Alton		513	513	N/A	N/A	7%	71%	22%	0%
339	Crystal Hill	Halifax	Crystal Hill		628.67	628.67	1,570	140	6%	41%	35%	18%
354	Amazon East	Accomack	Oak Hall	80	1000	1000	645	135	8%	75%	17%	0%
355	Alton Post	Halifax	Alton		501.96	501.96	749	100	2%	58%	40%	0%
364	Remington	Fauquier	Remington	20	277.2	277.2	2,755	1,280	10%	41%	31%	18%
365	Greenwood	Culpepper	Stevensburg	100	2266.58	2266.58	788	200	8%	62%	29%	0%
367	Culpeper Sr	Culpeper	Culpeper		12.53	12.53	N/A	N/A	15%	0%	86%	0%
370	Cherrydale	Northampton	Kendall Grove	20	180.17	180.17	N/A	N/A	5%	0%	92%	3%
373	Woodland,VA	Isle of Wight	Smithfield	19.7	211.12	211.12	606	190	9%	0%	91%	0%
374	Whitehouse	Louisa	Louisa	20	499.52	499.52	1,195	110	24%	55%	18%	4%
402	Cedar Park	Henrico	Richmond		13.93	13.93			57%	0%	0%	43%
407	Foxhound	Halifax	Clover	91	1311.78	1311.78	885	185	5%	61%	17%	18%
415	Stagecoach II	Halifax	Nathalie	16.625	327.87	327.87	1,073	255	5%	66%	29%	0%
484	Essex Solar Center	Essex	Center Cross	20	106.12	106.12	693	360	3%	70%	27%	0%
485	Southampton	Southampton	Newsoms	100	3243.92	3243.92	-	-	3%	78%	17%	3%
487	Augusta	Augusta	Stuarts Draft	125	3197.4	1147	588	165	16%	61%	16%	7%
490	Cartersville	Powhatan	Powhatan		2945	1358	1,467	105	6%	14%	80%	0%
495	Walnut	King and Que	Shacklefords	110	1700	1173	641	165	14%	72%	13%	1%
497	Piney Creek	Halifax	Clover	80	776.18	422	523	195	15%	62%	24%	0%
511	UVA Puller	Middlesex	Topping	15	120	120	1,095	185	59%	32%	0%	10%
519	Fountain Creek	Greensville	Emporia	80	798.3	798.3	-	-	6%	23%	71%	0%
557	Winterpock 1	Chesterfield	Chesterfield		518	308	2,106	350	4%	78%	18%	0%
577	Windsor	Isle of Wight	Windsor	85	564.1	564.1	572	160	9%	67%	24%	0%
579	Spotsylvania	Spotsylvania	Paytes	500	6412	3500			9%	52%	11%	27%
586	Sweet Sue	King William	Aylett	77	1262	576	1,617	680	7%	68%	25%	0%
591	Warwick	Prince Georg	Disputanta	26.5	967.62	442.05	555	115	12%	68%	20%	0%
621	Loblolly	Surry	Spring Grove	150	2181.92	1000	1,860	110	7%	62%	31%	0%
622	Woodridge	Albemarle	Scottsville	138	2260.87	1000	1,094	170	9%	63%	28%	0%
633	Brunswick	Greensville	Emporia	150.2	2076.36	1387.3	1,091	240	4%	85%	11%	0%
642	Belcher 3	Louisa	Louisa		749.36	658.56	598	180	14%	71%	14%	1%
649	Endless Caverns	Rockingham	New Market	31.5	355	323.6	624	190	15%	27%	51%	7%
664	Watlington	Halifax	South Boston	20	240.09	137	536	215	24%	48%	28%	0%
671	Spout Spring	Appomattox	Appomattox	60	881.12	673.37	836	335	16%	30%	46%	8%
703	Lily Pond	Dinwiddie	Carson	80	2197.74	1930	723	115	13%	60%	27%	0%
		Total Number of Solar Farms		50								
			Average	66.76	1006.61	755.54	1003.2	253.5	13%	53%	29%	5%
			Median	31.50	566.01	520.44	788.0	185.0	9%	60%	24%	0%
			High	500.00	6412.00	3500.00	2755.0	1280.0	59%	100%	92%	43%
			Low	4.99	12.53	12.53	508.0	100.0	0%	0%	0%	0%

On the following pages I have included summary data on the constructed solar farms indicated above. Similar information is available for the larger set of solar farms in the adjoining states in my files if requested.

115: Buckingham Solar, E. James Anderson Hwy, Buckingham, VA

This project was proposed in 2017 and located on 460 acres with the closest home proposed to be 150 feet from the closest solar panel.

Adjoining Use Breakdown

	Acreage	Parcels
Residential	5.95%	71.79%
Agricultural	78.81%	20.51%
Agri/Res	15.24%	7.69%
Total	**100.00%**	**100.00%**

121: Scott Solar Project, 1580 Goodes Bridge Rd, Powhatan, VA

This project was built in 2016 and located on 165 acres out of 898 acres for a 17 MW with the closest home proposed to be 730 feet from the closest solar panel.

Adjoining Use Breakdown

	Acreage	Parcels
Residential	28.83%	78.57%
Agri/Res	43.52%	3.57%
Agricultural	27.65%	17.86%
Total	**100.00%**	**100.00%**

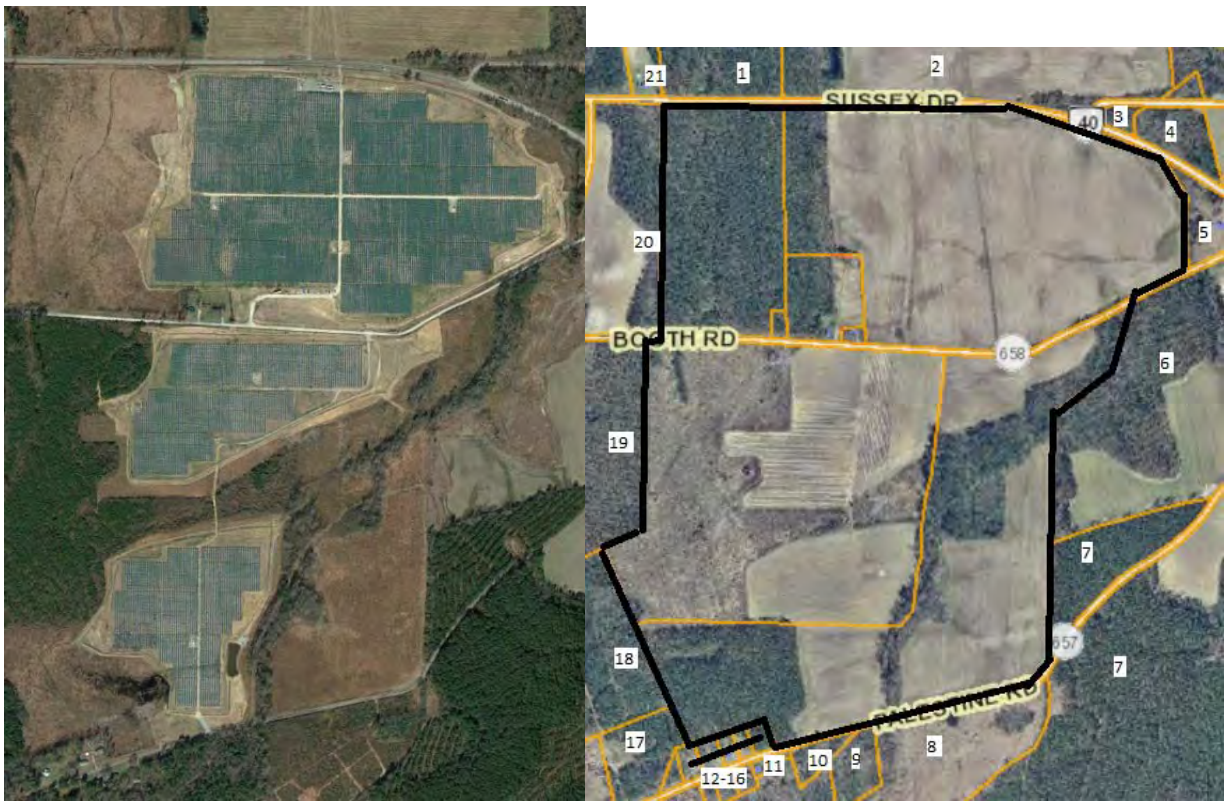
204: Walker-Correctional Solar, Barham Road, Barhamsville, VA

This project was built in 2017 and located on 484.65 acres for a 20 MW with the closest home at 110 feet from the closest solar panel with an average distance of 500 feet.

Adjoining Use Breakdown

	Acreage	Parcels
Residential	12.59%	76.92%
Agricultural	67.71%	15.38%
Agri/Res	19.70%	7.69%
Total	**100.00%**	**100.00%**

205: Sappony Solar, Sussex Drive, Stony Creek, VA



This project was built in 2017 and located on 484.65 acres for a 20 MW with the closest home at 110 feet from the closest solar panel with an average distance of 500 feet.

Adjoining Use Breakdown

	Acreage	Parcels
Residential	12.59%	76.92%
Agricultural	67.71%	15.38%
Agri/Res	19.70%	7.69%
Total	**100.00%**	**100.00%**

354: Amazon Solar project East (Eastern Shore), Accomack, VA

This project was built in 2016 for a solar project on a 1,000-acre assemblage for an 80 MW facility. The closest home is 135 feet from the closest panel.

Adjoining Use Breakdown

	Acreage	**Parcels**
Residential	8.18%	63.74%
Agricultural	75.16%	30.77%
Agri/Res	16.56%	3.30%
Substation	0.08%	1.10%
Church	0.01%	1.10%
Total	**100.00%**	**100.00%**

364: Remington Solar, 12080 Lucky Hill Rd, Remington, VA

This project was built in 2017 for a solar project on a 125-acre tract for a 20 MW facility. There were some recent home sales adjoining this project, but it was difficult to do any matched pairs. One sale was an older home in very poor condition according to the broker and required crossing railroad tracks on a private road to get access to the home and located across from a large industrial building. The other sale is a renovated historic home on a large tract of land just one parcel north of the large industrial building. These sales essentially have too much static around them to isolate any impacts separate from these other factors.

Adjoining Use Breakdown

	Acreage	**Parcels**
Residential	10.24%	65.38%
Agricultural	40.79%	19.23%
Agri/Res	30.87%	7.69%
Warehouse	0.82%	3.85%
Substation	17.28%	3.85%
Total	**100.00%**	**100.00%**

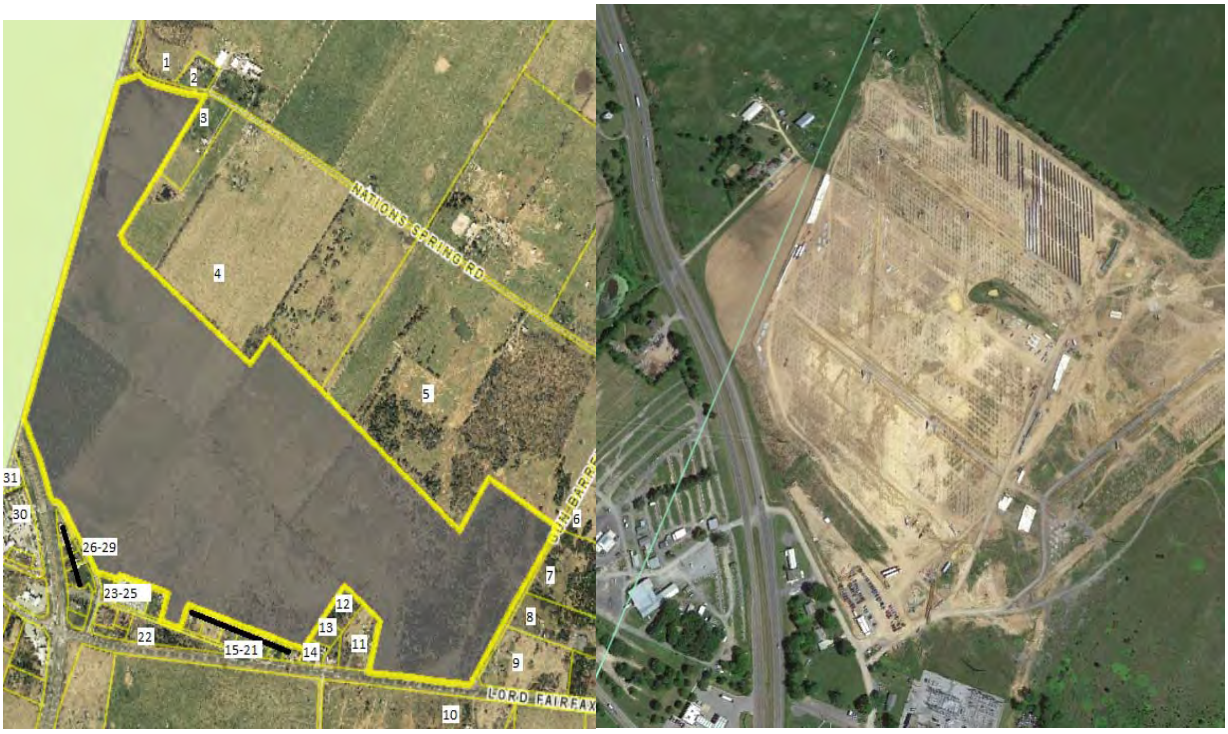
370: Cherrydale Solar, Seaside Road, Kendall Grove, VA

This project was built in 2017 and located on 180.17 acres for a 20 MW facility.

Adjoining Use Breakdown

	Acreage	Parcels
Residential	5.44%	80.77%
Agricultural	92.01%	15.38%
Warehouse	2.55%	3.85%
Total	**100.00%**	**100.00%**

371: Clarke County Solar, Double Tollgate Road, White Post, VA

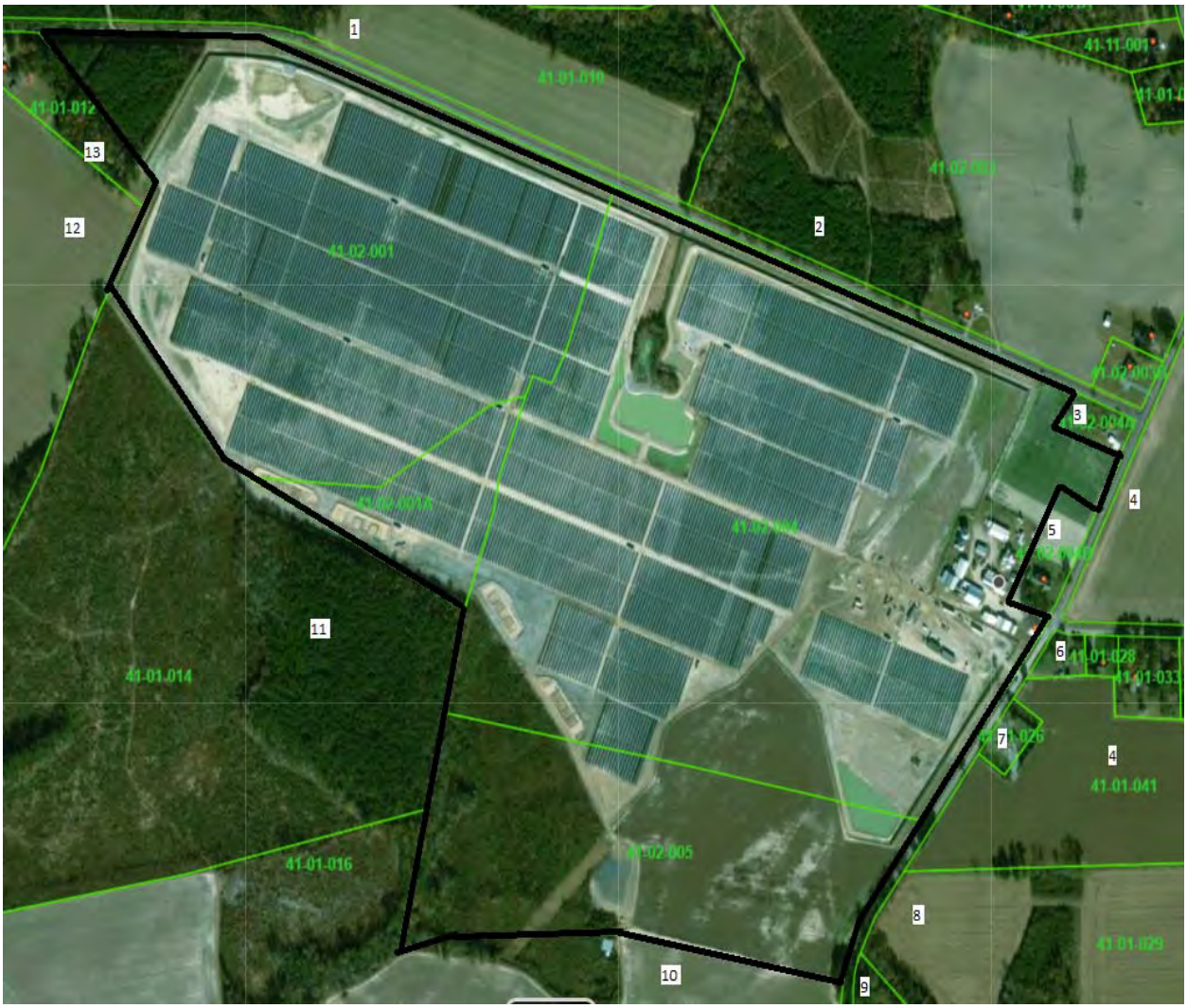


This project was built in 2017 and located on a portion of a 234.84-acre tract for a 20 MW facility.

Adjoining Use Breakdown

	Acreage	Parcels
Residential	13.70%	74.19%
Agricultural	38.89%	6.45%
Agri/Res	46.07%	6.45%
Commercial	0.19%	6.45%
Warehouse	0.85%	3.23%
Substation	0.30%	3.23%
Total	**100.00%**	**100.00%**

373: Woodland Solar, Longview Drive, Smithfield, VA



This project was built in 2016 for a solar project on a 211.12-acre tract for a 19.7 MW facility. The closest single-family home is 190 feet away from the closest solar panel. The average distance is 606 feet.

Adjoining Use Breakdown

	Acreage	Parcels
Residential	8.85%	46.15%
Agricultural	91.08%	46.15%
Cell Tower	0.07%	7.69%
Total	**100.00%**	**100.00%**

374: Whitehouse Solar, Chalklevel Road, Louisa, VA

This project was built in 2016 for a solar project on a 499.52-acre tract for a 20 MW facility. The closest single-family home is 110 feet away from the closest solar panel. The average distance is 1,195 feet.

Adjoining Use Breakdown

	Acreage	**Parcels**
Residential	23.55%	70.27%
Agricultural	54.51%	10.81%
Agri/Res	18.22%	2.70%
Commercial	2.49%	13.51%
Industrial	1.22%	2.70%
Total	**100.00%**	**100.00%**

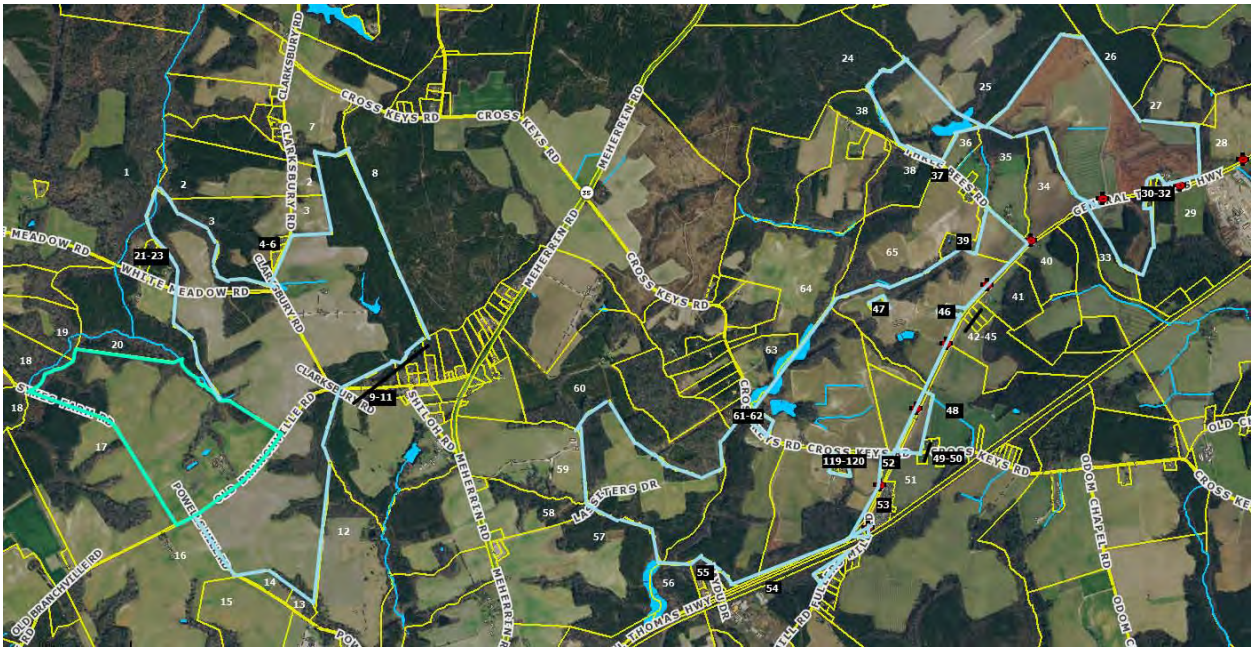
484: Essex Solar, Tidewater Trail, Center Cross, VA

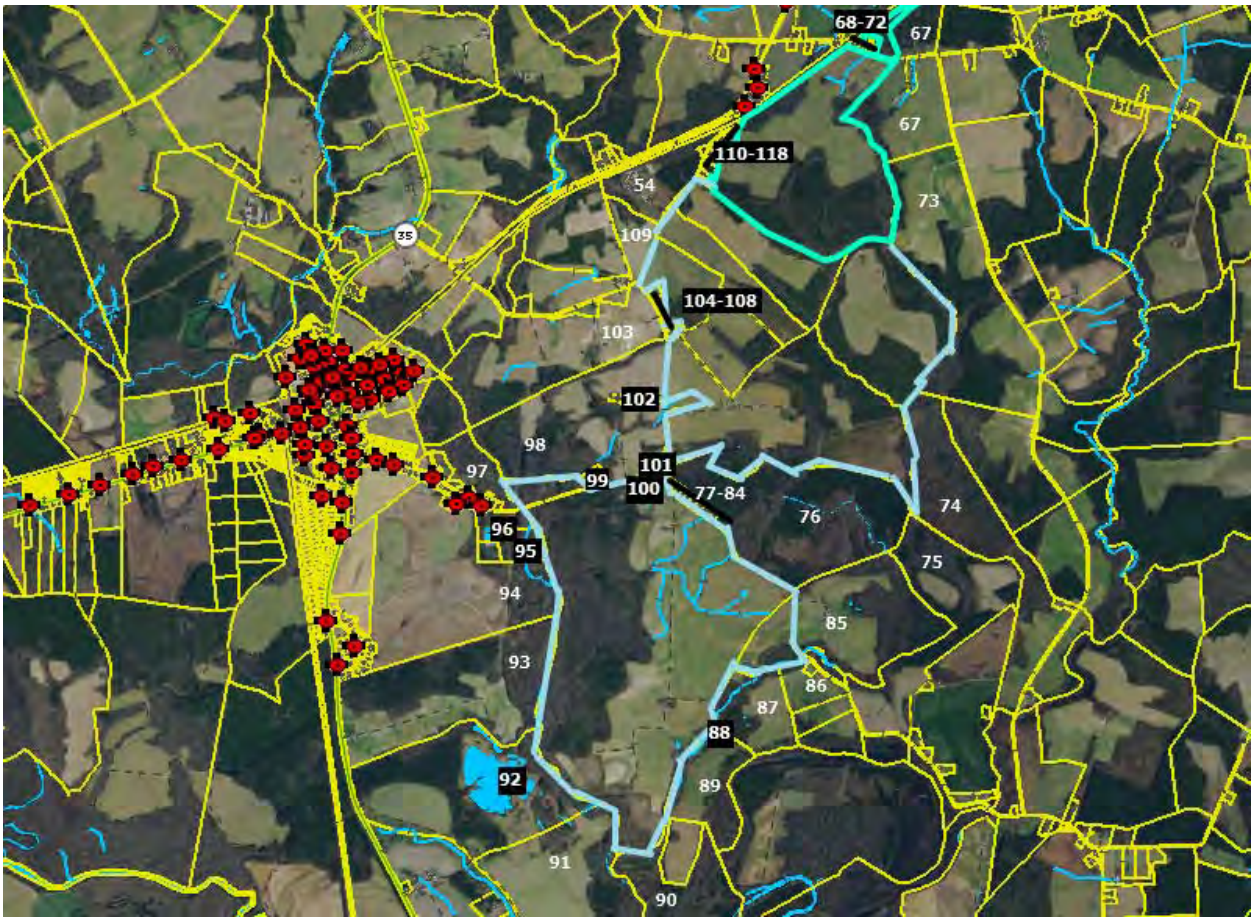
This project was built in 2017 for a solar project on a 106.12-acre tract for a 20 MW facility. The closest single-family home is 360 feet away from the closest solar panel. The average distance is 693 feet.

Adjoining Use Breakdown

	Acreage	**Parcels**
Residential	3.13%	57.89%
Agricultural	69.65%	26.32%
Agri/Res	26.99%	10.53%
Religious	0.23%	5.26%
Total	**100.00%**	**100.00%**

485: Southampton Solar, General Thomas Hwy, Newsoms, VA





This project was built in 2017 for a solar project on an assemblage of 3,244 acres for a 100 MW facility.

Adjoining Use Breakdown

	Acreage	Parcels
Residential	2.56%	53.33%
Agricultural	77.99%	36.67%
Agri/Res	16.56%	8.33%
Industrial	2.89%	1.67%
Total	**100.00%**	**100.00%**

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

I have researched hundreds of solar farms in numerous states to determine the impact of these facilities on the value of adjoining property. This research has primarily been in North Carolina, but I have also conducted market impact analyses in Virginia, South Carolina, Tennessee, Texas, Oregon, Mississippi, Maryland, New York, California, Missouri, Florida, Montana, Georgia, Louisiana, and New Jersey.

Wherever I have looked at solar farms, I have derived 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 similar to the breakdown that I've shown for the subject property on the previous page. A summary showing the results of compiling that data over hundreds of solar farms is shown later in the Scope of Research section of this report.

I also consider whether the properties adjoining a solar farm in one location have characteristics similar to the properties abutting or adjoining the proposed site so that I can make an assessment of market impact on each proposed site. Notably, in most cases solar farms are placed in areas very similar to the site in question, which is surrounded by low density residential and agricultural uses. In my over 700 studies, I have found a striking repetition of that same typical adjoining use mix in over 90% of the solar farms I have looked at. Matched pair results in multiple states are strikingly similar, and all indicate that solar farms – which generate very little traffic, and do not generate noise, dust or have other harmful effects – do not negatively impact the value of adjoining or abutting properties.

On the following pages I have considered matched pair data specific to Virginia and Kentucky.

In the next section I have considered matched pair data throughout the Southeast of the United States as being the most similar states that would most readily compare to Virginia. This includes data from Florida, Georgia, South Carolina, North Carolina, Tennessee, Virginia and Maryland. I focused on projects of 5 MW and larger though I have significant supplemental data on solar farms just smaller than that in North Carolina that show similar results. This data is available in my files.

I have additional supporting information from other states in my files that show a consistent pattern across the United States, but again, I have focused on the Southeast in this analysis.

A. Virginia Data

I have identified matched pairs adjoining 3 of the 27 solar farms noted above. I have also included data from a solar farm in Kentucky that does a good job of illustrating distant views of solar panels in relation to adjoining housing.

The following pages detail the matched pairs and how they were derived.

1. Matched Pair – Clarke County Solar, Clarke County, VA

This project is a 20 MW facility located on a 234-acre tract that was built in 2017.

I have considered two recent sales of Parcel 3. The home on this parcel is 1,230 feet from the closest panel as measured in the second map from Google Earth, which shows the solar farm under construction. This home sold in January 2017 for $295,000 and again in August 2019 for $385,000. I show each sale below and compare those to similar home sales in each time frame. The significant increase in price between 2017 and 2019 is due to a major kitchen remodel, new roof, and related upgrades as well as improvement in the market in general. The sale and later resale of the home with updates and improvements speaks to pride of ownership and increasing overall value as properties perceived as diminished are less likely to be renovated and sold for profit.

I note that 102 Tilthammer includes a number of barns that I did not attribute any value in the analysis. The market would typically give some value for those barns but even without that adjustment there is an indication of a positive impact on value due to the solar farm. The landscaping buffer from this home is considered light.

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
3	Adjoins	833 Nations Spr	5.13	8/18/2019	$385,000	1979	1,392	$276.58	3/2	Det Gar	Ranch	UnBsmt
	Not	167 Leslie	5.00	8/19/2020	$429,000	1980	1,665	$257.66	3/2	Det2Gar	Ranch	
	Not	2393 Old Chapel	2.47	8/10/2020	$330,000	1974	1,500	$220.00	3/1.5	Det Gar	Ranch	
	Not	102 Tilthammer	6.70	5/7/2019	$372,000	1970	1,548	$240.31	3/1.5	Det Gar	Ranch	UnBsmt

Adjoining Sales Adjusted

Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
							$385,000			1230
-$13,268		-$2,145	-$56,272		-$5,000	$50,000	$402,315	-4%		
-$9,956	$25,000	$8,250	-$19,008	$5,000		$50,000	$389,286	-1%		
$3,229		$16,740	-$29,991	$5,000			$366,978	5%		
									0%	

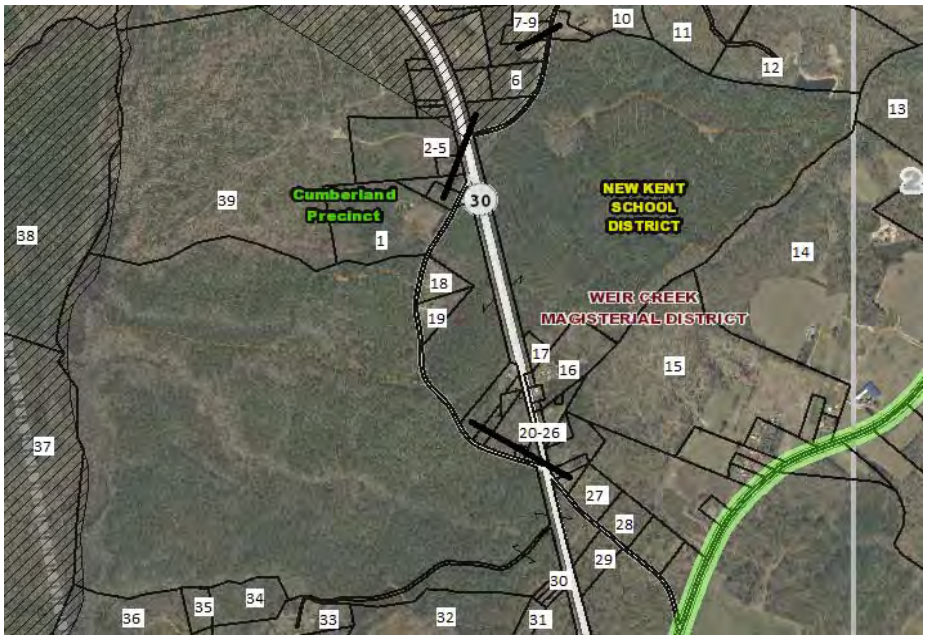
Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
3	Adjoins	833 Nations Spr	5.13	1/9/2017	$295,000	1979	1,392	$211.93	3/2	Det Gar	Ranch	UnBsmt
	Not	6801 Middle	2.00	12/12/2017	$249,999	1981	1,584	$157.83	3/2	Open	Ranch	
	Not	4174 Rockland	5.06	1/2/2017	$300,000	1990	1,688	$177.73	3/2	2 Gar	2-story	
	Not	400 Sugar Hill	1.00	6/7/2018	$180,000	1975	1,008	$178.57	3/1	Open	Ranch	

Adjoining Sales Adjusted

Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
							$295,000			1230
-$7,100	$25,000	-$2,500	-$24,242		$5,000	$50,000	$296,157	0%		
$177		-$16,500	-$42,085		-$10,000	$50,000	$281,592	5%		
-$7,797		$3,600	$54,857	$10,000	$5,000	$50,000	$295,661	0%		
									1%	

2. Matched Pair – Walker-Correctional Solar, Barham Road, Barhamsville, VA



This project was built in 2017 and located on 484.65 acres for a 20 MW with the closest home at 110 feet from the closest solar panel with an average distance of 500 feet.

I considered the recent sale identified on the map above as Parcel 19, which is directly across the street and based on the map shown on the following page is 250 feet from the closest panel. A

limited buffering remains along the road with natural growth being encouraged, but currently the panels are visible from the road. Alex Uminski, SRA with MGMiller Valuations in Richmond VA confirmed this sale with the buying and selling broker. The selling broker indicated that the solar farm was not a negative influence on this sale and in fact the buyer noticed the solar farm and then discovered the listing. The privacy being afforded by the solar farm was considered a benefit by the buyer. I used a matched pair analysis with a similar sale nearby as shown below and found no negative impact on the sales price. Property actually closed for more than the asking price. The landscaping buffer is considered light.

Adjoining Residential Sales After Solar Farm Approved

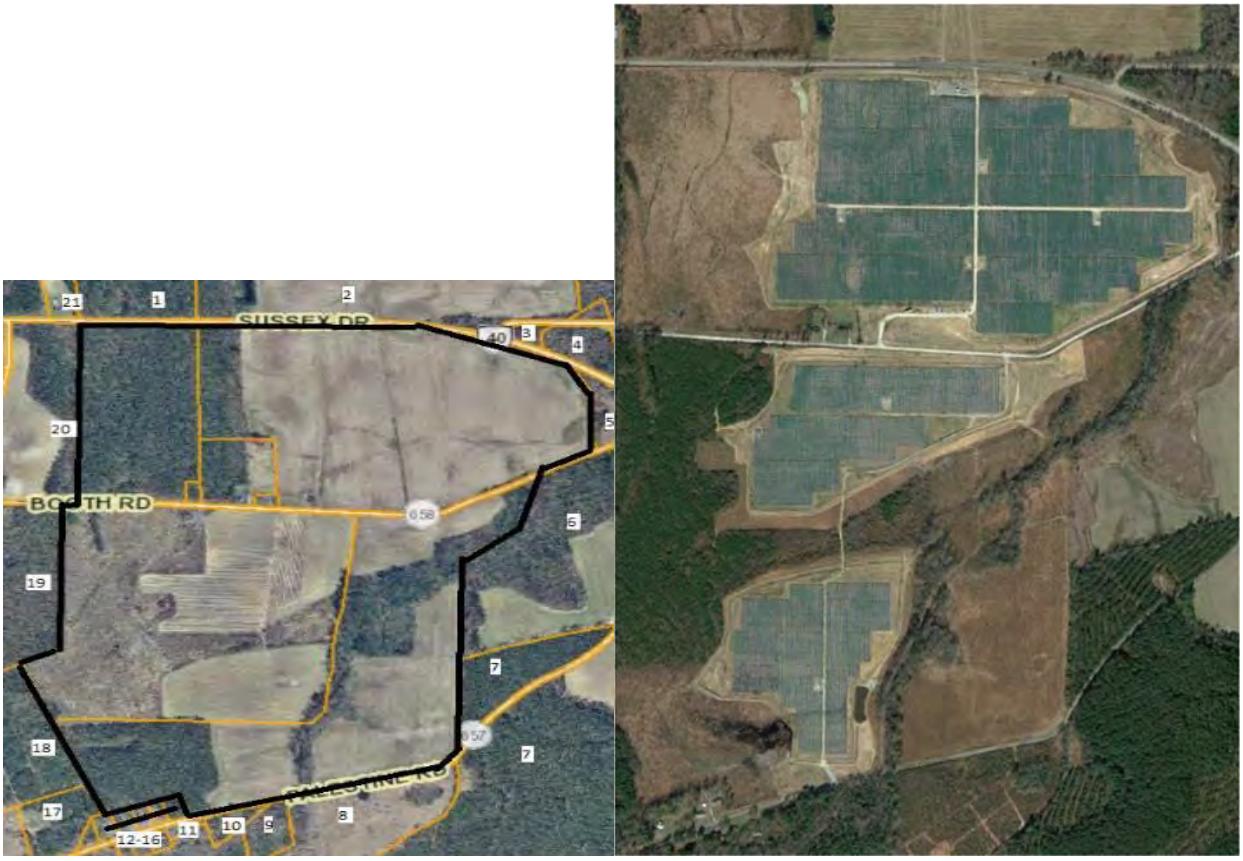
Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	5241 Barham	2.65	10/18/2018	$264,000	2007	1,660	$159.04	3/2	Drive	Ranch	Modular
Not	17950 New Kent	5.00	9/5/2018	$290,000	1987	1,756	$165.15	3/2.5	3 Gar	Ranch	
Not	9252 Ordinary	4.00	6/13/2019	$277,000	2001	1,610	$172.05	3/2	1.5-Gar	Ranch	
Not	2416 W Miller	1.04	9/24/2018	$299,000	1999	1,864	$160.41	3/2.5	Gar	Ranch	

Adjoining Sales Adjusted

Solar	Address	Time	Ac/Loc	YB	GLA	BR/BA	Park	Other	Total	% Diff	Dist
Adjoins	5241 Barham								$264,000		250
Not	17950 New Kent		-$8,000	$29,000	-$4,756	-$5,000	-$20,000	-$15,000	$266,244	-1%	
Not	9252 Ordinary	-$8,310	-$8,000	$8,310	$2,581		-$10,000	-$15,000	$246,581	7%	
Not	2416 W Miller		$8,000	$11,960	-$9,817	-$5,000	-$10,000	-$15,000	$279,143	-6%	
								Average Diff		0%	

I also spoke with Patrick W. McCrerey of Virginia Estates who was marketing a property that sold at 5300 Barham Road adjoining the Walker-Correctional Solar Farm. He indicated that this property was unique with a home built in 1882 and heavily renovated and updated on 16.02 acres. The solar farm was through the woods and couldn't be seen by this property and it had no impact on marketing this property. This home sold on April 26, 2017 for $358,000. I did not set up any matched pairs for this property since it is a unique property that any such comparison would be difficult to rely on. The broker's comments do support the assertion that the adjoining solar farm had no impact on value. The home in this case was 510 feet from the closest panel.

3. Matched Pair – Sappony Solar, Sussex County, VA



This project is a 30 MW facility located on a 322.68-acre tract that was built in the fourth quarter of 2017.

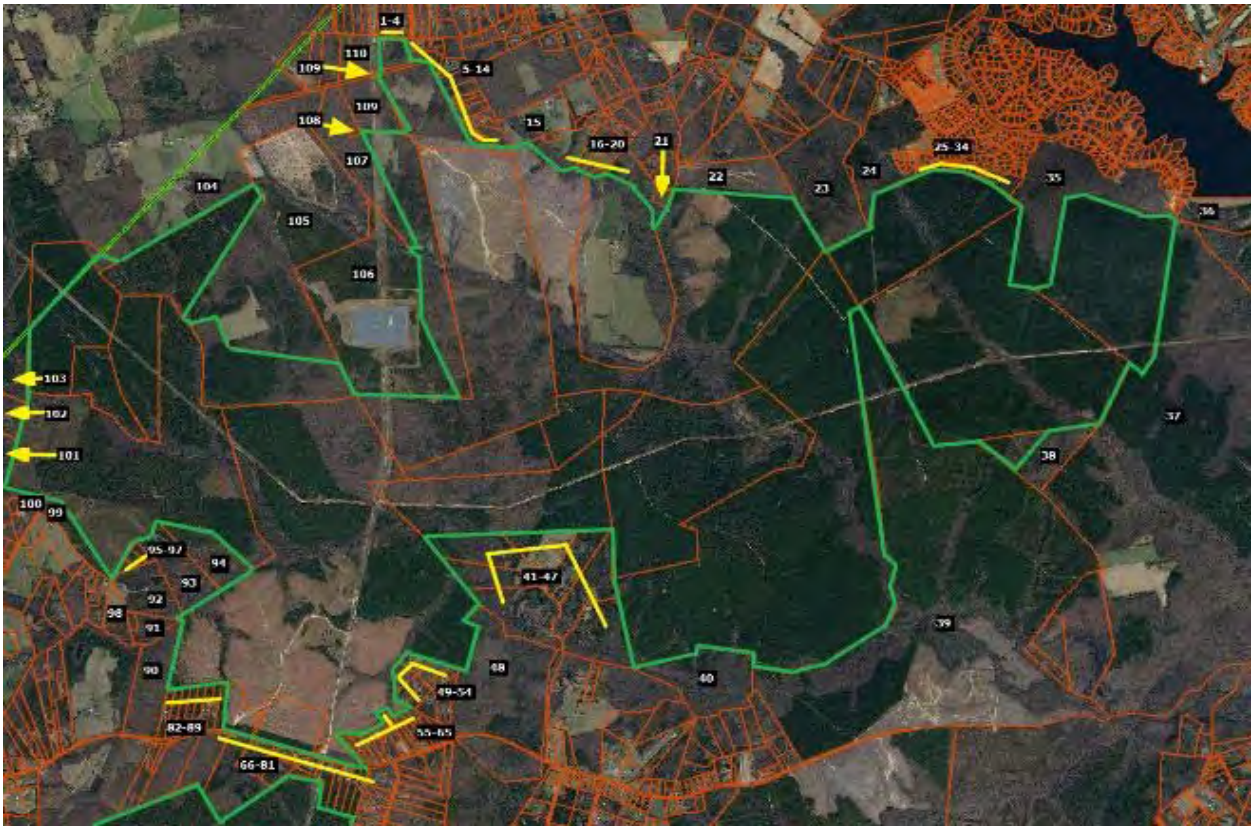
I have considered the 2018 sale of Parcel 17 as shown below. This was a 1,900 s.f. manufactured home on a 6.00-acre lot that sold in 2018. I have compared that to three other nearby manufactured homes as shown below. The range of impacts is within typical market variation with an average of -1%, which supports a conclusion of no impact on property value. The landscaping buffer is considered medium.

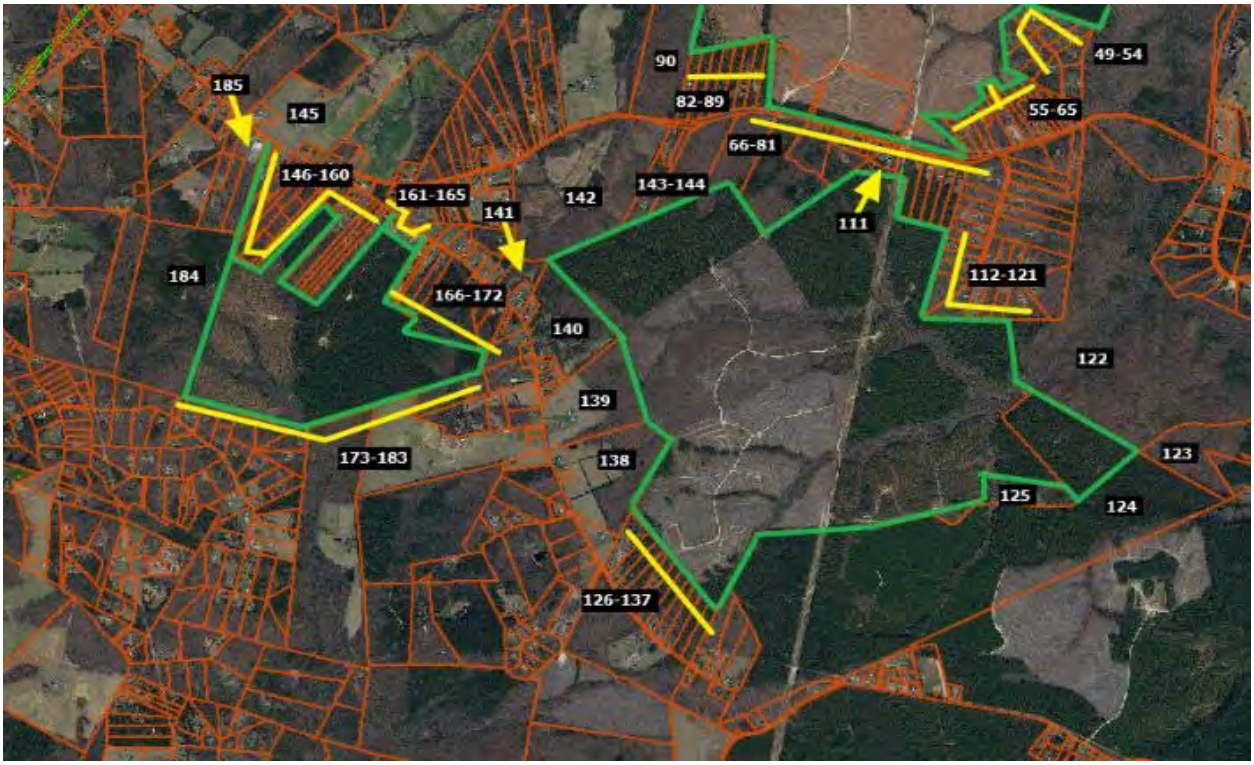
Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
	Adjoins	12511 Palestine	6.00	7/31/2018	$128,400	2013	1,900	$67.58	4/2.5	Open	Manuf	
	Not	15698 Concord	3.92	7/31/2018	$150,000	2010	2,310	$64.94	4/2	Open	Manuf	Fence
	Not	23209 Sussex	1.03	7/7/2020	$95,000	2005	1,675	$56.72	3/2	Det Crpt	Manuf	
	Not	6494 Rocky Br	4.07	11/8/2018	$100,000	2004	1,405	$71.17	3/2	Open	Manuf	

Adjoining Sales Adjusted									Avg	
Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	% Diff	Distance
							$128,400			1425
$0		$2,250	-$21,299	$5,000			$135,951	-6%		
-$5,660	$13,000	$3,800	$10,209	$5,000	$1,500		$122,849	4%		
-$843		$4,500	$28,185				$131,842	-3%		
									-1%	

4. Matched Pair – Spotsylvania Solar, Paytes, VA





This solar farm is being built in four phases with the area known as Site C having completed construction in November 2020 after the entire project was approved in April 2019. Site C, also known as Pleinmont 1 Solar, includes 99.6 MW located in the southeast corner of the project and shown on the maps above with adjoining parcels 111 through 144. The entire Spotsylvania project totals 617 MW on 3500 acres out of a parent tract assemblage of 6,412 acres.

I have identified three adjoining home sales that occurred during construction and development of the site in 2020.

The first is located on the north side of Site A on Orange Plank Road. The second is located on Nottoway Lane just north of Caparthin Road on the south side of Site A and east of Site C. The third is located on Post Oak Road for a home that backs up to Site C that sold in September 2020 near the completion of construction for Site C.

Spotsylvania Solar Farm

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	12901 Orng Plnk	5.20	8/27/2020	$319,900	1984	1,714	$186.64	3/2	Drive	1.5	Un Bsmt
Not	8353 Gold Dale	3.00	1/27/2021	$415,000	2004	2,064	$201.07	3/2	3 Gar	Ranch	
Not	6488 Southfork	7.26	9/9/2020	$375,000	2017	1,680	$223.21	3/2	2 Gar	1.5	Barn/Patio
Not	12717 Flintlock	0.47	12/2/2020	$290,000	1990	1,592	$182.16	3/2.5	Det Gar	Ranch	

Adjoining Sales Adjusted

Address	Time	Ac/Loc	YB	GLA	BR/BA	Park	Other	Total	% Diff	Dist
12901 Orng Plnk								$319,900		1270
8353 Gold Dale	-$5,219	$20,000	-$41,500	-$56,298		-$20,000		$311,983	2%	
6488 Southfork	-$401	-$20,000	-$61,875	$6,071		-$15,000		$283,796	11%	
12717 Flintlock	-$2,312	$40,000	-$8,700	$17,779	-$5,000	-$5,000		$326,767	-2%	
							Average Diff		4%	

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	9641 Nottoway	11.00	5/12/2020	$449,900	2004	3,186	$141.21	4/2.5	Garage	2-Story	Un Bsmt
Not	26123 Lafayette	1.00	8/3/2020	$390,000	2006	3,142	$124.12	3/3.5	Gar/DtG	2-Story	
Not	11626 Forest	5.00	8/10/2020	$489,900	2017	3,350	$146.24	4/3.5	2 Gar	2-Story	
Not	10304 Pny Brnch	6.00	7/27/2020	$485,000	1998	3,076	$157.67	4/4	2Gar/Dt2	Ranch	Fn Bsmt

Adjoining Sales Adjusted

Address	Time	Ac/Loc	YB	GLA	BR/BA	Park	Other	Total	% Diff	Dist
9641 Nottoway								$449,900		1950
26123 Lafayette	-$2,661	$45,000	-$3,900	$4,369	-$10,000	-$5,000		$417,809	7%	
11626 Forest	-$3,624		-$31,844	-$19,187		-$5,000		$430,246	4%	
10304 Pny Brnch	-$3,030		$14,550	$13,875	-$15,000	-$15,000	-$10,000	$470,396	-5%	
							Average Diff		2%	

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	13353 Post Oak	5.20	9/21/2020	$300,000	1992	2,400	$125.00	4/3	Drive	2-Story	Fn Bsmt
Not	9609 Logan Hgt	5.86	7/4/2019	$330,000	2004	2,352	$140.31	3/2	2Gar	2-Story	
Not	12810 Catharpian	6.18	1/30/2020	$280,000	2008	2,240	$125.00	4/2.5	Drive	2-Story	Bsmt/Nd Pnt
Not	10725 Rbrt Lee	5.01	10/26/2020	$295,000	1995	2,166	$136.20	4/3	Gar	2-Story	Fn Bsmt

Adjoining Sales Adjusted

Address	Time	Ac/Loc	YB	GLA	BR/BA	Park	Other	Total	% Diff	Dist
13353 Post Oak								$300,000		1171
9609 Logan Hgt	$12,070		-$19,800	$5,388		-$15,000	$15,000	$327,658	-9%	
12810 Catharpian	$5,408		-$22,400	$16,000	$5,000		$15,000	$299,008	0%	
10725 Rbrt Lee	-$849		-$4,425	$25,496		-$10,000		$305,222	-2%	
								Average Diff	-4%	

All three of these homes are well set back from the solar panels at distances over 1,000 feet and are well screened from the project. All three show no indication of any impact on property value.

5. Matched Pair – Crittenden Solar, Crittenden, KY

This solar farm was built in December 2017 on a 181.70-acre tract but utilizing only 34.10 acres. This is a 2.7 MW facility with residential subdivisions to the north and south.

I have identified five home sales to the north of this solar farm on Clairborne Drive and one home sale to the south on Eagle Ridge Drive since the completion of this solar farm. The home sale on Eagle Drive is for a $75,000 home and all of the homes along that street are similar in size and price range. According to local broker Steve Glacken with Cutler Real Estate these are the lowest price range/style home in the market. I have not analyzed that sale as it would unlikely provide significant data to other homes in the area.

Mr. Glacken is currently selling lots at the west end of Clairborne for new home construction. He indicated that the solar farm near the entrance of the development has been a complete non-factor and none of the home sales are showing any concern over the solar farm. Most of the homes are in the $250,000 to $280,000 price range. The vacant residential lots are being marketed for $28,000 to $29,000. The landscaping buffer is considered light, but the rolling terrain allows for distant views of the panels from the adjoining homes along Clairborne Drive.

The first home considered is a bit of an anomaly for this subdivision in that it is the only manufactured home that was allowed in the community. It sold on January 3, 2019. I compared that sale to three other manufactured home sales in the area making minor adjustments as shown on the next page to account for the differences. After all other factors are considered, the adjustments show a -1% to +13% impact due to the adjacency of the solar farm. The best indicator is 1250 Cason, which shows a 3% impact. A 3% impact is within the normal static of real estate transactions and therefore not considered indicative of a positive impact on the property, but it strongly supports an indication of no negative impact.

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
	Adjoins	250 Claiborne	0.96	1/3/2019	$120,000	2000	2,016	$59.52	3/2	Drive	Manuf	
	Not	1250 Cason	1.40	4/18/2018	$95,000	1994	1,500	$63.33	3/2	2-Det	Manuf	Carport
	Not	410 Reeves	1.02	11/27/2018	$80,000	2000	1,456	$54.95	3/2	Drive	Manuf	
	Not	315 N Fork	1.09	5/4/2019	$107,000	1992	1,792	$59.71	3/2	Drive	Manuf	

Adjustments

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
Adjoins	250 Claiborne								$120,000			373
Not	1250 Cason	$2,081		$2,850	$26,144		-$5,000	-$5,000	$116,075	3%		
Not	410 Reeves	$249		$0	$24,615				$104,865	13%		
Not	315 N Fork	-$1,091		$4,280	$10,700				$120,889	-1%		
											5%	

I also looked at three other home sales on this street as shown below. These are stick-built homes and show a higher price range.

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
	Adjoins	300 Claiborne	1.08	9/20/2018	$212,720	2003	1,568	$135.66	3/3	2-Car	Ranch	Brick
	Not	460 Claiborne	0.31	1/3/2019	$229,000	2007	1,446	$158.37	3/2	2-Car	Ranch	Brick
	Not	2160 Sherman	1.46	6/1/2019	$265,000	2005	1,735	$152.74	3/3	2-Car	Ranch	Brick
	Not	215 Lexington	1.00	7/27/2018	$231,200	2000	1,590	$145.41	5/4	2-Car	Ranch	Brick

Adjustments

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
Adjoins	300 Claiborne								$213,000			488
Not	460 Claiborne	-$2,026		-$4,580	$15,457	$5,000			$242,850	-14%		
Not	2160 Sherman	-$5,672		-$2,650	-$20,406				$236,272	-11%		
Not	215 Lexington	$1,072		$3,468	-$2,559	-$5,000			$228,180	-7%		
											-11%	

This set of matched pairs shows a minor negative impact for this property. I was unable to confirm the sales price or conditions of this sale. The best indication of value is based on 215 Lexington, which required the least adjusting and supports a -7% impact.

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
	Adjoins	350 Claiborne	1.00	7/20/2018	$245,000	2002	1,688	$145.14	3/3	2-Car	Ranch	Brick
	Not	460 Claiborne	0.31	1/3/2019	$229,000	2007	1,446	$158.37	3/2	2-Car	Ranch	Brick
	Not	2160 Sherman	1.46	6/1/2019	$265,000	2005	1,735	$152.74	3/3	2-Car	R/FBsmt	Brick
	Not	215 Lexington	1.00	7/27/2018	$231,200	2000	1,590	$145.41	5/4	2-Car	Ranch	Brick

Adjustments

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
Adjoins	350 Claiborne								$245,000			720
Not	460 Claiborne	-$3,223		-$5,725	$30,660	$5,000			$255,712	-4%		
Not	2160 Sherman	-$7,057		-$3,975	-$5,743				$248,225	-1%		
Not	215 Lexington	-$136		$2,312	$11,400	-$5,000			$239,776	2%		
											-1%	

The following photograph shows the light landscaping buffer and the distant view of panels that was included as part of the marketing package for this property. The panels are visible somewhat on the left and somewhat through the trees in the center of the photograph. The first photograph is from the home, with the second photograph showing the view near the rear of the lot.

This set of matched pairs shows a no negative impact for this property. The range of adjusted impacts is -4% to +2%. The best indication is -1%, which as described above is within the typical market static and supports no impact on adjoining property value.

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
	Adjoins	370 Claiborne	1.06	8/22/2019	$273,000	2005	1,570	$173.89	4/3	2-Car	2-Story	Brick
	Not	2160 Sherman	1.46	6/1/2019	$265,000	2005	1,735	$152.74	3/3	2-Car	R/FBsmt	Brick
	Not	2290 Dry	1.53	5/2/2019	$239,400	1988	1,400	$171.00	3/2.5	2-Car	R/FBsmt	Brick
	Not	125 Lexington	1.20	4/17/2018	$240,000	2001	1,569	$152.96	3/3	2-Car	Split	Brick

Adjustments

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
Adjoins	370 Claiborne								$273,000			930
Not	2160 Sherman	$1,831		$0	-$20,161				$246,670	10%		
Not	2290 Dry	$2,260		$20,349	$23,256	$2,500			$287,765	-5%		
Not	125 Lexington	$9,951		$4,800					$254,751	7%		
											4%	

This set of matched pairs shows a general positive impact for this property. The range of adjusted impacts is -5% to +10%. The best indication is +7%. I typically consider measurements of +/-5% to be within the typical variation in real estate transactions. This indication is higher than that and suggests a positive relationship.

The photograph from the listing shows panels visible between the home and the trampoline shown in the picture.

Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	330 Claiborne	1.00	12/10/2019	$282,500	2003	1,768	$159.79	3/3	2-Car	Ranch	Brick/pool
Not	895 Osborne	1.70	9/16/2019	$249,900	2002	1,705	$146.57	3/2	2-Car	Ranch	Brick/pool
Not	2160 Sherman	1.46	6/1/2019	$265,000	2005	1,735	$152.74	3/3	2-Car	R/FBsmt	Brick
Not	215 Lexington	1.00	7/27/2018	$231,200	2000	1,590	$145.41	5/4	2-Car	Ranch	Brick

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
Adjoins	330 Claiborne								$282,500			665
Not	895 Osborne	$1,790		$1,250	$7,387	$5,000		$0	$265,327	6%		
Not	2160 Sherman	$4,288		-$2,650	$4,032			$20,000	$290,670	-3%		
Not	215 Lexington	$9,761		$3,468	$20,706	-$5,000		$20,000	$280,135	1%		
											1%	

This set of matched pairs shows a general positive impact for this property. The range of adjusted impacts is -3% to +6%. The best indication is +6%. I typically consider measurements of +/-5% to be within the typical variation in real estate transactions. This indication is higher than that and suggests a positive relationship. The landscaping buffer on these is considered light with a fair visibility of the panels from most of these comparables and only thin landscaping buffers separating the homes from the solar panels.

The five matched pairs considered in this analysis includes two that show no impact on value, one that shows a negative impact on value, and two that show a positive impact. The negative indication supported by one matched pair is -7% and the positive impacts are +6% and +7%. The two neutral indications show impacts of -1% and +3%. The average indicated impact is +0% when all five of these indicators are blended.

Furthermore, the comments of the local real estate broker strongly support the data that shows no negative impact on value due to the proximity to the solar farm.

6. Matched Pair – White House Solar, Louisa, VA

This project was built in 2016 for a solar project on a 499.52-acre tract for a 20 MW facility. The closest single-family home is 110 feet away from the closest solar panel. The average distance is 1,195 feet.

I have identified one recent adjoining home sale to the north of this project that sold in 2020. I spoke with the broker, Stacie Chandler, who represented the buyer in that transaction. She indicated that the solar farm had no impact on the price that they negotiated on that home. That is supported by the matched pair shown below.

The adjustments shown below make no adjustment for the difference in acreage for the smaller parcels. One of these is on a smaller lot, but located in a golf course community with rear exposure to the golf course. The other is in Mineral and while the lots are not the same size, they are similarly valued. I also adjusted this property upward by $50,000 for the condition/lack of renovation. This adjustment is based on the fact that this home was renovated following the 2020 purchase and then resold in 2021 for $75,000 more than the 2020 value. Comparing the 2021 renovated price at $144/s.f. to the subject property and adjusting on the same rates would require a downward adjustment to the comparable of $10,400 for time, upward by $8,325 for year built, and downward by $5,000 for the extra half bathroom for an indicated adjusted value of $252,925 which suggests a 5% reduction in value due to the solar farm. Either way this comparable requires significant adjustments and suggests a range of -5% to 0% impact. The Woodger comparable required less

adjustment and suggests an 11% enhancement due to proximity to the solar farm and that is without any consideration of this home having a superior exposure to a golf course.

Whitehouse Solar

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	127 Walnut Wds	4.09	3/27/2020	$240,000	1984	1,824	$131.58	3/2	2 Gar	Br Rnch	Reno
Not	126 Woodger	0.63	4/29/2019	$240,000	1992	1,956	$122.70	3/2+2	2 Gar	Br Rnch	Golf
Not	808 Virginia	0.51	3/16/2020	$185,000	1975	1,806	$102.44	3/2.5	2 Gar	Br Rnch	
Not	273 Carsons	3.94	9/29/2018	$248,500	1985	2,224	$111.74	4/3	Drive	Ranch	Not Brck

Adjoining Sales Adjusted

Address	Time	Ac/Loc	YB	GLA	BR/BA	Park	Other	Total	% Diff	Dist
127 Walnut Wds								$240,000		1400
126 Woodger	$6,569		-$9,600	-$12,957	-$10,000			$214,012	11%	
808 Virginia	$167		$8,325	$1,475	-$5,000		$50,000	$239,967	0%	
273 Carsons	$11,131		-$1,243	-$35,755	-$10,000	$15,000	$12,425	$240,059	0%	
							Average Diff		4%	

These matched pairs are generally challenging in that one is shown before and after a renovation suggesting impacts of -5% to 0%. The comparable requiring the least adjustment is on a golf course but it also was not recently renovated which makes it less reliable. Finally, the Carsons property was similar, but older and is not brick. While I adjusted for those factors it really does not make for a great matched pair.

The best indication by the matched pairs is -5% to 0%. The broker involved in the transaction indicated that the solar farm had no impact on property value. Given those comments and the range of impacts shown, I conclude that this home sale near the White House solar project indicates no impact on property value.

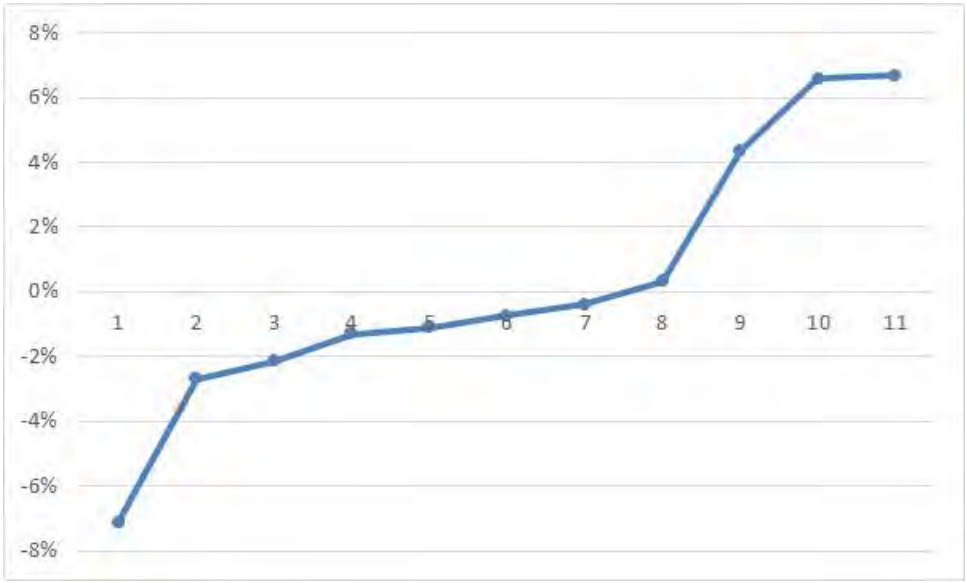
Conclusion

The solar farm matched pairs shown above have similar characteristics to each other in terms of population, but with several outliers showing solar farms in far more urban areas. The median income for the population within 1 mile of a solar farm among this subset of matched pairs is $80,778 with a median housing unit value of $320,076. Most of the comparables are under $500,000 in the home price, with $483,333 being the high end of the set, though I have matched pairs in other states over $1,000,000 in price adjoining large solar farms. The predominate adjoining uses are residential and agricultural. These figures are in line with the larger set of solar farms that I have looked at with the predominant adjoining uses being residential and agricultural and similar to the solar farm breakdown shown for Virginia and adjoining states as well as the proposed subject property.

Based on the similarity of adjoining uses and demographic data between these sites and the subject property, I consider it reasonable to compare these sites to the subject property.

Matched Pair Summary						Adj. Uses By Acreage				1 mile Radius (2010-2020 Data)			
	Name	City	State	Acres	MW	Topo Shift	Res	Ag	Ag/Res	Com/Ind	Population	Med. Income	Avg. Housing Unit	Veg. Buffer
1	Clarke Cnty	White Post	VA	234	20.00	70	14%	39%	46%	1%	578	$81,022	$374,453	Light
2	Walker	Barhamsville	VA	485	20.00	N/A	12%	68%	20%	0%	203	$80,773	$320,076	Light
3	Sappony	Stony Crk	VA	322	20.00	N/A	2%	98%	0%	0%	74	$51,410	$155,208	Medium
4	Spotyslvania	Paytes	VA	3,500	617.00	160	37%	52%	11%	0%	74	$120,861	$483,333	Med to Hvy
5	Crittenden	Crittenden	KY	34	2.70	40	22%	51%	27%	0%	1,419	$60,198	$178,643	Light
6	White House	Louisa	VA	500	20.00	N/A	24%	55%	18%	3%	409	$57,104	$209,286	Medium
	Average			846	116.62	90	19%	61%	20%	1%	460	$75,228	$286,833	
	Median			404	20.00	70	18%	54%	19%	0%	306	$70,486	$264,681	
	High			3,500	617.00	160	37%	98%	46%	3%	1,419	$120,861	$483,333	
	Low			34	2.70	40	2%	39%	0%	0%	74	$51,410	$155,208	
	OFW													
	1 Mile Radius			126	20.00	70	6%	57%	31%	6%	834	$49,646	$230,973	
	3 Mile Radius			126	20.00	70	6%	57%	31%	6%	3,363	$51,554	$244,438	

On the following page is a summary of the matched pairs for all of the solar farms noted above. They show a pattern of results from -7% to +7% with an average of 0% and a median finding of +1%. As can be seen in the chart of those results below, most of the data points are between -3% and +5%. This variability is common with real estate and consistent with market "static." I therefore conclude that these results strongly support an indication of no impact on property value due to the adjacent solar farm.



Residential Dwelling Matched Pairs Adjoining Solar Farms

Pair	Solar Farm	City	State	Area	MW	Approx Distance	Tax ID/Address	Date	Sale Price	Adj. Sale Price	% Diff	Veg. Buffer
1	Clarke Cnty	White Post	VA	Rural	20	1230	833 Nations Spr	Jan-17	$295,000			Light
							6801 Middle	Dec-17	$249,999	$296,157	0%	
2	Walker	Barhamsville	VA	Rural	20	250	5241 Barham	Oct-18	$264,000			Light
							9252 Ordinary	Jun-19	$277,000	$246,581	7%	
3	Clarke Cnty	White Post	VA	Rural	20	1230	833 Nations Spr	Aug-19	$385,000			Light
							2393 Old Chapel	Aug-20	$330,000	$389,286	-1%	
4	Sappony	Stony Creek	VA	Rural	20	1425	12511 Palestine	Jul-18	$128,400			Medium
							6494 Rocky Branch	Nov-18	$100,000	$131,842	-3%	
5	Spotsylvania	Paytes	VA	Rural	617	1270	12901 Orange Plnk	Aug-20	$319,900			Medium
							12717 Flintlock	Dec-20	$290,000	$326,767	-2%	
6	Spotsylvania	Paytes	VA	Rural	617	1950	9641 Nottoway	May-20	$449,900			Medium
							11626 Forest	Aug-20	$489,900	$430,246	4%	
7	Spotsylvania	Paytes	VA	Rural	617	1171	13353 Post Oak	Sep-20	$300,000			Heavy
							12810 Catharpin	Jan-20	$280,000	$299,008	0%	
8	Crittenden	Crittenden	KY	Suburban	2.7	373	250 Claiborne	Jan-19	$120,000			Light
							315 N Fork	May-19	$107,000	$120,889	-1%	
9	Crittenden	Crittenden	KY	Suburban	2.7	488	300 Claiborne	Sep-18	$213,000			Light
							1795 Bay Valley	Dec-17	$231,200	$228,180	-7%	
10	Crittenden	Crittenden	KY	Suburban	2.7	720	350 Claiborne	Jul-18	$245,000			Light
							2160 Sherman	Jun-19	$265,000	$248,225	-1%	
11	Crittenden	Crittenden	KY	Suburban	2.7	930	370 Claiborne	Aug-19	$273,000			Light
							125 Lexington	Apr-18	$240,000	$254,751	7%	

	MW	Avg. Distance
Average	176.53	1,003
Median	20.00	1,171
High	617.00	1,950
Low	2.70	250

	Indicated Impact
Average	0%
Median	-1%
High	7%
Low	-7%

The matched pairs from White House Solar are not included in the breakdown above, but the best indication of impact is between 0 and -5%, which is in keeping with the other noted comparables. Furthermore, the broker for the buyer indicated that the solar farm had no impact on the value and therefore strongly supports the 0 impact end of that range.

I have further broken down these results based on the MWs, Landscaping, and distance from panel to show the following range of findings for these different categories.

This breakdown shows no homes between 100-200 homes. Solar farms up to 75 MW show homes between 201 and 500 feet with no impact on value. Most of the findings are for homes between 201 and 500 feet.

Light landscaping screens are showing no impact on value at any distances, though solar farms over 75.1 MW only show Medium and Heavy landscaping screens in the 3 examples identified.

MW Range 4.4 to 10 Landscaping Distance	Light 100-200	Light 201-500	Light 500+	Medium 100-200	Medium 201-500	Medium 500+	Heavy 100-200	Heavy 201-500	Heavy 500+
Average	N/A	-4%	3%	N/A	N/A	N/A	N/A	N/A	N/A
Median	N/A	-4%	3%	N/A	N/A	N/A	N/A	N/A	N/A
High	N/A	-1%	7%	N/A	N/A	N/A	N/A	N/A	N/A
Low	N/A	-7%	-1%	N/A	N/A	N/A	N/A	N/A	N/A

10.1 to 30 Landscaping Distance	Light 100-200	Light 201-500	Light 500+	Medium 100-200	Medium 201-500	Medium 500+	Heavy 100-200	Heavy 201-500	Heavy 500+
Average	N/A	7%	-1%	N/A	N/A	-3%	N/A	N/A	N/A
Median	N/A	7%	-1%	N/A	N/A	-3%	N/A	N/A	N/A
High	N/A	7%	0%	N/A	N/A	-3%	N/A	N/A	N/A
Low	N/A	7%	-1%	N/A	N/A	-3%	N/A	N/A	N/A

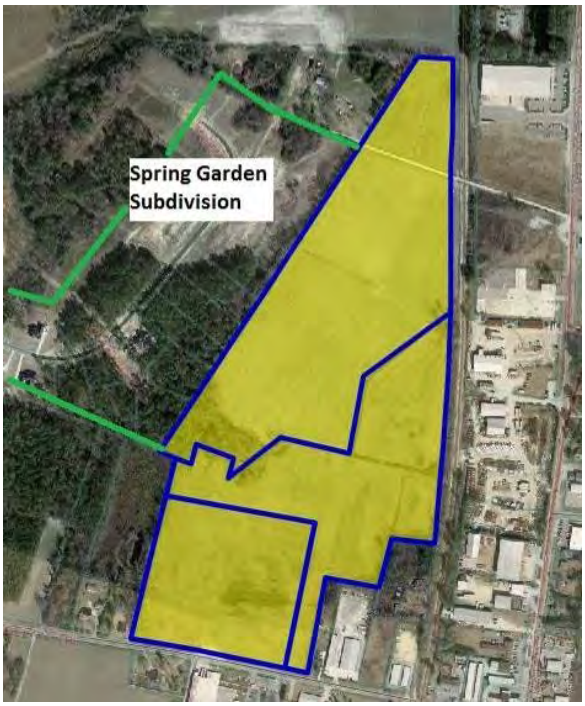
30.1 to 75 Landscaping Distance	Light 100-200	Light 201-500	Light 500+	Medium 100-200	Medium 201-500	Medium 500+	Heavy 100-200	Heavy 201-500	Heavy 500+
Average	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Median	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Low	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

75.1+ Landscaping Distance	Light 100-200	Light 201-500	Light 500+	Medium 100-200	Medium 201-500	Medium 500+	Heavy 100-200	Heavy 201-500	Heavy 500+
Average	N/A	N/A	N/A	N/A	N/A	1%	N/A	N/A	N/A
Median	N/A	N/A	N/A	N/A	N/A	1%	N/A	N/A	N/A
High	N/A	N/A	N/A	N/A	N/A	4%	N/A	N/A	N/A
Low	N/A	N/A	N/A	N/A	N/A	-2%	N/A	N/A	N/A

B. Southeastern USA Data – Over 5 MW

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

This 5 MW 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.

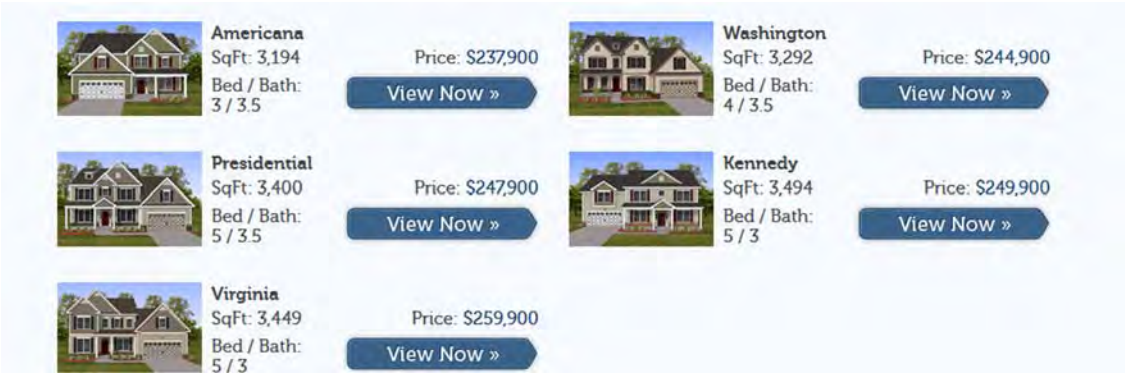


Homes backing up to the solar farm are selling at the same price for the same floor plan as the homes that do not back up to the solar farm in this subdivision. According to the builder, the solar farm has been a complete non-factor. Not only do the sales show no difference in the price paid for the 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.



The homes adjoining the solar farm are considered to have a light landscaping screen as it is a narrow row of existing pine trees supplemented with evergreen plantings.

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 size 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. 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.

I have also considered four more recent resales of homes in this community as shown on the following page. These comparable sales adjoin the solar farm at distances ranging from 315 to 400 feet. The matched pairs show a range from -9% to +6%. The range of the average difference is -2% to +1% with an average of 0% and a median of +0.5%. These comparable sales support a finding of no impact on property value.

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other	Distance
	Adjoins	103 Granville Pl	1.42	7/27/2018	$265,000	2013	3,292	$80.50	4/3.5	2-Car	2-Story		385
	Not	2219 Granville	1.15	1/8/2018	$260,000	2012	3,292	$78.98	4/3.5	2-Car	2-Story		
	Not	634 Friendly	0.96	7/31/2019	$267,000	2018	3,053	$87.45	4/4.5	2-Car	2-Story		
	Not	2403 Granville	0.69	4/23/2019	$265,000	2014	2,816	$94.11	5/3.5	2-Car	2-Story		

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff
Adjoins	103 Granville Pl								$265,000		-2%
Not	2219 Granville	$4,382		$1,300	$0				$265,682	0%	
Not	634 Friendly	-$8,303		-$6,675	$16,721	-$10,000			$258,744	2%	
Not	2403 Granville	-$6,029		-$1,325	$31,356				$289,001	-9%	

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other	Distance
	Adjoins	104 Erin	2.24	6/19/2017	$280,000	2014	3,549	$78.90	5/3.5	2-Car	2-Story		315
	Not	2219 Granville	1.15	1/8/2018	$260,000	2012	3,292	$78.98	4/3.5	2-Car	2-Story		
	Not	634 Friendly	0.96	7/31/2019	$267,000	2018	3,053	$87.45	4/4.5	2-Car	2-Story		
	Not	2403 Granville	0.69	4/23/2019	$265,000	2014	2,816	$94.11	5/3.5	2-Car	2-Story		

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff
Adjoins	104 Erin								$280,000		0%
Not	2219 Granville	-$4,448		$2,600	$16,238				$274,390	2%	
Not	634 Friendly	-$17,370		-$5,340	$34,702	-$10,000			$268,992	4%	
Not	2403 Granville	-$15,029		$0	$48,285				$298,256	-7%	

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other	Distance
	Adjoins	2312 Granville	0.75	5/1/2018	$284,900	2013	3,453	$82.51	5/3.5	2-Car	2-Story		400
	Not	2219 Granville	1.15	1/8/2018	$260,000	2012	3,292	$78.98	4/3.5	2-Car	2-Story		
	Not	634 Friendly	0.96	7/31/2019	$267,000	2018	3,053	$87.45	4/4.5	2-Car	2-Story		
	Not	2403 Granville	0.69	4/23/2019	$265,000	2014	2,816	$94.11	5/3.5	2-Car	2-Story		

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff
Adjoins	2312 Granville								$284,900		1%
Not	2219 Granville	$2,476		$1,300	$10,173				$273,948	4%	
Not	634 Friendly	-$10,260		-$6,675	$27,986	-$10,000			$268,051	6%	
Not	2403 Granville	-$7,972		-$1,325	$47,956				$303,659	-7%	

Adjoining Residential Sales After Solar Farm Approved

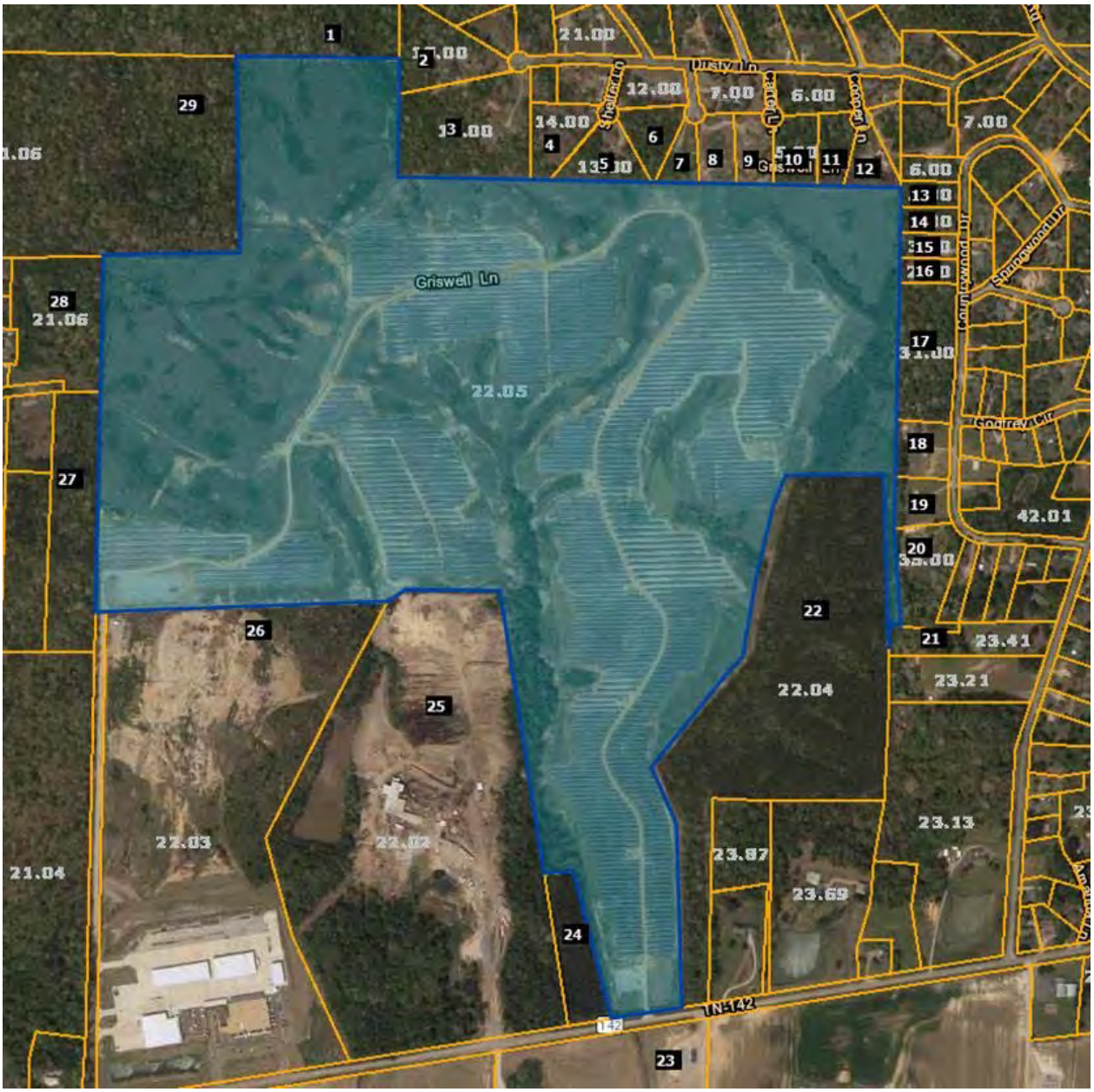
Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other	Distance
	Adjoins	2310 Granville	0.76	5/14/2019	$280,000	2013	3,292	$85.05	5/3.5	2-Car	2-Story		400
	Not	2219 Granville	1.15	1/8/2018	$260,000	2012	3,292	$78.98	4/3.5	2-Car	2-Story		
	Not	634 Friendly	0.96	7/31/2019	$267,000	2018	3,053	$87.45	4/4.5	2-Car	2-Story		
	Not	2403 Granville	0.69	4/23/2019	$265,000	2014	2,816	$94.11	5/3.5	2-Car	2-Story		

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff
Adjoins	2310 Granville								$280,000		1%
Not	2219 Granville	$10,758		$1,300	$0				$272,058	3%	
Not	634 Friendly	-$1,755		-$6,675	$16,721	-$10,000			$265,291	5%	
Not	2403 Granville	$469		-$1,325	$31,356				$295,500	-6%	

I have also considered the original sales prices in this subdivision relative to the recent resale values as shown in the chart below. This rate of appreciation is right at 2.5% over the last 6 years. Zillow indicates that the average home value within the 27530-zip code as of January 2014 was $101,300 and as of January 2020 that average is $118,100. This indicates an average increase in the market of 2.37%. I conclude that the appreciation of the homes adjoining the solar farm are not impacted by the presence of the solar farm based on this data.

	Address	Initial Sale Date	Price	Second Sale Date	Price	Year Diff	Apprec.	% Apprec.	Apprec. %/Year
1	103 Granville Pl	4/1/2013	$245,000	7/27/2018	$265,000	5.32	$20,000	8.16%	1.53%
2	105 Erin	7/1/2014	$250,000	6/19/2017	$280,000	2.97	$30,000	12.00%	4.04%
3	2312 Granville	12/1/2013	$255,000	5/1/2015	$262,000	1.41	$7,000	2.75%	1.94%
4	2312 Granville	5/1/2015	$262,000	5/1/2018	$284,900	3.00	$22,900	8.74%	2.91%
5	2310 Granville	8/1/2013	$250,000	5/14/2019	$280,000	5.79	$30,000	12.00%	2.07%
6	2308 Granville	9/1/2013	$260,000	11/12/2015	$267,500	2.20	$7,500	2.88%	1.31%
7	2304 Granville	9/1/2012	$198,000	6/1/2017	$225,000	4.75	$27,000	13.64%	2.87%
8	102 Erin	8/1/2014	$253,000	11/1/2016	$270,000	2.25	$17,000	6.72%	2.98%
								Average	2.46%
								Median	2.47%

2. Matched Pair – Mulberry, Selmer, TN



This 16 MW solar farm was built in 2014 on 208.89 acres with the closest home being 480 feet.

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 Hearnsberger 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%**

I have run a number of direct matched comparisons on the sales adjoining this solar farm as shown below. These direct matched pairs include some of those shown above as well as additional more recent sales in this community. In each of these I have compared the one sale adjoining the solar farm to multiple similar homes nearby that do not adjoin a solar farm to look for any potential impact from the solar farm.

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
3	Adjoins	491 Dusty	6.86	10/28/2016	$176,000	2009	1,801	$97.72	3/2	2-Gar	Ranch	
	Not	820 Lake Trail	1.00	6/8/2018	$168,000	2013	1,869	$89.89	4/2	2-Gar	Ranch	
	Not	262 Country	1.00	1/17/2018	$145,000	2000	1,860	$77.96	3/2	2-Gar	Ranch	
	Not	35 April	1.15	8/16/2016	$185,000	2016	1,980	$93.43	3/2	2-Gar	Ranch	

Adjoining Sales Adjusted

Parcel	Solar	Address	Time	Site	YB	GLA	Park	Other	Total	% Diff	Distance
3	Adjoins	491 Dusty							$176,000		480
	Not	820 Lake Trail	-$8,324	$12,000	-$3,360	-$4,890			$163,426	7%	
	Not	262 Country	-$5,450	$12,000	$6,525	-$3,680			$154,396	12%	
	Not	35 April	$1,138	$12,000	-$6,475	-$13,380			$178,283	-1%	
									Average	6%	

The best matched pair is 35 April Loop, which required the least adjustment and indicates a -1% increase in value due to the solar farm adjacency.

Adjoining Residential Sales After Solar Farm Built

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
12	Adjoins	57 Cooper	1.20	2/26/2019	$163,000	2011	1,586	$102.77	3/2	2-Gar	1.5 Story	Pool
	Not	191 Amelia	1.00	8/3/2018	$132,000	2005	1,534	$86.05	3/2	Drive	Ranch	
	Not	75 April	0.85	3/17/2017	$134,000	2012	1,588	$84.38	3/2	2-Crprt	Ranch	
	Not	345 Woodland	1.15	12/29/2016	$131,000	2002	1,410	$92.91	3/2	1-Gar	Ranch	

Adjoining Sales Adjusted

Parcel	Solar	Address	Sales Price	Time	Site	YB	GLA	Park	Other	Total	% Diff	Distance
12	Adjoins	57 Cooper	$163,000							$163,000		685
	Not	191 Amelia	$132,000	$2,303		$3,960	$2,685	$10,000	$5,000	$155,947	4%	
	Not	75 April	$134,000	$8,029	$4,000	-$670	-$135	$5,000	$5,000	$155,224	5%	
	Not	345 Woodland	$131,000	$8,710		$5,895	$9,811		$5,000	$160,416	2%	
										Average	4%	

The best matched pair is 191 Amelia, which was most similar in time frame of sale and indicates a +4% increase in value due to the solar farm adjacency.

Adjoining Residential Sales After Solar Farm Built

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
15	Adjoins	297 Country	1.00	9/30/2016	$150,000	2002	1,596	$93.98	3/2	4-Gar	Ranch	
	Not	185 Dusty	1.85	8/17/2015	$126,040	2009	1,463	$86.15	3/2	2-Gar	Ranch	
	Not	53 Glen	1.13	3/9/2017	$126,000	1999	1,475	$85.42	3/2	2-Gar	Ranch	Brick

Adjoining Sales Adjusted

Parcel	Solar	Address	Sales Price	Time	Site	YB	GLA	Park	Other	Total	% Diff	Distance
15	Adjoins	297 Country	$150,000							$150,000		650
	Not	185 Dusty	$126,040	$4,355		-$4,411	$9,167	$10,000		$145,150	3%	
	Not	53 Glen	$126,000	-$1,699		$1,890	$8,269	$10,000		$144,460	4%	
										Average	3%	

The best matched pair is 53 Glen, which was most similar in time frame of sale and required less adjustment. It indicates a +4% increase in value due to the solar farm adjacency.

The average indicated impact from these three sets of matched pairs is +4%, which suggests a mild positive relationship due to adjacency to the solar farm. The landscaping buffer for this project is mostly natural tree growth that was retained as part of the development but much of the trees separating the panels from homes are actually on the lots for the homes themselves. I therefore consider the landscaping buffer to be thin to moderate for these adjoining homes.

I have also looked at several lot sales in this subdivision as shown below.

These are all lots within the same community and the highest prices paid are for lots one parcel off from the existing solar farm. These prices are fairly inconsistent, though they do suggest about a $3,000 loss in the lots adjoining the solar farm. This is an atypical finding and additional details suggest there is more going on in these sales than the data crunching shows. First of all Parcel 4 was purchased by the owner of the adjoining home and therefore an atypical buyer seeking to expand a lot and the site is not being purchased for home development. Moreover, using the SiteToDoBusiness demographic tools, I found that the 1-mile radius around this development is expecting a total population increase over the next 5 years of 3 people. This lack of growing demand for lots is largely explained in that context. Furthermore, the fact that finished home sales as shown above are showing no sign of a negative impact on property value makes this data unreliable and inconsistent with the data shown in sales to an end user. I therefore place little weight on this outlier data.

Parcel	Solar	Address	Acres	Date Sold	Sales Price	4/18/2019 Adj for Time	$/AC	4/18/2019 Adj for Time
4	Adjoins	Shelter	2.05	10/25/2017	$16,000	$16,728	$7,805	$8,160
10	Adjoins	Carter	1.70	8/2/2018	$14,000	$14,306	$8,235	$8,415
11	Adjoins	Cooper	1.28	9/17/2018	$12,000	$12,215	$9,375	$9,543
	Not	75 Dusty	1.67	4/18/2019	$20,000	$20,000	$11,976	$11,976
	Not	Lake Trl	1.47	11/7/2018	$13,000	$13,177	$8,844	$8,964
	Not	Lake Trl	1.67	4/18/2019	$20,000	$20,000	$11,976	$11,976

	Adjoins	Per Acre	Not Adjoins	Per Acre	% DIF/Lot	% DIF/AC
Average	$14,416	$8,706	$17,726	$10,972	19%	21%
Median	$14,306	$8,415	$20,000	$11,976	28%	30%
High	$16,728	$9,543	$20,000	$11,976	16%	20%
Low	$12,215	$8,160	$13,177	$8,964	7%	9%

3. Matched Pair – Leonard Road Solar Farm, Hughesville, MD

This 5 MW solar farm is located on 47 acres and mostly adjoins agricultural and residential uses to the west, south and east as shown above. The property also adjoins retail uses and a church. I looked at a 2016 sale of an adjoining home with a positive impact on value adjoining the solar farm of 2.90%. This is within typical market friction and supports an indication of no impact on property value.

I have shown this data below. The landscaping buffer is considered heavy.

Leonardtown Road Solar Farm, Hughesville, MD

Nearby Residential Sale After Solar Farm Construction

Address	Solar Farm	Acres	Date Sold	Sales Price*	Built	GBA	$/GBA	Style	BR/BA	Bsmt	Park	Upgrades	Other
14595 Box Elder Ct	Adjoins	3.00	2/12/2016	$291,000	1991	2,174	$133.85	Colonial	5/2.5	No	2 Car Att	N/A	Deck
15313 Bassford Rd	Not	3.32	7/20/2016	$329,800	1990	2,520	$130.87	Colonial	3/2.5	Finished	2 Car Att	Custom	Scr Por/Patio

*$9,000 concession deducted from sale price for Box Elder and $10,200 deducted from Bassford

Adjoining Sales Adjusted			Adjustments					
Address	Date Sold	Sales Price	Time	GLA	Bsmt	Upgrades	Other	Total
14595 Box Elder Ct	2/12/2016	$291,000						$291,000
15313 Bassford Rd	7/20/2016	$329,800	-$3,400	-$13,840	-$10,000	-$15,000	-$5,000	$282,560

Difference Attributable to Location $8,440
2.90%

This is within typical market friction and supports an indication of no impact on property value.

4. Matched Pair – Gastonia SC Solar, Gastonia, NC

This 5 MW project is located on the south side of Neal Hawkins Road just outside of Gastonia. The property identified above as Parcel 4 was listed for sale while this solar farm project was going

through the approval process. The property was put under contract during the permitting process with the permit being approved while the due diligence period was still ongoing. After the permit was approved the property closed with no concerns from the buyer. I spoke with Jennifer Bouvier, the broker listing the property and she indicated that the solar farm had no impact at all on the sales price. She considered some nearby sales to set the price and the closing price was very similar to the asking price within the typical range for the market. The buyer was aware that the solar farm was coming and they had no concerns.

This two-story brick dwelling was sold on March 20, 2017 for $270,000 for a 3,437 square foot dwelling built in 1934 in average condition on 1.42 acres. The property has four bedrooms and two bathrooms. The landscaping screen is light for this adjoining home due to it being a new planted landscaping buffer.

Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
Adjoins	609 Neal Hawkins	1.42	3/20/2017	$270,000	1934	3,427	$78.79	4/2	Open	2-Brick	
Not	1418 N Modena	4.81	4/17/2018	$225,000	1930	2,906	$77.43	3/3	2-Crprt	2-Brick	
Not	363 Dallas Bess	2.90	11/29/2018	$265,500	1968	2,964	$89.57	3/3	Open	FinBsmt	
Not	1612 Dallas Chry	2.74	9/17/2018	$245,000	1951	3,443	$71.16	3/2	Open	2-Brick	Unfin bath

Adjoining Sales Adjusted

Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
609 Neal Hawkins								$270,000			225
1418 N Modena	$7,319		$2,700	$32,271		-$10,000		$257,290	5%		
363 Dallas Bess	$746		-$27,081	$33,179	-$10,000		$53,100	$262,456	3%		
1612 Dallas Chry	$4,110		-$12,495	-$911			$10,000	$235,704	13%		
										7%	

I also considered the newer adjoining home identified as Parcel 5 that sold later in 2017 and it likewise shows no negative impact on property value. This is also considered a light landscaping buffer.

Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style
Adjoins	611 Neal Hawkins	0.78	7/6/2017	$288,000	1991	2,256	$127.66	5/3	2-Gar	1.5 Brick
Not	1211 Still Frst	0.51	7/30/2018	$280,000	1989	2,249	$124.50	3/3	2-Gar	Br Rnch
Not	2867 Colony Wds	0.52	8/14/2018	$242,000	1990	2,006	$120.64	3/3	2-Gar	Br Rnch
Not	1010 Strawberry	1.00	10/4/2018	$315,000	2002	2,330	$135.19	3/2.5	2-Gar	1.5 Brick

Adjoining Sales Adjusted

Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
611 Neal Hawkins								$288,000			145
1211 Still Frst	$1,341		$2,800	$697				$284,838	1%		
2867 Colony Wds	$7,714		$1,210	$24,128				$275,052	4%		
1010 Strawberry	-$4,555		-$17,325	-$8,003	$5,000			$290,116	-1%		
										2%	

5. Matched Pair – Summit/Ranchlands Solar, Moyock, NC

This project is located at 1374 Caritoke Highway, Moyock, NC. This is an 80 MW facility on a parent tract of 2,034 acres. Parcels Number 48 and 53 as shown in the map above were sold in 2016. The project was under construction during the time period of the first of the matched pair sales and the permit was approved well prior to that in 2015.

I looked at multiple sales of adjoining and nearby homes and compared each to multiple comparables to show a range of impacts from -10% up to +11% with an average of +2% and a median of +3%. These ranges are well within typical real estate variation and supports an indication of no impact on property value.

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other	Distance
48	Adjoins	129 Pinto	4.29	4/15/2016	$170,000	1985	1,559	$109.04	3/2	Drive	MFG		1,060
	Not	102 Timber	1.30	4/1/2016	$175,500	2009	1,352	$129.81	3/2	Drive	MFG		
	Not	120 Ranchland	0.99	10/1/2014	$170,000	2002	1,501	$113.26	3/2	Drive	MFG		

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff
Adjoins	129 Pinto								$170,000		-3%
Not	102 Timber	$276	$10,000	-$29,484	$18,809				$175,101	-3%	
Not	120 Ranchland	$10,735	$10,000	-$20,230	$4,598				$175,103	-3%	

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
Adjoins	105 Pinto	4.99	12/16/2016	$206,000	1978	1,484	$138.81	3/2	Det G	Ranch	
Not	111 Spur	1.15	2/1/2016	$193,000	1985	2,013	$95.88	4/2	Gar	Ranch	
Not	103 Marshall	1.07	3/29/2017	$196,000	2003	1,620	$120.99	3/2	Drive	Ranch	
Not	127 Ranchland	0.00	6/9/2015	$219,900	1988	1,910	$115.13	3/2	Gar/3Det	Ranch	

Adjoining Sales Adjusted

Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
105 Pinto								$206,000			980
111 Spur	$6,747	$10,000	-$6,755	-$25,359				$177,633	14%		
103 Marshall	-$2,212	$10,000	-$24,500	-$8,227		$5,000		$176,212	14%		
127 Ranchland	$13,399	$10,000	-$10,995	-$24,523		-$10,000		$197,781	4%		
										11%	

Adjoining Residential Sales After Solar Farm Built

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other	Distance
15	Adjoins	318 Green View	0.44	9/15/2019	$357,000	2005	3,460	$103.18	4/4	2-Car	1.5 Brick		570
	Not	195 St Andrews	0.55	6/17/2018	$314,000	2002	3,561	$88.18	5/3	2-Car	2.0 Brick		
	Not	336 Green View	0.64	1/13/2019	$365,000	2006	3,790	$96.31	6/4	3-Car	2.0 Brick		
	Not	275 Green View	0.36	8/15/2019	$312,000	2003	3,100	$100.65	5/3	2-Car	2.0 Brick		

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff
Adjoins	318 Green View								$357,000		4%
Not	195 St Andrews	$12,040		$4,710	-$7,125	$10,000			$333,625	7%	
Not	336 Green View	$7,536		-$1,825	-$25,425			-$5,000	$340,286	5%	
Not	275 Green View	$815		$3,120	$28,986	$10,000			$354,921	1%	

Adjoining Residential Sales After Solar Farm Built

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other	Distance
29	Adjoins	164 Ranchland	1.01	4/30/2019	$169,000	1999	2,052	$82.36	4/2	Gar	MFG		440
	Not	150 Pinto	0.94	3/27/2018	$168,000	2017	1,920	$87.50	4/2	Drive	MFG		
	Not	105 Longhorn	1.90	10/10/2017	$184,500	2002	1,944	$94.91	3/2	Drive	MFG		
	Not	112 Pinto	1.00	7/27/2018	$180,000	2002	1,836	$98.04	3/2	Drive	MFG	Fenced	

	Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff
	Adjoins	164 Ranchland								$169,000		-10%
	Not	150 Pinto	$5,649		-$21,168	$8,085			$5,000	$165,566	2%	
	Not	105 Longhorn	$8,816	-$10,000	-$3,875	$7,175			$5,000	$191,616	-13%	
	Not	112 Pinto	$4,202		-$3,780	$14,824			$5,000	$200,245	-18%	

Adjoining Residential Sales After Solar Farm Built

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other	Distance
	Adjoins	358 Oxford	10.03	9/16/2019	$478,000	2008	2,726	$175.35	3/3	2 Gar	Ranch		635
	Not	276 Summit	10.01	12/20/2017	$355,000	2006	1,985	$178.84	3/2	2 Gar	Ranch		
	Not	176 Providence	6.19	5/6/2019	$425,000	1990	2,549	$166.73	3/3	4 Gar	Ranch	Brick	
	Not	1601 B Caratoke	12.20	9/26/2019	$440,000	2016	3,100	$141.94	4/3.5	5 Gar	Ranch	Pool	

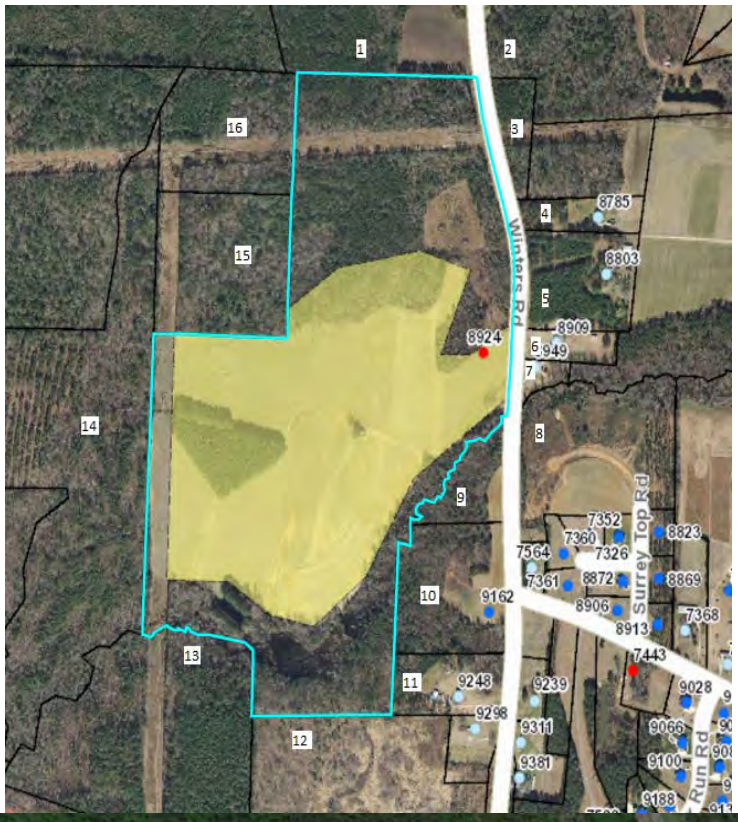
	Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff
	Adjoins	358 Oxford								$478,000		5%
	Not	276 Summit	$18,996		$3,550	$106,017	$10,000			$493,564	-3%	
	Not	176 Providence	$4,763		$38,250	$23,609		-$10,000	-$25,000	$456,623	4%	
	Not	1601 B Caratoke	-$371	$50,000	-$17,600	-$42,467	-$5,000	-$10,000		$414,562	13%	

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other	Distance
	Nearby	343 Oxford	10.01	3/9/2017	$490,000	2016	3,753	$130.56	3/3	2 Gar	1.5 Story	Pool	970
	Not	287 Oxford	10.01	9/4/2017	$600,000	2013	4,341	$138.22	5/4.5	8-Gar	1.5 Story	Pool	
	Not	301 Oxford	10.00	4/23/2018	$434,000	2013	3,393	$127.91	5/3	2 Gar	1.5 Story		
	Not	218 Oxford	10.01	4/4/2017	$525,000	2006	4,215	$124.56	4/3	4 Gar	1.5 Story	VG Barn	

	Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff
	Adjoins	343 Oxford								$490,000		3%
	Not	287 Oxford	-$9,051		$9,000	-$65,017	-$15,000	-$25,000		$494,932	-1%	
	Not	301 Oxford	-$14,995	-$10,000	$6,510	$36,838				$452,353	8%	
	Not	218 Oxford	-$1,150		$26,250	-$46,036		-$10,000	-$10,000	$484,064	1%	

6. Matched Pair – Tracy Solar, Bailey, NC



This project is located in rural Nash County on Winters Road with a 5 MW facility that was built in 2016 on 50 acres. A local builder acquired parcels 9 and 10 following construction as shown below

at rates comparable to other tracts in the area. They then built a custom home for an owner and sold that at a price similar to other nearby homes as shown in the matched pair data below. The retained woods provide a heavy landscaped buffer for this homesite.

Adjoining Land Sales After Solar Farm Completed

#	Solar Farm	TAX ID	Grantor	Grantee	Address	Acres	Date Sold	Sales Price	$/AC	Other
9 &10	Adjoins	316003 & 316004	Cozart	Kingsmill	9162 Winters	13.22	7/21/2016	$70,000	$5,295	
	Not	6056	Billingsly		427 Young	41	10/21/2016	$164,000	$4,000	
	Not	33211	Fulcher	Weikel	10533 Cone	23.46	7/18/2017	$137,000	$5,840	Doublewide, structures
	Not	106807	Perry	Gardner	Claude Lewis	11.22	8/10/2017	$79,000	$7,041	Gravel drive for sub, cleared
	Not	3437	Vaughan	N/A	11354 Old Lewis Sch	18.73	Listing	$79,900	$4,266	Small cemetery,wooded

Adjoining Sales Adjusted

Time	Acres	Location	Other	Adj $/Ac	% Diff
				$5,295	
$0	$400	$0	$0	$4,400	17%
-$292	$292	$0	-$500	$5,340	-1%
-$352	$0	$0	-$1,000	$5,689	-7%
-$213	$0	$0	$213	$4,266	19%
				Average	7%

Adjoining Residential Sales After Solar Farm Completed

#	Solar Farm	n	Address	Acres	Date Sold	Sales Price	Built	GLA	$/GLA	BR/BA	Style	Other
9 &10	Adjoins	gs	9162 Winters	13.22	1/5/2017	$255,000	2016	1,616	$157.80	3/2	Ranch	1296 sf wrkshp
	Not	w	7352 Red Fox	0.93	6/30/2016	$176,000	2010	1,529	$115.11	3/2	2-story	

Adjoining Sales Adjusted

Time	Acres	YB	GLA	Style	Other	Total	% Diff
						$255,000	
$0	$44,000	$7,392	$5,007	$5,000	$15,000	$252,399	1%

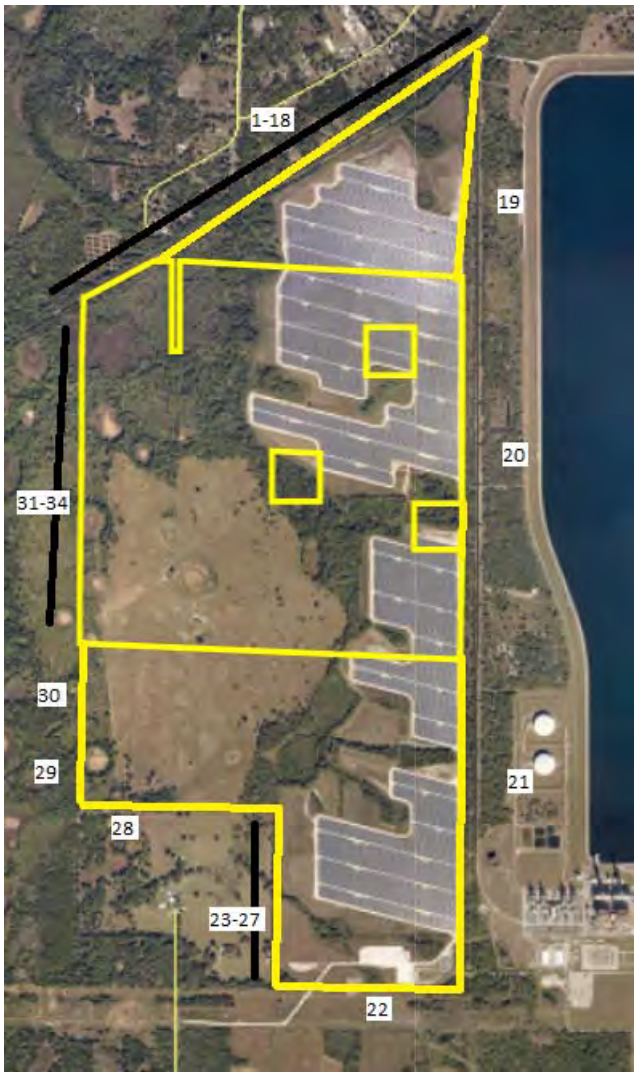
The comparables for the land show either a significant positive relationship or a mild negative relationship to having and adjoining solar farm, but when averaged together they show no negative impact. The wild divergence is due to the difficulty in comping out this tract of land and the wide variety of comparables used. The two comparables that show mild negative influences include a property that was partly developed as a residential subdivision and the other included a doublewide with some value and accessory agricultural structures. The tax assessed value on the improvements were valued at $60,000. So both of those comparables have some limitations for comparison. The two that show significant enhancement due to adjacency includes a property with a cemetery located in the middle and the other is a tract almost twice as large. Still that larger tract after adjustment provides the best matched pair as it required the least adjustment. I therefore conclude that there is no negative impact due to adjacency to the solar farm shown by this matched pair.

The dwelling that was built on the site was a build-to-suit and was compared to a nearby homesale of a property on a smaller parcel of land. I adjusted for that differenced based on a $25,000 value for a 1-acre home site versus the $70,000 purchase price of the larger subject tract. The other adjustments are typical and show no impact due to the adjacency to the solar farm.

The closest solar panel to the home is 780 feet away.

I note that the representative for Kingsmill Homes indicated that the solar farm was never a concern in purchasing the land or selling the home. He also indicated that they had built a number of nearby homes across the street and it had never come up as an issue.

7. Matched Pair – Manatee Solar Farm, Parrish, FL



This solar farm is located near Seminole Trail, Parrish, FL. The solar farm has a 74.50 MW output and is located on a 1,180.38-acre tract and was built in 2016. The tract is owned by Florida Power & Light Company.

I have considered the recent sale of 13670 Highland Road, Wimauma, Florida. This one-story, concrete block home is located just north of the solar farm and separated from the solar farm by a railroad corridor. This home is a 3 BR, 3 BA 1,512 s.f. home with a carport and workshop. The property includes new custom cabinets, granite counter tops, brand-new stainless-steel appliances, updated bathrooms and new carpet in the bedrooms. The home is sitting on 5 acres. The home was built in 1997.

I have compared this sale to several nearby homesales as part of this matched pair analysis as shown below. The landscaping separating the home from the solar farm is considered heavy.

Solar	TAX ID/Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Note
Adjoins	13670 Highland	5.00	8/21/2017	$255,000	1997	1,512	$168.65	3/3	Carport/Wrkshp	Ranch	Renov.
Not	2901 Arrowsmith	1.91	1/31/2018	$225,000	1979	1,636	$137.53	3/2	2 Garage/Wrkshp	Ranch	
Not	602 Butch Cassidy	1.00	5/5/2017	$220,000	2001	1,560	$141.03	3/2	N/A	Ranch	Renov.
Not	2908 Wild West	1.23	7/12/2017	$254,000	2003	1,554	$163.45	3/2	2 Garage/Wrkshp	Ranch	Renov.
Not	13851 Highland	5.00	9/13/2017	$240,000	1978	1,636	$146.70	4/2	3 Garage	Ranch	Renov.

		Adjoining Sales Adjusted								
Solar	**TAX ID/Address**	**Time**	**Acres**	**YB**	**GLA**	**BR/BA**	**Park**	**Note**	**Total**	**% Diff**
Adjoins	13670 Highland								$255,000	
Not	2901 Arrowsmith	$2,250	$10,000	$28,350	-$8,527	$5,000	-$10,000	$10,000	$262,073	-3%
Not	602 Butch Cassidy	-$2,200	$10,000	-$6,160	-$3,385	$5,000	$2,000		$225,255	12%
Not	2908 Wild West	$0	$10,000	-$10,668	-$3,432	$5,000	-$10,000		$244,900	4%
Not	13851 Highland	$0	$0	$31,920	-$9,095	$3,000	-$10,000		$255,825	0%
									Average	3%

The sales prices of the comparables before adjustments range from $220,000 to $254,000. After adjustments they range from $225,255 to $262,073. The comparables range from no impact to a strong positive impact. The comparables showing -3% and +4% impact on value is considered within a typical range of value and therefore not indicative of any impact on property value.

This set of matched pair data falls in line with the data seen in other states. The closest solar panel to the home at 13670 Highland is 1,180 feet. There is a wooded buffer between these two properties.

I have included a map showing the relative location of these properties below.

8. Matched Pair – McBride Place Solar Farm, Midland, NC

This project is located on Mount Pleasant Road, Midland, North Carolina. The property is on 627 acres on an assemblage of 974.59 acres. The solar farm was approved in early 2017 for a 74.9 MW facility.

I have considered the sale of 4380 Joyner Road which adjoins the proposed solar farm near the northwest section. This property was appraised in April of 2017 for a value of $317,000 with no consideration of any impact due to the solar farm in that figure. The property sold in November

2018 for $325,000 with the buyer fully aware of the proposed solar farm. The landscaping buffer relative to Joyner Road, Hayden Way, Chanel Court and Kristi Lane is considered medium, while the landscaping for the home at the north end of Chanel Court is considered very light.

I have considered the following matched pairs to the subject property.

Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	4380 Joyner	12.00	11/22/2017	$325,000	1979	1,598	$203.38	3/2	2xGar	Ranch	Outbldg
Not	3870 Elkwood	5.50	8/24/2016	$250,000	1986	1,551	$161.19	3/2.5	Det 2xGar	Craft	
Not	8121 Lower Rocky	18.00	2/8/2017	$355,000	1977	1,274	$278.65	2/2	2xCarprt	Ranch	Eq. Fac.
Not	13531 Cabarrus	7.89	5/20/2016	$267,750	1981	2,300	$116.41	3/2	2xGar	Ranch	

Adjoining Sales Adjusted

Time	Acres	YB	Condition	GLA	BR/BA	Park	Other	Total	% Diff
								$325,000	
$7,500	$52,000	-$12,250	$10,000	$2,273	-$2,000	$2,500	$7,500	$317,523	2%
$7,100	-$48,000	$4,970		$23,156	$0	$3,000	-$15,000	$330,226	-2%
$8,033	$33,000	-$3,749	$20,000	-$35,832	$0	$0	$7,500	$296,702	9%
								Average	3%

The home at 4380 Joyner Road is 275 feet from the closest solar panel.

I also considered the recent sale of a lot at 5800 Kristi Lane that is on the east side of the proposed solar farm. This 4.22-acre lot sold in December 2017 for $94,000. A home was built on this lot in 2019 with the closest point from home to panel at 689 feet. The home site is heavily wooded and their remains a wooded buffer between the solar panels and the home. I spoke with the broker, Margaret Dabbs, who indicated that the solar farm was considered a positive by both buyer and seller as it ensures no subdivision will be happening in that area. Buyers in this market are looking for privacy and seclusion.

The breakdown of recent lot sales on Kristi are shown below with the lowest price paid for the lot with no solar farm exposure, though that lot has exposure to Mt Pleasant Road South. Still the older lot sales have exposure to the solar farm and sold for higher prices than the front lot and adjusting for time would only increase that difference.

Adjoining Lot Sales After Solar Farm Built

Parcel	Solar	Address	Acres	Date Sold	Sales Price	$/AC	$/Lot
	Adjoins	5811 Kristi	3.74	5/1/2018	$100,000	$26,738	$100,000
	Adjoins	5800 Kristi	4.22	12/1/2017	$94,000	$22,275	$94,000
	Not	5822 Kristi	3.43	2/24/2020	$90,000	$26,239	$90,000

The lot at 5811 Kristi Lane sold in May 2018 for $100,000 for a 3.74-acre lot. The home that was built later in 2018 is 505 feet to the closest solar panel. This home then sold to a homeowner for $530,000 in April 2020. I have compared this home sale to other properties in the area as shown below.

Adjoining Residential Sales After Solar Farm Built

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	5811 Kristi	3.74	3/31/2020	$530,000	2018	3,858	$137.38	5/3.5	2 Gar	2-story	Cement Ext
Not	3915 Tania	1.68	12/9/2019	$495,000	2007	3,919	$126.31	3/3.5	2 Gar	2-story	3Det Gar
Not	6782 Manatee	1.33	3/8/2020	$460,000	1998	3,776	$121.82	4/2/2h	2 Gar	2-story	Water
Not	314 Old Hickory	1.24	9/20/2019	$492,500	2017	3,903	$126.18	6/4.5	2 Gar	2-story	

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff
Adjoins	5811 Kristi								$530,000		5%
Not	3915 Tania	$6,285		$27,225	-$3,852		-$20,000		$504,657	5%	
Not	6782 Manatee	$1,189		$46,000	$4,995	$5,000			$517,183	2%	
Not	314 Old Hickory	$10,680		$2,463	-$2,839	-$10,000			$492,803	7%	

After adjusting the comparables, I found that the average adjusted value shows a slight increase in value for the subject property adjoining a solar farm. As in the other cases, this is a mild positive impact on value but within the typical range of real estate transactions.

I also looked at 5833 Kristi Lane that sold on 9/14/2020 for $625,000. This home is 470 feet from the closest panel.

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
Nearby	5833 Kristi	4.05	9/14/2020	$625,000	2008	4,373	$142.92	5/4	3-Car	2-Brick	
Not	4055 Dakeita	4.90	12/30/2020	$629,000	2005	4,427	$142.08	4/4	4-Car	2-Brick	4DetGar/Stable
Not	9615 Bales	2.16	6/30/2020	$620,000	2007	4,139	$149.79	4/5	3-Car	2-Stone	2DetGar
Not	9522 Bales	1.47	6/18/2020	$600,000	2007	4,014	$149.48	4/4.5	3-Car	2-Stone	

Adjoining Sales Adjusted

Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
5833 Kristi								$625,000			470
4055 Dakeita	-$9,220		$5,661	-$6,138		-$25,000		$594,303	5%		
9615 Bales	$6,455		$1,860	$28,042	-$10,000	-$15,000		$631,356	-1%		
9522 Bales	$7,233		$1,800	$42,930	-$5,000			$646,963	-4%		
										0%	

The average difference is 0% impact and the differences are all within a close range with this set of comparables and supports a finding of no impact on property value.

I have also looked at 4504 Chanel Court. This home sold on January 1, 2020 for $393,500 for this 3,010 square foot home built in 2004 with 3 bedrooms, 3.5 bathrooms, and a 3-car garage. This home includes a full partially finished basement that significantly complicates comparing this to other sales. This home previously sold on January 23, 2017 for $399,000. This was during the time that the solar farm was a known factor as the solar farm was approved in early 2017 and public discussions had already commenced. I spoke with Rachelle Killman with Real Estate Realty, LLC the buyer's agent for this transaction and she indicated that the solar farm was not a factor or consideration for the buyer. She noted that you could see the panels sort of through the trees, but it wasn't a concern for the buyer. She was not familiar with the earlier 2017 sale, but indicated that it was likely too high. This again goes back to the partially finished basement issue. The basement has a fireplace, and an installed 3/4 bathroom but otherwise bare studs and concrete floors with different buyers assigning varying value to that partly finished space. I also reached out to Don Gomez with Don Anthony Realty, LLC as he was the listing agent.

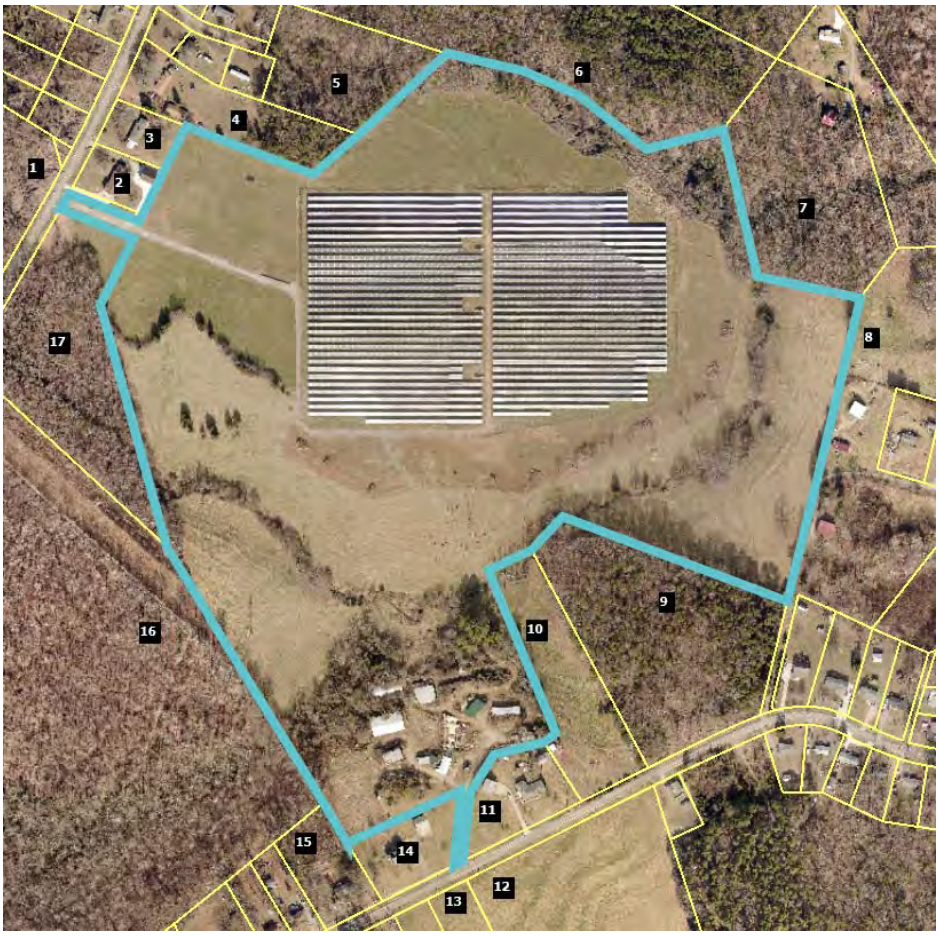
I also looked at the recent sale of 4599 Chanel Court. This home is within 310 feet of solar panels but notably does not have a good landscaping screen in place as shown in the photo below. The plantings appear to be less than 3-feet in height and only a narrow, limited screen of existing hardwoods were kept. The photograph is from the listing.

According to Scott David with Better Homes and Gardens Paracle Realty, this property was under contract for $550,000 contingent on the buyer being able to sell their former home. The former home was apparently overpriced and did not sell and the contract stretched out over 2.5 months.

The seller was in a bind as they had a home they were trying to buy contingent on this closing and were about to lose that opportunity. A cash buyer offered them a quick close at $500,000 and the seller accepted that offer in order to not lose the home they were trying to buy. According to Mr. David, the original contracted buyer and the actual cash buyer never considered the solar farm as a negative. In fact Mr. David noted that the actual buyer saw it as a great opportunity to purchase a home where a new subdivision could not be built behind his house. I therefore conclude that this property supports a finding of no impact on adjoining property, even where the landscaping screen still requires time to grow in for a year-round screen.

I also considered a sale/resale analysis on this property. This same home sold on September 15, 2015 for $462,000. Adjusting this upward by 5% per year for the five years between these sales dates suggests a value of $577,500. Comparing that to the $550,000 contract that suggests a 5% downward impact, which is within a typical market variation. Given that the broker noted no negative impact from the solar farm and the analysis above, I conclude this sale supports a finding of no impact on value.

9. Matched Pair – Mariposa Solar, Gaston County, NC



This project is a 5 MW facility located on 35.80 acres out of a parent tract of 87.61 acres at 517 Blacksnake Road, Stanley that was built in 2016.

I have considered a number of recent sales around this facility as shown below.

The first is identified in the map above as Parcel 1, which is 215 Mariposa Road. This is an older dwelling on large acreage with only one bathroom. I've compared it to similar nearby homes as shown below. The landscaping buffer for this home is considered light.

Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style
Adjoins	215 Mariposa	17.74	12/12/2017	$249,000	1958	1,551	$160.54	3/1	Garage	Br/Rnch
Not	249 Mariposa	0.48	3/1/2019	$153,000	1974	1,792	$85.38	4/2	Garage	Br/Rnch
Not	110 Airport	0.83	5/10/2016	$166,000	1962	2,165	$76.67	3/2	Crprt	Br/Rnch
Not	1249 Blacksnake	5.01	9/20/2018	$242,500	1980	2,156	$112.48	3/2	Drive	1.5
Not	1201 Abernathy	27.00	5/3/2018	$390,000	1970	2,190	$178.08	3/2	Crprt	Br/Rnch

Adjoining Residential Sales After Solar Farm Approved — Adjoining Sales Adjusted

Solar	Address	Acres	Date Sold	Sales Price	Time	YB	Acres	GLA	BR/BA	Park	Other	Total	% Diff
Adjoins	215 Mariposa	17.74	12/12/2017	$249,000								$249,000	
Not	249 Mariposa	0.48	3/1/2019	$153,000	-$5,583	-$17,136	$129,450	-$20,576	-$10,000			$229,154	8%
Not	110 Airport	0.83	5/10/2016	$166,000	$7,927	-$4,648	$126,825	-$47,078	-$10,000			$239,026	4%
Not	1249 Blacksnake	5.01	9/20/2018	$242,500	-$5,621	-$37,345	$95,475	-$68,048	-$10,000	$5,000		$221,961	11%
Not	1201 Abernathy	27.00	5/3/2018	$390,000	-$4,552	-$32,760	-$69,450	-$60,705	-$10,000			$212,533	15%
												Average	9%

The average difference after adjusting for all factors is +9% on average, which suggests an enhancement due to the solar farm across the street. Given the large adjustments for acreage and size, I will focus on the low end of the adjusted range at 4%, which is within the typical deviation and therefore suggests no impact on value.

I have also considered Parcel 4 that sold after the solar farm was approved but before it had been constructed in 2016. The landscaping buffer for this parcel is considered light.

Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	242 Mariposa	2.91	9/21/2015	$180,000	1962	1,880	$95.74	3/2	Carport	Br/Rnch	Det Wrkshop
Not	249 Mariposa	0.48	3/1/2019	$153,000	1974	1,792	$85.38	4/2	Garage	Br/Rnch	
Not	110 Airport	0.83	5/10/2016	$166,000	1962	2,165	$76.67	3/2	Crprt	Br/Rnch	
Not	1249 Blacksnake	5.01	9/20/2018	$242,500	1980	2,156	$112.48	3/2	Drive	1.5	

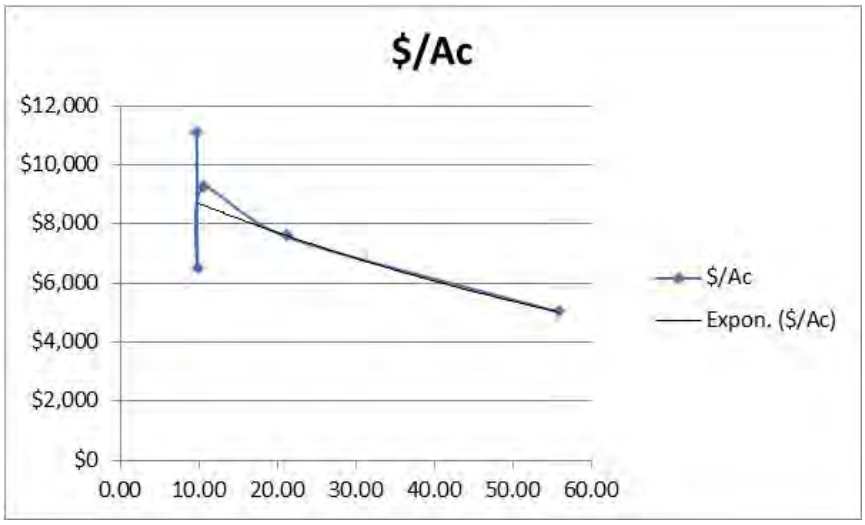
Adjoining Residential Sales After Solar Farm Approved — Adjoining Sales Adjusted

Solar	Address	Acres	Date Sold	Sales Price	Time	YB	Acres	GLA	BR/BA	Park	Other	Total	% Diff
Adjoins	242 Mariposa	2.91	9/21/2015	$180,000								$180,000	
Not	249 Mariposa	0.48	3/1/2019	$153,000	-$15,807	-$12,852	$18,468	$7,513		-$3,000	$25,000	$172,322	4%
Not	110 Airport	0.83	5/10/2016	$166,000	-$3,165	$0	$15,808	-$28,600			$25,000	$175,043	3%
Not	1249 Blacksnake	5.01	9/20/2018	$242,500	-$21,825	-$30,555	-$15,960	-$40,942		$2,000	$25,000	$160,218	11%
												Average	6%

The average difference after adjusting for all factors is +6%, which is again suggests a mild increase in value due to the adjoining solar farm use. The median is a 4% adjustment, which is within a standard deviation and suggests no impact on property value.

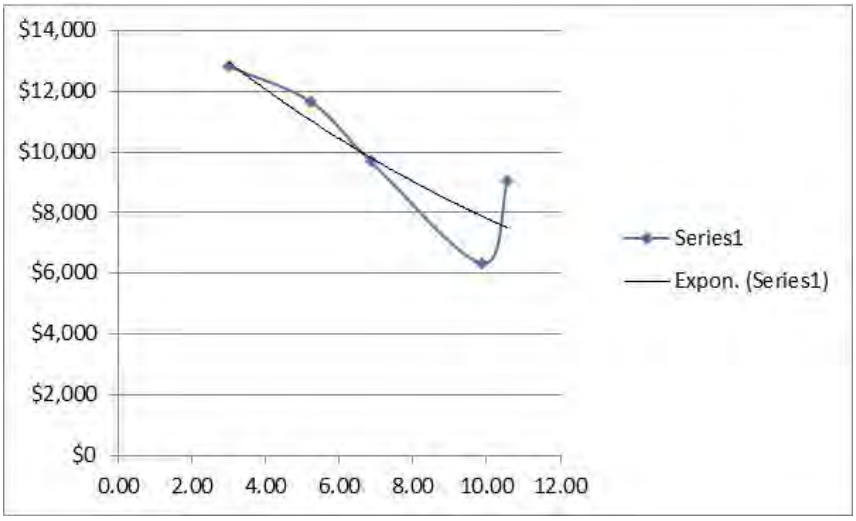
I have also considered the recent sale of Parcel 13 that is located on Blacksnake Road south of the project. I was unable to find good land sales in the same 20-acre range, so I have considered sales of larger and smaller acreage. I adjusted each of those land sales for time. I then applied the price per acre to a trendline to show where the expected price per acre would be for 20 acres. As can be seen in the chart below, this lines up exactly with the purchase of the subject property. I therefore conclude that there is no impact on Parcel 13 due to proximity to the solar farm.

Adjoining Residential Land Sales After Solar Farm Approved						**Adjoining Sales Adjusted**	
Solar	**Tax/Street**	**Acres**	**Date Sold**	**Sales Price**	**$/Ac**	**Time**	**$/Ac**
Adjoins	174339/Blacksnake	21.15	6/29/2018	$160,000	$7,565		$7,565
Not	227852/Abernathy	10.57	5/9/2018	$97,000	$9,177	$38	$9,215
Not	17443/Legion	9.87	9/7/2018	$64,000	$6,484	-$37	$6,447
Not	164243/Alexis	9.75	2/1/2019	$110,000	$11,282	-$201	$11,081
Not	176884/Bowden	55.77	6/13/2018	$280,000	$5,021	$7	$5,027



Finally, I have considered the recent sale of Parcel 17 that sold as vacant land. I was unable to find good land sales in the same 7-acre range, so I have considered sales of larger and smaller acreage. I adjusted each of those land sales for time. I then applied the price per acre to a trendline to show where the expected price per acre would be for 7 acres. As can be seen in the chart below, this lines up with the trendline running right through the purchase price for the subject property. I therefore conclude that there is no impact on Parcel 13 due to proximity to the solar farm. I note that this property was improved with a 3,196 square foot ranch built in 2018 following the land purchase, which shows that development near the solar farm was unimpeded.

Adjoining Residential Land Sales After Solar Farm Approved						**Adjoining Sales Adjusted**		
Solar	**Tax/Street**	**Acres**	**Date Sold**	**Sales Price**	**$/Ac**	**Time**	**Location**	**$/Ac**
Adjoins	227039/Mariposa	6.86	12/6/2017	$66,500	$9,694			$9,694
Not	227852/Abernathy	10.57	5/9/2018	$97,000	$9,177	-$116		$9,061
Not	17443/Legion	9.87	9/7/2018	$64,000	$6,484	-$147		$6,338
Not	177322/Robinson	5.23	5/12/2017	$66,500	$12,715	$217	-$1,272	$11,661
Not	203386/Carousel	2.99	7/13/2018	$43,500	$14,548	-$262	-$1,455	$12,832



10. Matched Pair – Clarke County Solar, Clarke County, VA

This project is a 20 MW facility located on a 234-acre tract that was built in 2017.

I have considered two recent sales of Parcel 3. The home on this parcel is 1,230 feet from the closest panel as measured in the second map from Google Earth, which shows the solar farm under construction. This home sold in January 2017 for $295,000 and again in August 2019 for $385,000. I show each sale below and compare those to similar home sales in each time frame. The significant increase in price between 2017 and 2019 is due to a major kitchen remodel, new roof, and related upgrades as well as improvement in the market in general. The sale and later resale of the home with updates and improvements speaks to pride of ownership and increasing overall value as properties perceived as diminished are less likely to be renovated and sold for profit.

I note that 102 Tilthammer includes a number of barns that I did not attribute any value in the analysis. The market would typically give some value for those barns but even without that adjustment there is an indication of a positive impact on value due to the solar farm. The landscaping buffer from this home is considered light.

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
3	Adjoins	833 Nations Spr	5.13	8/18/2019	$385,000	1979	1,392	$276.58	3/2	Det Gar	Ranch	UnBsmt
	Not	167 Leslie	5.00	8/19/2020	$429,000	1980	1,665	$257.66	3/2	Det2Gar	Ranch	
	Not	2393 Old Chapel	2.47	8/10/2020	$330,000	1974	1,500	$220.00	3/1.5	Det Gar	Ranch	
	Not	102 Tilthammer	6.70	5/7/2019	$372,000	1970	1,548	$240.31	3/1.5	Det Gar	Ranch	UnBsmt

Adjoining Sales Adjusted

Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
							$385,000			1230
-$13,268		-$2,145	-$56,272		-$5,000	$50,000	$402,315	-4%		
-$9,956	$25,000	$8,250	-$19,008	$5,000		$50,000	$389,286	-1%		
$3,229		$16,740	-$29,991	$5,000			$366,978	5%		
									0%	

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
3	Adjoins	833 Nations Spr	5.13	1/9/2017	$295,000	1979	1,392	$211.93	3/2	Det Gar	Ranch	UnBsmt
	Not	6801 Middle	2.00	12/12/2017	$249,999	1981	1,584	$157.83	3/2	Open	Ranch	
	Not	4174 Rockland	5.06	1/2/2017	$300,000	1990	1,688	$177.73	3/2	2 Gar	2-story	
	Not	400 Sugar Hill	1.00	6/7/2018	$180,000	1975	1,008	$178.57	3/1	Open	Ranch	

Adjoining Sales Adjusted

Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
							$295,000			1230
-$7,100	$25,000	-$2,500	-$24,242		$5,000	$50,000	$296,157	0%		
$177		-$16,500	-$42,085		-$10,000	$50,000	$281,592	5%		
-$7,797		$3,600	$54,857	$10,000	$5,000	$50,000	$295,661	0%		
									1%	

11. Matched Pair – Simon Solar, Social Circle, GA

This 30 MW solar farm is located off Hawkins Academy Road and Social Circle Fairplay Road. I identified three adjoining sales to this tract after development of the solar farm. However, one of those is shown as Parcel 12 in the map above and includes a powerline easement encumbering over a third of the 5 acres and adjoins a large substation as well. It would be difficult to isolate those impacts from any potential solar farm impact and therefore I have excluded that sale. I also excluded the recent sale of Parcel 17, which is a farm with conservation restrictions on it that similarly would require a detailed examination of those conservation restrictions in order to see if there was any impact related to the solar farm. I therefore focused on the recent sale of Parcel 7 and the adjoining parcel to the south of that. They are technically not adjoining due to the access road for the flag-shaped lot to the east. Furthermore, there is an apparent access easement serving the two rear lots that encumber these two parcels which is a further limitation on these sales. This analysis assumes that the access easement does not negatively impact the subject property, though it may.

The landscaping buffer relative to this parcel is considered medium.

Adjoining Land Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	$/AC	Type	Other
7+	Adjoins	4514 Hawkins	36.86	3/31/2016	$180,000	$4,883	Pasture	Esmts
	Not	HD Atha	69.95	12/20/2016	$357,500	$5,111	Wooded	N/A
	Not	Pannell	66.94	11/8/2016	$322,851	$4,823	Mixed	*
	Not	1402 Roy	123.36	9/29/2016	$479,302	$3,885	Mixed	**

* Adjoining 1 acre purchased by same buyer in same deed. Allocation assigned on the County Tax Record.

** Dwelling built in 1996 with a 2016 tax assessed value of $75,800 deducted from sales price to reflect land value

Adjoining Sales Adjusted						Avg
Time	Size	Type	Other	Total/Ac	% Diff	% Diff
				$4,883		
$89	$256			$5,455	-12%	
-$90	$241			$4,974	-2%	
-$60	$389			$4,214	14%	
						0%

The range of impact identified by these matched pairs are -12% to +14%, with an average of 0% impact due to the solar farm. The best matched pair with the least adjustment supports a -2% impact due to the solar farm. I note again that this analysis considers no impact for the existing access easements that meander through this property and it may be having an impact. Still at -2% impact as the best indication for the solar farm, I consider that to be no impact given that market fluctuations support +/- 5%.

12. Matched Pair – Candace Solar, Princeton, NC

This 5 MW solar farm is located at 4839 US 70 Highway just east of Herring Road. This solar farm was completed on October 25, 2016.

I identified three adjoining sales to this tract after development of the solar farm with frontage on US 70. I did not attempt to analyze those sales as they have exposure to an adjacent highway and railroad track. Those homes are therefore problematic for a matched pair analysis unless I have similar homes fronting on a similar corridor.

I did consider a land sale and a home sale on adjoining parcels without those complications.

The lot at 499 Herring Road sold to Paradise Homes of Johnston County of NC, Inc. for $30,000 in May 2017 and a modular home was placed there and sold to Karen and Jason Toole on September 29, 2017. I considered the lot sale first as shown below and then the home sale that followed. The landscaping buffer relative to this parcel is considered medium.

Adjoining Land Sales After Solar Farm Approved							**Adjoining Sales Adjusted**				
Parcel	**Solar**	**Address**	**Acres**	**Date Sold**	**Sales Price**	**Other**	**Time**	**Site**	**Other**	**Total**	**% Diff**
16	Adjoins	499 Herring	2.03	5/1/2017	$30,000					$30,000	
	Not	37 Becky	0.87	7/23/2019	$24,500	Sub/Pwr	-$1,679	$4,900		$27,721	8%
	Not	5858 Bizzell	0.88	8/17/2016	$18,000		$390	$3,600		$21,990	27%
	Not	488 Herring	2.13	12/20/2016	$35,000		$389			$35,389	-18%
										Average	5%

Following the land purchase, the modular home was placed on the site and sold. I have compared this modular home to the following sales to determine if the solar farm had any impact on the purchase price.

Adjoining Residential Sales After Solar Farm Approved

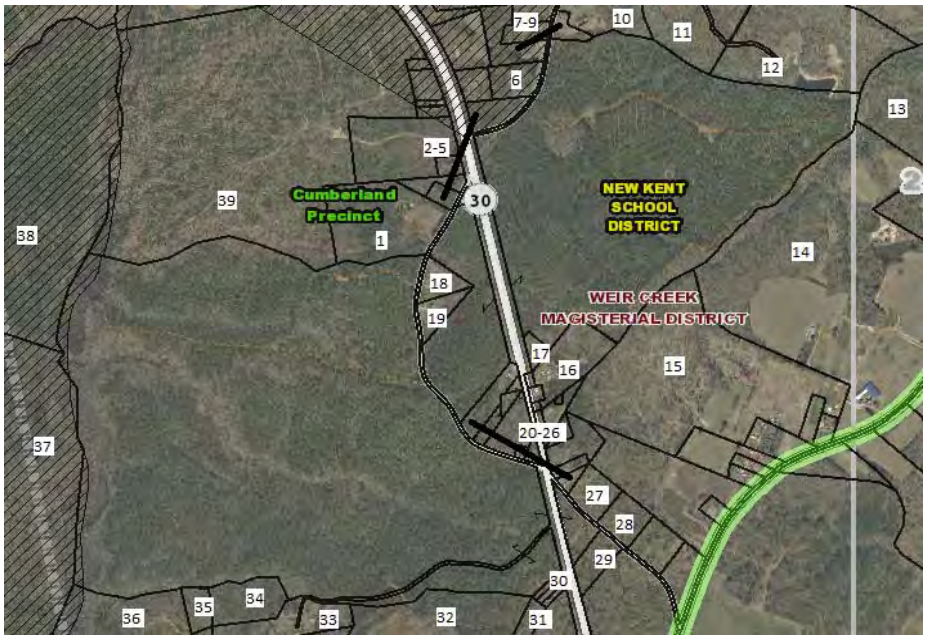
Parcel	**Solar**	**Address**	**Acres**	**Date Sold**	**Sales Price**	**Built**	**GBA**	**$/GBA**	**BR/BA**	**Park**	**Style**	**Other**
16	Adjoins	499 Herring	2.03	9/27/2017	$215,000	2017	2,356	$91.26	4/3	Drive	Modular	
	Not	678 WC	6.32	3/8/2019	$226,000	1995	1,848	$122.29	3/2.5	Det Gar	Mobile	Ag bldgs
	Not	1810 Bay V	8.70	3/26/2018	$170,000	2003	2,356	$72.16	3/2	Drive	Mobile	Ag bldgs
	Not	1795 Bay V	1.78	12/1/2017	$194,000	2017	1,982	$97.88	4/3	Drive	Modular	

Adjoining Residential Sales Af			**Adjoining Sales Adjusted**									**Avg**	
Parcel	**Solar**	**Address**	**Time**	**Site**	**YB**	**GLA**	**BR/BA**	**Park**	**Other**	**Total**	**% Diff**	**% Diff**	**Distance**
16	Adjoins	499 Herring								$215,000			488
	Not	678 WC	-$10,037	-$25,000	$24,860	$37,275	-$5,000	-$7,500	-$20,000	$220,599	-3%		
	Not	1810 Bay V	-$2,579	-$20,000	$11,900	$0				$159,321	26%		
	Not	1795 Bay V	-$1,063		$0	$21,964				$214,902	0%		
												8%	

The best comparable is 1795 Bay Valley as it required the least adjustment and was therefore most similar, which shows a 0% impact. This signifies no impact related to the solar farm.

The range of impact identified by these matched pairs ranges are therefore -3% to +26% with an average of +8% for the home and an average of +4% for the lot, though the best indicator for the lot shows a $5,000 difference in the lot value due to the proximity to the solar farm or a -12% impact.

13. Matched Pair – Walker-Correctional Solar, Barham Road, Barhamsville, VA



This project was built in 2017 and located on 484.65 acres for a 20 MW with the closest home at 110 feet from the closest solar panel with an average distance of 500 feet.

I considered the recent sale identified on the map above as Parcel 19, which is directly across the street and based on the map shown on the following page is 250 feet from the closest panel. A

limited buffering remains along the road with natural growth being encouraged, but currently the panels are visible from the road. Alex Uminski, SRA with MGMiller Valuations in Richmond VA confirmed this sale with the buying and selling broker. The selling broker indicated that the solar farm was not a negative influence on this sale and in fact the buyer noticed the solar farm and then discovered the listing. The privacy being afforded by the solar farm was considered a benefit by the buyer. I used a matched pair analysis with a similar sale nearby as shown below and found no negative impact on the sales price. Property actually closed for more than the asking price. The landscaping buffer is considered light.

Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	5241 Barham	2.65	10/18/2018	$264,000	2007	1,660	$159.04	3/2	Drive	Ranch	Modular
Not	17950 New Kent	5.00	9/5/2018	$290,000	1987	1,756	$165.15	3/2.5	3 Gar	Ranch	
Not	9252 Ordinary	4.00	6/13/2019	$277,000	2001	1,610	$172.05	3/2	1.5-Gar	Ranch	
Not	2416 W Miller	1.04	9/24/2018	$299,000	1999	1,864	$160.41	3/2.5	Gar	Ranch	

Adjoining Sales Adjusted

Solar	Address	Time	Ac/Loc	YB	GLA	BR/BA	Park	Other	Total	% Diff	Dist
Adjoins	5241 Barham								$264,000		250
Not	17950 New Kent		-$8,000	$29,000	-$4,756	-$5,000	-$20,000	-$15,000	$266,244	-1%	
Not	9252 Ordinary	-$8,310	-$8,000	$8,310	$2,581		-$10,000	-$15,000	$246,581	7%	
Not	2416 W Miller		$8,000	$11,960	-$9,817	-$5,000	-$10,000	-$15,000	$279,143	-6%	
								Average Diff		0%	

I also spoke with Patrick W. McCrerey of Virginia Estates who was marketing a property that sold at 5300 Barham Road adjoining the Walker-Correctional Solar Farm. He indicated that this property was unique with a home built in 1882 and heavily renovated and updated on 16.02 acres. The solar farm was through the woods and couldn't be seen by this property and it had no impact on marketing this property. This home sold on April 26, 2017 for $358,000. I did not set up any matched pairs for this property since it is a unique property that any such comparison would be difficult to rely on. The broker's comments do support the assertion that the adjoining solar farm had no impact on value. The home in this case was 510 feet from the closest panel.

14. Matched Pair – Innovative Solar 46, Roslin Farm Rd, Hope Mills, NC

This project was built in 2016 and located on 532 acres for a 78.5 MW solar farm with the closest home at 125 feet from the closest solar panel with an average distance of 423 feet.

I considered the recent sale of a home on Roslin Farm Road just north of Running Fox Road as shown below. This sale supports an indication of no impact on property value. The landscaping buffer is considered light.

Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other	Distance
Adjoins	6849 Roslin Farm	1.00	2/18/2019	$155,000	1967	1,610	$96.27	3/3	Drive	Ranch	Brick	435
Not	6592 Sim Canady	2.43	9/5/2017	$185,000	1974	2,195	$84.28	3/2	Gar	Ranch	Brick	
Not	1614 Joe Hall	1.63	9/3/2019	$145,000	1974	1,674	$86.62	3/2	Det Gar	Ranch	Brick	
Not	109 Bledsoe	0.68	1/17/2019	$150,000	1973	1,663	$90.20	3/2	Gar	Ranch	Brick	

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff
Adjoins	6849 Roslin Farm								$155,000		5%
Not	6592 Sim Canady	$8,278		-$6,475	-$39,444	$10,000	-$5,000		$152,359	2%	
Not	1614 Joe Hall	-$2,407		-$5,075	-$3,881	$10,000	-$2,500		$141,137	9%	
Not	109 Bledsoe	$404	$10,000	-$4,500	-$3,346		-$5,000		$147,558	5%	

15. Matched Pair – Innovative Solar 42, County Line Rd, Fayetteville, NC

This project was built in 2017 and located on 413.99 acres for a 71 MW with the closest home at 135 feet from the closest solar panel with an average distance of 375 feet.

I considered the recent sales identified on the map above as Parcels 2 and 3, which is directly across the street these homes are 330 and 340 feet away. Parcel 2 includes an older home built in 1976, while Parcel 3 is a new home built in 2019. So the presence of the solar farm had no impact on new construction in the area.

The matched pairs for each of these are shown below. The landscaping buffer relative to these parcels is considered light.

Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other	Distance
Adjoins	2923 County Ln	8.98	2/28/2019	$385,000	1976	2,905	$132.53	3/3	2-Car	Ranch	Brick/Pond	340
Not	1928 Shaw Mill	17.00	7/3/2019	$290,000	1977	3,001	$96.63	4/4	2-Car	Ranch	Brick/Pond/Rental	
Not	2109 John McM.	7.78	4/25/2018	$320,000	1978	2,474	$129.35	3/2	Det Gar	Ranch	Vinyl/Pool,Stable	

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff
Adjoins	2923 County Ln								$385,000		3%
Not	1928 Shaw Mill	-$3,055	$100,000	-$1,450	-$7,422	-$10,000			$368,074	4%	
Not	2109 John McM.	$8,333		-$3,200	$39,023	$10,000		$5,000	$379,156	2%	

Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other	Distance
Adjoins	2935 County Ln	1.19	6/18/2019	$266,000	2019	2,401	$110.79	4/3	Gar	2-Story		330
Not	3005 Hemingway	1.17	5/16/2019	$269,000	2018	2,601	$103.42	4/3	Gar	2-Story		
Not	7031 Glynn Mill	0.60	5/8/2018	$255,000	2017	2,423	$105.24	4/3	Gar	2-Story		
Not	5213 Bree Brdg	0.92	5/7/2019	$260,000	2018	2,400	$108.33	4/3	3-Gar	2-Story		

Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff
Adjoins	2935 County Ln								$266,000		3%
Not	3005 Hemingway	$748		$1,345	-$16,547				$254,546	4%	
Not	7031 Glynn Mill	$8,724		$2,550	-$1,852				$264,422	1%	
Not	5213 Bree Brdg	$920		$1,300	$76			-$10,000	$252,296	5%	

Both of these matched pairs adjust to an average of +3% on impact for the adjoining solar farm, meaning there is a slight positive impact due to proximity to the solar farm. This is within the standard +/- of typical real estate transactions, which strongly suggests no impact on property value. I noted specifically that for 2923 County Line Road, the best comparable is 2109 John McMillan as it does not have the additional rental unit on it. I made no adjustment to the other sale for the value of that rental unit, which would have pushed the impact on that comparable downward – meaning there would have been a more significant positive impact.

16. Matched Pair – Sunfish Farm, Keenebec Rd, Willow Spring, NC

This project was built in 2015 and located on 49.6 acres (with an inset 11.25-acre parcel) for a 6.4 MW project with the closest home at 135 feet with an average distance of 105 feet.

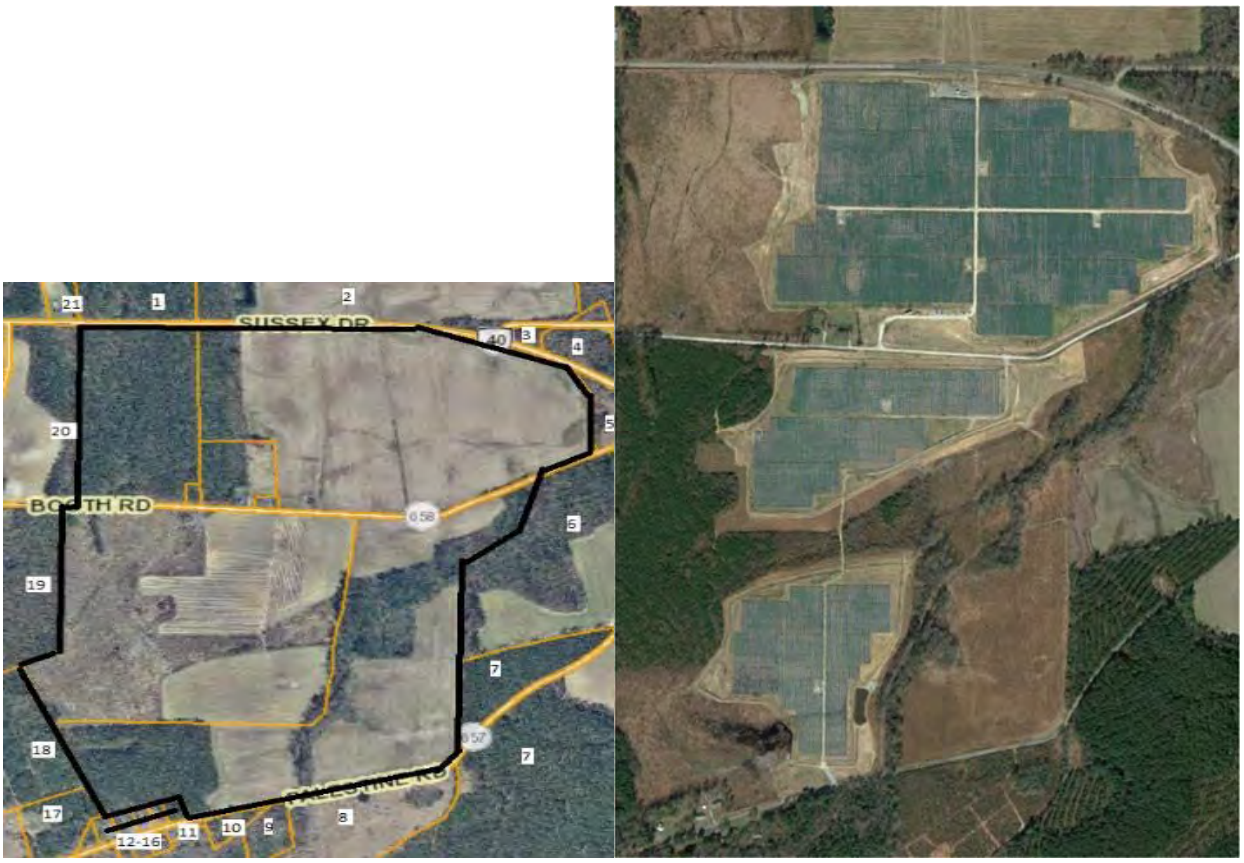
I considered the 2017 sale identified on the map above, which is 205 feet away from the closest panel. The matched pairs for each of these are shown below followed by a more recent map showing the panels at this site. The average difference in the three comparables and the subject property is +3% after adjusting for differences in the sales date, year built, gross living area, and other minor differences. This data is supported by the comments from the broker Brian Schroepfer with Keller Williams that the solar farm had no impact on the purchase price. The landscaping screen is considered light.

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style
	Adjoins	7513 Glen Willow	0.79	9/1/2017	$185,000	1989	1,492	$123.99	3/2	Gar	BR/Rnch
	Not	2968 Tram	0.69	7/17/2017	$155,000	1984	1,323	$117.16	3/2	Drive	BR/Rnch
	Not	205 Pine Burr	0.97	12/29/2017	$191,000	1991	1,593	$119.90	3/2.5	Drive	BR/Rnch
	Not	1217 Old Honeycutt	1.00	12/15/2017	$176,000	1978	1,558	$112.97	3/2.5	2Carprt	VY/Rnch

Adjustments											Avg
Solar	Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	% Diff
Adjoins	7513 Glen Willow								$185,000		
Not	2968 Tram	$601		$3,875	$15,840		$10,000		$185,316	0%	
Not	205 Pine Burr	-$1,915		-$1,910	-$9,688	-$5,000			$172,487	7%	
Not	1217 Old Honeycutt	-$1,557		$9,680	-$5,965	-$5,000		$5,280	$178,438	4%	
											3%

17. Matched Pair – Sappony Solar, Sussex County, VA



This project is a 30 MW facility located on a 322.68-acre tract that was built in the fourth quarter of 2017.

I have considered the 2018 sale of Parcel 17 as shown below. This was a 1,900 s.f. manufactured home on a 6.00-acre lot that sold in 2018. I have compared that to three other nearby manufactured homes as shown below. The range of impacts is within typical market variation with an average of -1%, which supports a conclusion of no impact on property value. The landscaping buffer is considered medium.

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
	Adjoins	12511 Palestine	6.00	7/31/2018	$128,400	2013	1,900	$67.58	4/2.5	Open	Manuf	
	Not	15698 Concord	3.92	7/31/2018	$150,000	2010	2,310	$64.94	4/2	Open	Manuf	Fence
	Not	23209 Sussex	1.03	7/7/2020	$95,000	2005	1,675	$56.72	3/2	Det Crpt	Manuf	
	Not	6494 Rocky Br	4.07	11/8/2018	$100,000	2004	1,405	$71.17	3/2	Open	Manuf	

Adjoining Sales Adjusted									Avg	
Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	% Diff	Distance
							$128,400			1425
$0		$2,250	-$21,299	$5,000			$135,951	-6%		
-$5,660	$13,000	$3,800	$10,209	$5,000	$1,500		$122,849	4%		
-$843		$4,500	$28,185				$131,842	-3%		
									-1%	

18. Matched Pair – Camden Dam, Camden, NC

This 5 MW project was built in 2019 and located on a portion of 49.83 acres.

Parcel 1 noted above along with the home on the adjoining parcel to the north of that parcel sold in late 2018 after this solar farm was approved but prior to construction being completed in 2019. I have considered this sale as shown below. The landscaping screen is considered light.

The comparable at 548 Trotman is the most similar and required the least adjustment shows no impact on property value. The other two comparables were adjusted consistently with one showing significant enhancement and another as showing a mild negative. The best indication is the one requiring the least adjustment. The other two sales required significant site adjustments which make them less reliable. The best comparable and the average of these comparables support a finding of no impact on property value.

Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
Adjoins	122 N Mill Dam	12.19	11/29/2018	$350,000	2005	2,334	$149.96	3/3.5	3-Gar	Ranch	
Not	548 Trotman	12.10	5/31/2018	$309,000	2007	1,960	$157.65	4/2	Det2G	Ranch	Wrkshp
Not	198 Sand Hills	2.00	12/22/2017	$235,000	2007	2,324	$101.12	4/3	Open	Ranch	
Not	140 Sleepy Hlw	2.05	8/12/2019	$330,000	2010	2,643	$124.86	4/3	1-Gar	1.5 Story	

Adjoining Sales Adjusted

Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
122 N Mill Dam								$350,000			342
548 Trotman	$6,163		-$3,090	$35,377	$5,000			$352,450	-1%		
198 Sand Hills	$8,808	$45,000	-$2,350	$607		$30,000		$317,064	9%		
140 Sleepy Hlw	-$9,258	$45,000	-$8,250	-$23,149	$5,000	$30,000		$369,343	-6%		
										1%	

19. Matched Pair – Grandy Solar, Grandy, NC

This 20 MW project was built in 2019 and located on a portion of 121 acres.

Parcels 40 and 50 have sold since construction began on this solar farm. I have considered both in matched pair analysis below. I note that the marketing for Parcel 40 (120 Par Four) identified the lack of homes behind the house as a feature in the listing. The marketing for Parcel 50 (269 Grandy) identified the property as "very private." Landscaping for both of these parcels is considered light.

Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
Adjoins	120 Par Four	0.92	8/17/2019	$315,000	2006	2,188	$143.97	4/3	2-Gar	1.5 Story	Pool
Not	102 Teague	0.69	1/5/2020	$300,000	2005	2,177	$137.80	3/2	Det 3G	Ranch	
Not	112 Meadow Lk	0.92	2/28/2019	$265,000	1992	2,301	$115.17	3/2	Gar	1.5 Story	
Not	116 Barefoot	0.78	9/29/2020	$290,000	2004	2,192	$132.30	4/3	2-Gar	2 Story	

Adjoining Sales Adjusted

Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
120 Par Four								$315,000			405
102 Teague	-$4,636		$1,500	$910	$10,000		$20,000	$327,774	-4%		
112 Meadow Lk	$4,937		$18,550	-$7,808	$10,000	$10,000	$20,000	$320,679	-2%		
116 Barefoot	-$12,998		$2,900	-$318			$20,000	$299,584	5%		
										0%	

Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
Adjoins	269 Grandy	0.78	5/7/2019	$275,000	2019	1,535	$179.15	3/2.5	2-Gar	Ranch	
Not	307 Grandy	1.04	10/8/2018	$240,000	2002	1,634	$146.88	3/2	Gar	1.5 Story	
Not	103 Branch	0.95	4/22/2020	$230,000	2000	1,532	$150.13	4/2	2-Gar	1.5 Story	
Not	103 Spring Lf	1.07	8/14/2018	$270,000	2002	1,635	$165.14	3/2	2-Gar	Ranch	Pool

Adjoining Sales Adjusted

Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
269 Grandy								$275,000			477
307 Grandy	$5,550		$20,400	-$8,725	$5,000	$10,000		$272,225	1%		
103 Branch	-$8,847		$21,850	$270				$243,273	12%		
103 Spring Lf	$7,871		$22,950	-$9,908	$5,000		-$20,000	$275,912	0%		
										4%	

Both of these matched pairs support a finding of no impact on value. This is reinforced by the listings for both properties identifying the privacy due to no housing in the rear of the property as part of the marketing for these homes.

20. Matched Pair – Champion Solar, Lexington County, SC

This project is a 10 MW facility located on a 366.04-acre tract that was built in 2017.

I have considered the 2020 sale of an adjoining home located off 517 Old Charleston Road. Landscaping is considered light.

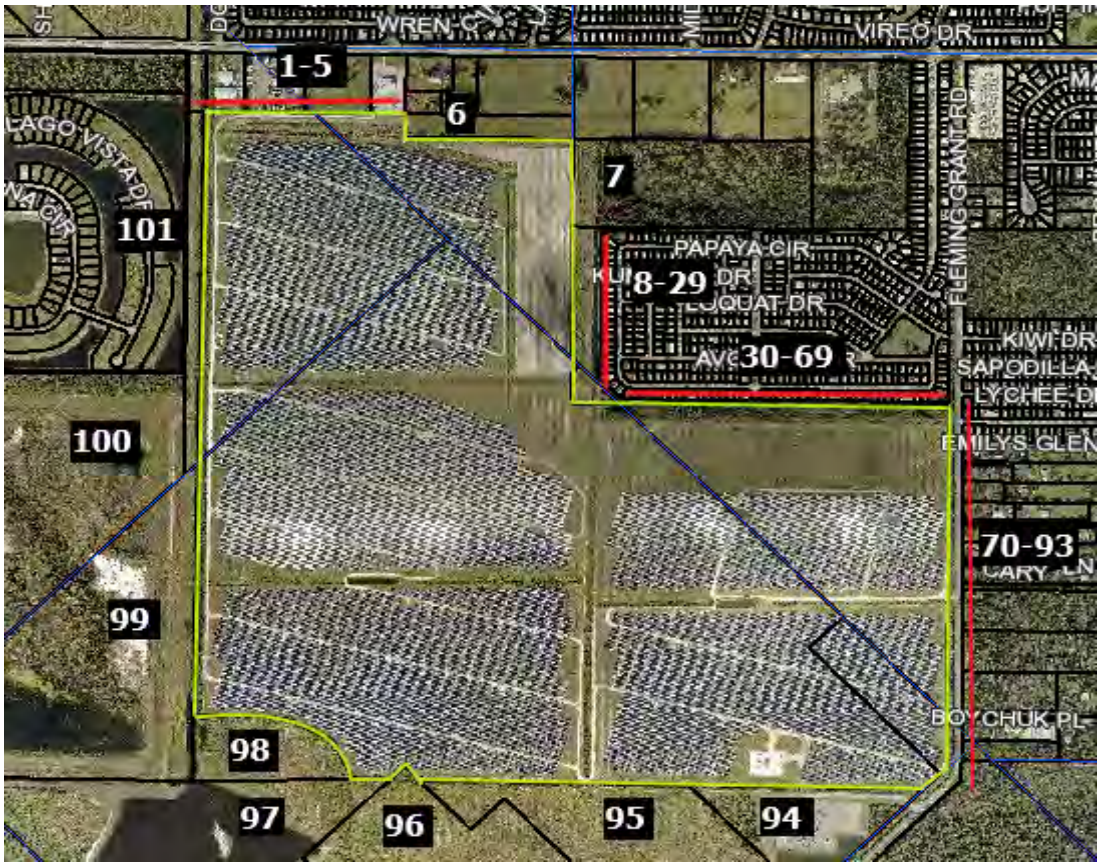
Adjoining Residential Sales After Solar Farm Approved

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	517 Old Charleston	11.05	8/25/2020	$110,000	1962	925	$118.92	3/1	Crport	Br Rnch	
Not	133 Buena Vista	2.65	6/21/2020	$115,000	1979	1,104	$104.17	2/2	Crport	Br Rnch	
Not	214 Crystal Spr	2.13	6/10/2019	$102,500	1970	1,025	$100.00	3/2	Crport	Rnch	
Not	1429 Laurel	2.10	2/21/2019	$126,000	1960	1,250	$100.80	2/1.5	Open	Br Rnch	3 Gar/Brn

Adjoining Sales Adjusted

Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
517 Old Charleston								$110,000			505
133 Buena Vista	$410	$17,000	-$9,775	-$14,917	-$10,000			$97,718	11%		
214 Crystal Spr	$2,482	$18,000	-$4,100	-$8,000	-$10,000		$10,000	$110,882	-1%		
1429 Laurel	$3,804	$18,000	$1,260	-$26,208	-$5,000	$5,000	-$15,000	$107,856	2%		
										4%	

21. Matched Pair – Barefoot Bay Solar Farm, Barefoot Bay, FL



This project is located on 504 acres for a 704.5 MW facility. Most of the adjoining uses are medium density residential with some lower density agricultural uses to the southwest. This project was built in 2018. There is a new subdivision under development to the west.

I have considered a number of recent home sales from the Barefoot Bay Golf Course in the Barefoot Bay Recreation District. There are a number of sales of these mobile/manufactured homes along the eastern boundary and the lower northern boundary. I have compared those home sales to other similar homes in the same community but without the exposure to the solar farm. Staying within the same community keeps location and amenity impacts consistent. I did avoid any comparison with home sales with golf course or lakefront views as that would introduce another variable.

The six manufactured/double wide homes shown below were each compared to three similar homes in the same community and are consistently showing no impact on the adjoining property values. Based on the photos from the listings, there is limited but some visibility of the solar farm to the east, but the canal and landscaping between are providing a good visual buffer and actually are commanding a premium over the non-canal homes.

Landscaping for these adjoining homes is considered light, though photographs from the listings show that those homes on Papaya that adjoin the solar farm from east/west have no visibility of the solar farm and is effectively medium density due to the height differential. The homes that adjoin the solar farm from north/south along Papaya have some filtered view of the solar farm through the trees.

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
14	Adjoins	465 Papaya Cr	0.12	7/21/2019	$155,000	1993	1,104	$140.40	2/2	Drive	Manuf	Canal
	Not	1108 Navajo	0.14	2/27/2019	$129,000	1984	1,220	$105.74	2/2	Crprt	Manuf	Canal
	Not	1007 Barefoot	0.11	9/3/2020	$168,000	2005	1,052	$159.70	2/2	Crprt	Manuf	Canal
	Not	1132 Waterway	0.11	7/10/2020	$129,000	1982	1,012	$127.47	2/2	Crprt	Manuf	Canal

Adjoining Sales Adjusted

Address	Time	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
465 Papaya Cr							$155,000			765
1108 Navajo	$1,565	$5,805	-$9,812				$126,558	18%		
1007 Barefoot	-$5,804	-$10,080	$6,643				$158,759	-2%		
1132 Waterway	-$3,859	$7,095	$9,382				$141,618	9%		
									8%	

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
19	Adjoins	455 Papaya	0.12	9/1/2020	$183,500	2005	1,620	$113.27	3/2	Crprt	Manuf	Canal
	Not	938 Waterway	0.11	2/12/2020	$160,000	1986	1,705	$93.84	2/2	Crprt	Manuf	Canal
	Not	719 Barefoot	0.12	4/14/2020	$150,000	1996	1,635	$91.74	3/2	Crprt	Manuf	Canal
	Not	904 Fir	0.17	9/27/2020	$192,500	2010	1,626	$118.39	3/2	Crprt	Manuf	Canal

Adjoining Sales Adjusted

Address	Time	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
455 Papaya							$183,500			750
938 Waterway	$2,724	$15,200	-$6,381				$171,542	7%		
719 Barefoot	$1,770	$6,750	-$1,101				$157,419	14%		
904 Fir	-$422	-$4,813	-$568				$186,697	-2%		
									6%	

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
37	Adjoins	419 Papaya	0.09	7/16/2019	$127,500	1986	1,303	$97.85	2/2	Crprt	Manuf	Green
	Not	865 Tamarind	0.12	2/4/2019	$133,900	1995	1,368	$97.88	2/2	Crprt	Manuf	Green
	Not	501 Papaya	0.10	6/15/2018	$109,000	1986	1,234	$88.33	2/2	Crprt	Manuf	
	Not	418 Papaya	0.09	8/28/2019	$110,000	1987	1,248	$88.14	2/2	Crprt	Manuf	

Adjoining Sales Adjusted

Address	Time	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
419 Papaya							$127,500			690
865 Tamarind	$1,828	-$6,026	-$5,090				$124,613	2%		
501 Papaya	$3,637	$0	$4,876			$5,000	$122,513	4%		
418 Papaya	-$399	-$550	$3,878			$5,000	$117,930	8%		
									5%	

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
39	Adjoins	413 Papaya	0.09	7/16/2020	$130,000	2001	918	$141.61	2/2	Crprt	Manuf	Grn/Upd
	Not	341 Loquat	0.09	2/3/2020	$118,000	1985	989	$119.31	2/2	Crprt	Manuf	Full Upd
	Not	1119 Pocatella	0.19	1/5/2021	$120,000	1993	999	$120.12	2/2	Crprt	Manuf	Green
	Not	1367 Barefoot	0.10	1/12/2021	$130,500	1987	902	$144.68	2/2	Crprt	Manuf	Green/Upd

Adjoining Sales Adjusted

Address	Time	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
413 Papaya							$130,000			690
341 Loquat	$1,631	$9,440	-$6,777				$122,294	6%		
1119 Pocatella	-$1,749	$4,800	-$7,784			$5,000	$120,267	7%		
1367 Barefoot	-$1,979	$9,135	$1,852				$139,507	-7%		
									2%	

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
48	Adjoins	343 Papaya	0.09	12/17/2019	$145,000	1986	1,508	$96.15	3/2	Crprt	Manuf	Gn/Fc/Upd
	Not	865 Tamarind	0.12	2/4/2019	$133,900	1995	1,368	$97.88	2/2	Crprt	Manuf	Green
	Not	515 Papaya	0.09	3/22/2018	$145,000	2005	1,376	$105.38	3/2	Crprt	Manuf	Green
	Not	849 Tamarind	0.15	6/26/2019	$155,000	1997	1,716	$90.33	3/2	Crprt	Manuf	Grn/Fnce

Adjoining Sales Adjusted

Address	Time	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
343 Papaya							$145,000			690
865 Tamarind	$3,566	-$6,026	$10,963				$142,403	2%		
515 Papaya	$7,759	-$13,775	$11,128				$150,112	-4%		
849 Tamarind	$2,273	-$8,525	-$15,030			$5,000	$138,717	4%		
									1%	

Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
52	Nearby	335 Papaya	0.09	4/17/2018	$110,000	1987	1,180	$93.22	2/2	Crprt	Manuf	Green
	Not	865 Tamarind	0.12	2/4/2019	$133,900	1995	1,368	$97.88	2/2	Crprt	Manuf	Green
	Not	501 Papaya	0.10	6/15/2018	$109,000	1986	1,234	$88.33	2/2	Crprt	Manuf	
	Not	604 Puffin	0.09	10/23/2018	$110,000	1988	1,320	$83.33	2/2	Crprt	Manuf	

Adjoining Sales Adjusted

Address	Time	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
335 Papaya							$110,000			710
865 Tamarind	-$3,306	-$5,356	-$14,721			$0	$110,517	0%		
501 Papaya	-$542	$545	-$3,816			$5,000	$110,187	0%		
604 Puffin	-$1,752	-$550	-$9,333			$5,000	$103,365	6%		
									2%	

I also identified a new subdivision being developed just to the west of this solar farm called The Lakes at Sebastian Preserve. These are all canal-lot homes that are being built with homes starting at $271,000 based on the website and closed sales showing up to $342,000. According to Monique, the onsite broker with Holiday Builders, the solar farm is difficult to see from the lots that back up to that area and she does not anticipate any difficulty in selling those future homes or lots or any impact on the sales price. The closest home that will be built in this development will be approximately 340 feet from the nearest panel.

Based on the closed home prices in Barefoot Bay as well as the broker comments and activity at The Lakes at Sebastian Preserve, the data around this solar farm strongly indicates no negative impact on property value.

22. Matched Pair – Miami-Dade Solar Farm, Miami, FL

This project is located on 346.80 acres for a 74.5 MW facility. All of the adjoining uses are agricultural and residential. This project was built in 2019.

I considered the recent sale of Parcel 26 to the south that sold for over $1.6 million dollars. This home is located on 4.2 acres with additional value in the palm trees according to the listing. The comparables include similar homes nearby that are all actually on larger lots and several include avocado or palm tree income as well. All of the comparables are in similar proximity to the subject and all have similar proximity to the Miami-Dade Executive airport that is located 2.5 miles to the east.

These sales are showing no impact on the value of the property from the adjoining solar farm. The landscaping is considered light.

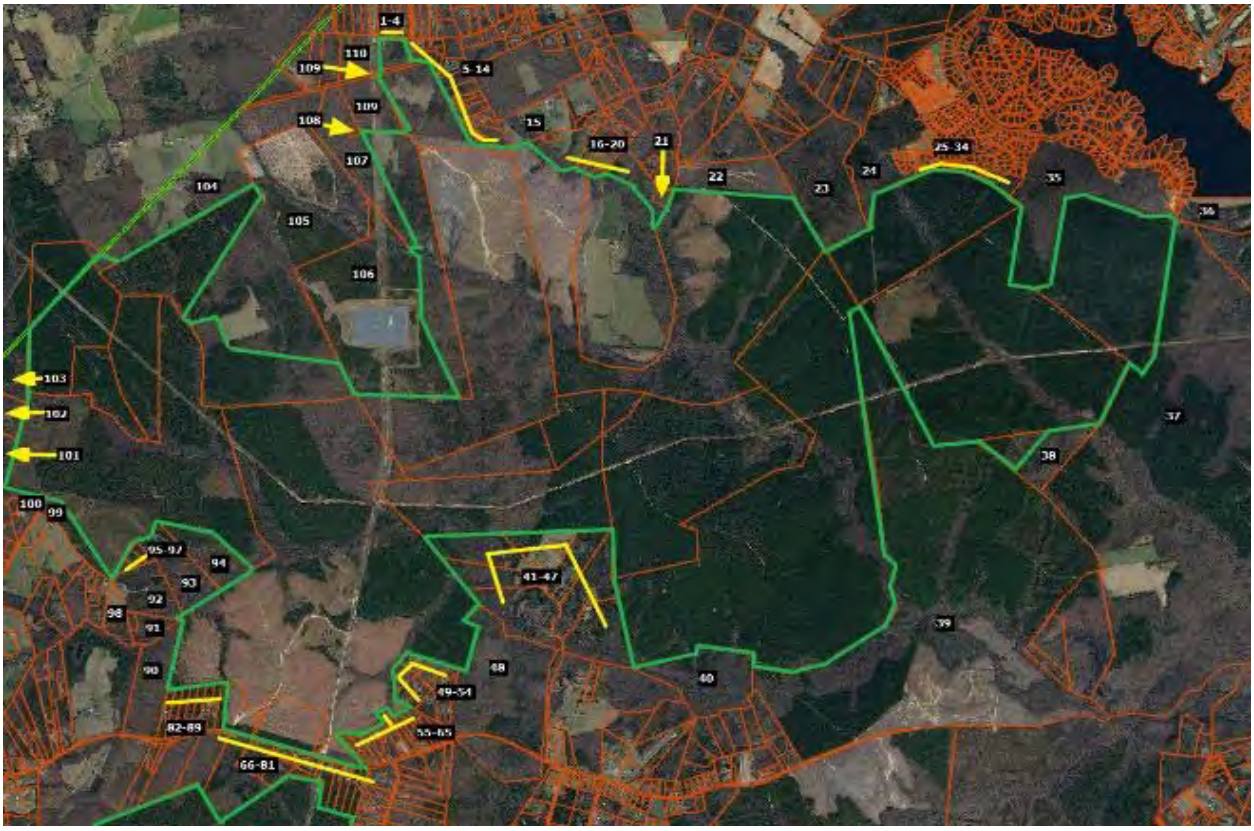
Adjoining Residential Sales After Solar Farm Approved

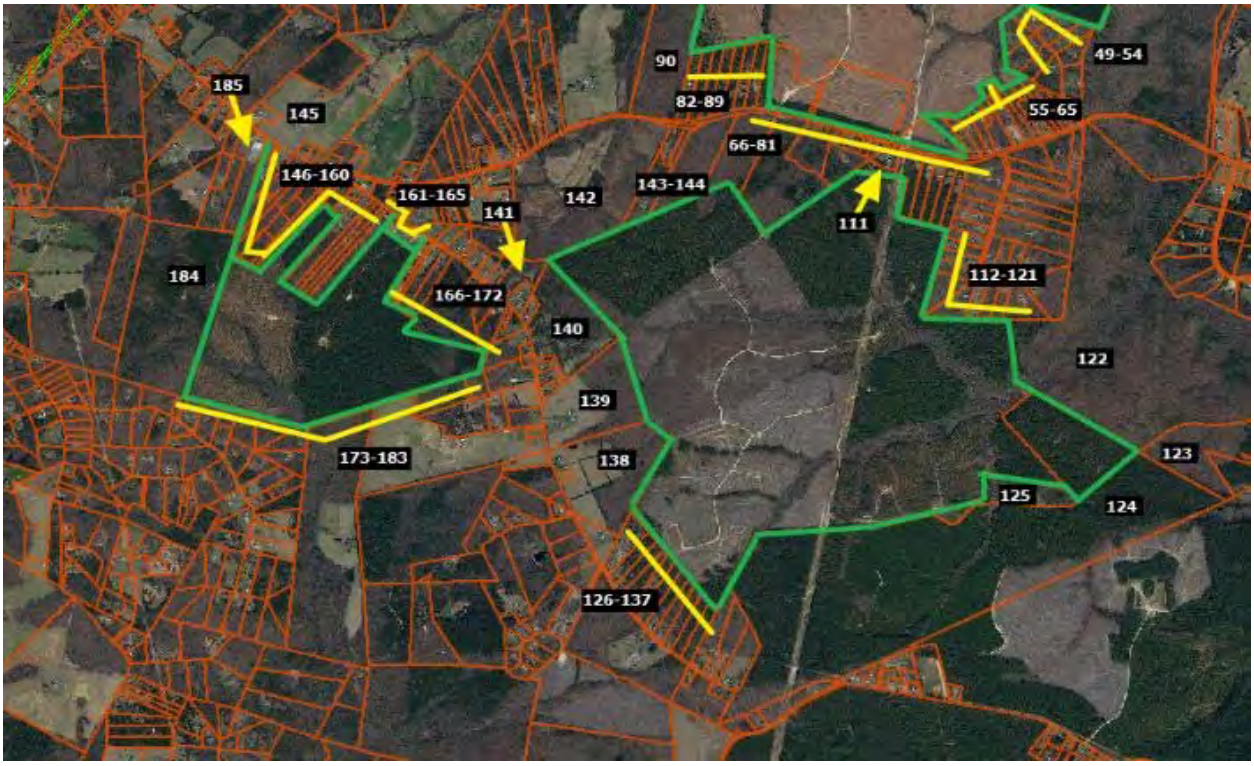
Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GLA	BR/BA	Park	Style	Other
26	Adjoins	13600 SW 182nd	4.20	11/5/2020	$1,684,000	2008	6,427	$262.02	5/5.5	3 Gar	CBS Rnch	Pl/Guest
	Not	18090 SW 158th	5.73	10/8/2020	$1,050,000	1997	3,792	$276.90	5/4	3 Gar	CBS Rnch	
	Not	14311 SW 187th	4.70	10/22/2020	$1,100,000	2005	3,821	$287.88	6/5	3 Gar	CBS Rnch	Pool
	Not	17950 SW 158th	6.21	10/22/2020	$1,730,000	2000	6,917	$250.11	6/5.5	2 Gar	CBS Rnch	Pool

Adjoining Sales Adjusted

Address	Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
13600 SW 182nd								$1,684,000			1390
18090 SW 158th	$2,478		$57,750	$583,703	$30,000			$1,723,930	-2%		
14311 SW 187th	$1,298		$16,500	$600,178	$10,000			$1,727,976	-3%		
17950 SW 158th	$2,041		$69,200	-$98,043		$10,000		$1,713,199	-2%		
										-2%	

23. Matched Pair – Spotsylvania Solar, Paytes, VA





This solar farm is being built in four phases with the area known as Site C having completed construction in November 2020 after the entire project was approved in April 2019. Site C, also known as Pleinmont 1 Solar, includes 99.6 MW located in the southeast corner of the project and shown on the maps above with adjoining parcels 111 through 144. The entire Spotsylvania project totals 617 MW on 3500 acres out of a parent tract assemblage of 6,412 acres.

I have identified three adjoining home sales that occurred during construction and development of the site in 2020.

The first is located on the north side of Site A on Orange Plank Road. The second is located on Nottoway Lane just north of Caparthin Road on the south side of Site A and east of Site C. The third is located on Post Oak Road for a home that backs up to Site C that sold in September 2020 near the completion of construction for Site C.

Spotsylvania Solar Farm

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	12901 Orng Plnk	5.20	8/27/2020	$319,900	1984	1,714	$186.64	3/2	Drive	1.5	Un Bsmt
Not	8353 Gold Dale	3.00	1/27/2021	$415,000	2004	2,064	$201.07	3/2	3 Gar	Ranch	
Not	6488 Southfork	7.26	9/9/2020	$375,000	2017	1,680	$223.21	3/2	2 Gar	1.5	Barn/Patio
Not	12717 Flintlock	0.47	12/2/2020	$290,000	1990	1,592	$182.16	3/2.5	Det Gar	Ranch	

Adjoining Sales Adjusted

Address	Time	Ac/Loc	YB	GLA	BR/BA	Park	Other	Total	% Diff	Dist
12901 Orng Plnk								$319,900		1270
8353 Gold Dale	-$5,219	$20,000	-$41,500	-$56,298		-$20,000		$311,983	2%	
6488 Southfork	-$401	-$20,000	-$61,875	$6,071		-$15,000		$283,796	11%	
12717 Flintlock	-$2,312	$40,000	-$8,700	$17,779	-$5,000	-$5,000		$326,767	-2%	
							Average Diff		4%	

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	9641 Nottoway	11.00	5/12/2020	$449,900	2004	3,186	$141.21	4/2.5	Garage	2-Story	Un Bsmt
Not	26123 Lafayette	1.00	8/3/2020	$390,000	2006	3,142	$124.12	3/3.5	Gar/DtG	2-Story	
Not	11626 Forest	5.00	8/10/2020	$489,900	2017	3,350	$146.24	4/3.5	2 Gar	2-Story	
Not	10304 Pny Brnch	6.00	7/27/2020	$485,000	1998	3,076	$157.67	4/4	2Gar/Dt2	Ranch	Fn Bsmt

Adjoining Sales Adjusted

Address	Time	Ac/Loc	YB	GLA	BR/BA	Park	Other	Total	% Diff	Dist
9641 Nottoway								$449,900		1950
26123 Lafayette	-$2,661	$45,000	-$3,900	$4,369	-$10,000	-$5,000		$417,809	7%	
11626 Forest	-$3,624		-$31,844	-$19,187		-$5,000		$430,246	4%	
10304 Pny Brnch	-$3,030		$14,550	$13,875	-$15,000	-$15,000	-$10,000	$470,396	-5%	
							Average Diff		2%	

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	$/GBA	BR/BA	Park	Style	Other
Adjoins	13353 Post Oak	5.20	9/21/2020	$300,000	1992	2,400	$125.00	4/3	Drive	2-Story	Fn Bsmt
Not	9609 Logan Hgt	5.86	7/4/2019	$330,000	2004	2,352	$140.31	3/2	2Gar	2-Story	
Not	12810 Catharpian	6.18	1/30/2020	$280,000	2008	2,240	$125.00	4/2.5	Drive	2-Story	Bsmt/Nd Pnt
Not	10725 Rbrt Lee	5.01	10/26/2020	$295,000	1995	2,166	$136.20	4/3	Gar	2-Story	Fn Bsmt

Adjoining Sales Adjusted

Address	Time	Ac/Loc	YB	GLA	BR/BA	Park	Other	Total	% Diff	Dist
13353 Post Oak								$300,000		1171
9609 Logan Hgt	$12,070		-$19,800	$5,388		-$15,000	$15,000	$327,658	-9%	
12810 Catharpian	$5,408		-$22,400	$16,000	$5,000		$15,000	$299,008	0%	
10725 Rbrt Lee	-$849		-$4,425	$25,496		-$10,000		$305,222	-2%	
							Average Diff		-4%	

All three of these homes are well set back from the solar panels at distances over 1,000 feet and are well screened from the project. All three show no indication of any impact on property value.

Conclusion – SouthEast Over 5 MW

Southeast USA Over 5 MW
Matched Pair Summary

	Name	City	State	Acres	MW	Topo Shift	Adj. Uses By Acreage Res	Ag	Ag/Res	Com/Ind	1 mile Radius (2010-2020 Data) Pop.	Med. Income	Avg. Housing Unit	Veg. Buffer
1	AM Best	Goldsboro	NC	38	5.00	2	38%	0%	23%	39%	1,523	$37,358	$148,375	Light
2	Mulberry	Selmer	TN	160	5.00	60	13%	73%	10%	3%	467	$40,936	$171,746	Lt to Med
3	Leonard	Hughesville	MD	47	5.00	20	18%	75%	0%	6%	525	$106,550	$350,000	Light
4	Gastonia SC	Gastonia	NC	35	5.00	48	33%	0%	23%	44%	4,689	$35,057	$126,562	Light
5	Summit	Moyock	NC	2,034	80.00	4	4%	0%	94%	2%	382	$79,114	$281,731	Light
6	Tracy	Bailey	NC	50	5.00	10	29%	0%	71%	0%	312	$43,940	$99,219	Heavy
7	Manatee	Parrish	FL	1,180	75.00	20	2%	97%	1%	0%	48	$75,000	$291,667	Heavy
8	McBride	Midland	NC	627	75.00	140	12%	10%	78%	0%	398	$63,678	$256,306	Lt to Med
9	Mariposa	Stanley	NC	36	5.00	96	48%	0%	52%	0%	1,716	$36,439	$137,884	Light
10	Clarke Cnty	White Post	VA	234	20.00	70	14%	39%	46%	1%	578	$81,022	$374,453	Light
11	Simon	Social Circle	GA	237	30.00	71	1%	63%	36%	0%	203	$76,155	$269,922	Medium
12	Candace	Princeton	NC	54	5.00	22	76%	24%	0%	0%	448	$51,002	$107,171	Medium
13	Walker	Barhamsville	VA	485	20.00	N/A	12%	68%	20%	0%	203	$80,773	$320,076	Light
14	Innov 46	Hope Mills	NC	532	78.50	0	17%	83%	0%	0%	2,247	$58,688	$183,435	Light
15	Innov 42	Fayetteville	NC	414	71.00	0	41%	59%	0%	0%	568	$60,037	$276,347	Light
16	Sunfish	Willow Spring	NC	50	6.40	30	35%	35%	30%	0%	1,515	$63,652	$253,138	Light
17	Sappony	Stony Crk	VA	322	20.00	N/A	2%	98%	0%	0%	74	$51,410	$155,208	Light
18	Camden Dam	Camden	NC	50	5.00	0	17%	72%	11%	0%	403	$84,426	$230,288	Light
19	Grandy	Grandy	NC	121	20.00	10	55%	24%	0%	21%	949	$50,355	$231,408	Light
20	Champion	Pelion	SC	100	10.00	N/A	4%	70%	8%	18%	1,336	$46,867	$171,939	Light
21	Barefoot Bay	Barefoot Bay	FL	504	74.50	0	11%	87%	0%	3%	2,446	$36,737	$143,320	Lt to Med
22	Miami-Dade	Miami	FL	347	74.50	0	26%	74%	0%	0%	127	$90,909	$403,571	Light
23	Spotyslvania	Paytes	VA	3,500	617.00	160	37%	52%	11%	0%	74	$120,861	$483,333	Md to Hvy
	Average			485	57.04	38	24%	48%	22%	6%	923	$63,955	$237,700	
	Median			234	20.00	20	17%	59%	11%	0%	467	$60,037	$231,408	
	High			3,500	617.00	160	76%	98%	94%	44%	4,689	$120,861	$483,333	
	Low			35	5.00	0	1%	0%	0%	0%	48	$35,057	$99,219	

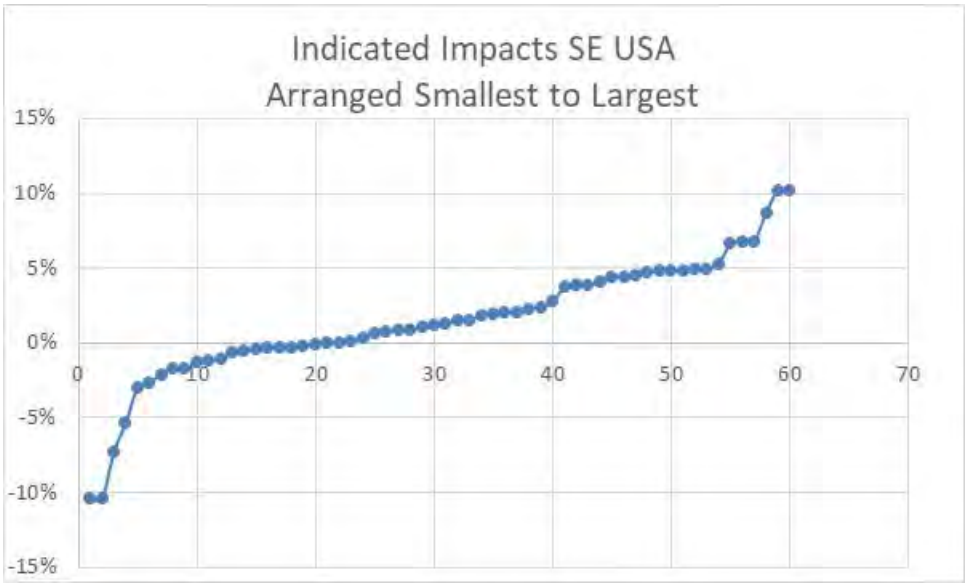
The solar farm matched pairs shown above have similar characteristics to each other in terms of population, but with several outliers showing solar farms in farm more urban areas. The median income for the population within 1 mile of a solar farm is $60,037 with a median housing unit value of $231,408. Most of the comparables are under $300,000 in the home price, with $483,333 being the high end of the set, though I have matched pairs in multiple states over $1,000,000 adjoining solar farms. The adjoining uses show that residential and agricultural uses are the predominant adjoining uses. These figures are in line with the larger set of solar farms that I have looked at with the predominant adjoining uses being residential and agricultural and similar to the solar farm breakdown shown for Virginia and adjoining states as well as the proposed subject property.

Based on the similarity of adjoining uses and demographic data between these sites and the subject property, I consider it reasonable to compare these sites to the subject property.

I have pulled 56 matched pairs from the above referenced solar farms to provide the following summary of home sale matched pairs and land sales next to solar farms. The summary shows that the range of differences is from -10% to +10% with an average of +1% and median of +1%. This means that the average and median impact is for a slight positive impact due to adjacency to a solar farm. However, this +1 to rate is within the typical variability I would expect from real estate. I therefore conclude that this data shows no negative or positive impact due to adjacency to a solar farm.

While the range is seemingly wide, the graph below clearly shows that the vast majority of the data falls between -5% and +5% and most of those are clearly in the 0 to +5% range. This data strongly supports an indication of no impact on adjoining residential uses to a solar farm.

I therefore conclude that these matched pairs support a finding of no impact on value at the subject property for the proposed project, which as proposed will include a landscaped buffer to screen adjoining residential properties.


Indicated Impacts SE USA
Arranged Smallest to Largest
15%
10%
5%
0%
-5%
-10%
-15%
0
10
20
30
40
50
60
70

Residential Dwelling Matched Pairs Adjoining Solar Farms

Pair	Solar Farm	City	State	MW	Approx Distance	Tax ID/Address	Date	Sale Price	Adj. Sale Price	% Diff	Veg. Buffer
1	AM Best	Goldsboro	NC	5	280	3600195570	Sep-13	$250,000			Light
						3600198928	Mar-14	$250,000	$250,000	0%	
2	AM Best	Goldsboro	NC	5	280	3600195361	Sep-13	$260,000			Light
						3600194813	Apr-14	$258,000	$258,000	1%	
3	AM Best	Goldsboro	NC	5	280	3600199891	Jul-14	$250,000			Light
						3600198928	Mar-14	$250,000	$250,000	0%	
4	AM Best	Goldsboro	NC	5	280	3600198632	Aug-14	$253,000			Light
						3600193710	Oct-13	$248,000	$248,000	2%	
5	AM Best	Goldsboro	NC	5	280	3600196656	Dec-13	$255,000			Light
						3601105180	Dec-13	$253,000	$253,000	1%	
6	AM Best	Goldsboro	NC	5	280	3600182511	Feb-13	$247,000			Light
						3600183905	Dec-12	$240,000	$245,000	1%	
7	AM Best	Goldsboro	NC	5	280	3600182784	Apr-13	$245,000			Light
						3600193710	Oct-13	$248,000	$248,000	-1%	
8	AM Best	Goldsboro	NC	5	280	3600195361	Nov-15	$267,500			Light
						3600195361	Sep-13	$260,000	$267,800	0%	
9	Mulberry	Selmer	TN	5	400	0900A011	Jul-14	$130,000			Light
						099CA043	Feb-15	$148,900	$136,988	-5%	
10	Mulberry	Selmer	TN	5	400	099CA002	Jul-15	$130,000			Light
						0990NA040	Mar-15	$120,000	$121,200	7%	
11	Mulberry	Selmer	TN	5	480	491 Dusty	Oct-16	$176,000			Light
						35 April	Aug-16	$185,000	$178,283	-1%	
12	Mulberry	Selmer	TN	5	650	297 Country	Sep-16	$150,000			Medium
						53 Glen	Mar-17	$126,000	$144,460	4%	
13	Mulberry	Selmer	TN	5	685	57 Cooper	Feb-19	$163,000			Medium
						191 Amelia	Aug-18	$132,000	$155,947	4%	
14	Leonard Rd	Hughesville	MD	5.5	230	14595 Box Elder	Feb-16	$291,000			Light
						15313 Bassford Rd	Jul-16	$329,800	$292,760	-1%	
15	Neal Hawkins	Gastonia	NC	5	225	609 Neal Hawkins	Mar-17	$270,000			Light
						1418 N Modena	Apr-18	$225,000	$242,520	10%	
16	Summit	Moyock	NC	80	1,060	129 Pinto	Apr-16	$170,000			Light
						102 Timber	Apr-16	$175,500	$175,101	-3%	
17	Summit	Moyock	NC	80	980	105 Pinto	Dec-16	$206,000			Light
						127 Ranchland	Jun-15	$219,900	$198,120	4%	
18	Tracy	Bailey	NC	5	780	9162 Winters	Jan-17	$255,000			Heavy
						7352 Red Fox	Jun-16	$176,000	$252,399	1%	
19	Manatee	Parrish	FL	75	1180	13670 Highland	Aug-18	$255,000			Heavy
						13851 Highland	Sep-18	$240,000	$255,825	0%	
20	McBride Place	Midland	NC	75	275	4380 Joyner	Nov-17	$325,000			Medium
						3870 Elkwood	Aug-16	$250,000	$317,523	2%	
21	McBride Place	Midland	NC	75	505	5811 Kristi	Mar-20	$530,000			Medium
						3915 Tania	Dec-19	$495,000	$504,657	5%	
22	Mariposa	Stanley	NC	5	1155	215 Mariposa	Dec-17	$249,000			Light
						110 Airport	May-16	$166,000	$239,026	4%	
23	Mariposa	Stanley	NC	5	570	242 Mariposa	Sep-15	$180,000			Light
						110 Airport	Apr-16	$166,000	$175,043	3%	
24	Clarke Cnty	White Post	VA	20	1230	833 Nations Spr	Jan-17	$295,000			Light
						6801 Middle	Dec-17	$249,999	$296,157	0%	
25	Candace	Princeton	NC	5	488	499 Herring	Sep-17	$215,000			Medium
						1795 Bay Valley	Dec-17	$194,000	$214,902	0%	
26	Walker	Barhamsville	VA	20	250	5241 Barham	Oct-18	$264,000			Light
						9252 Ordinary	Jun-19	$277,000	$246,581	7%	
27	AM Best	Goldsboro	NC	5	385	103 Granville Pl	Jul-18	$265,000			Light
						2219 Granville	Jan-18	$260,000	$265,682	0%	
28	AM Best	Goldsboro	NC	5	315	104 Erin	Jun-17	$280,000			Light
						2219 Granville	Jan-18	$265,000	$274,390	2%	
29	AM Best	Goldsboro	NC	5	400	2312 Granville	May-18	$284,900			Light
						2219 Granville	Jan-18	$265,000	$273,948	4%	

Residential Dwelling Matched Pairs Adjoining Solar Farms

Pair	Solar Farm	City	State	MW	Approx Distance	Tax ID/Address	Date	Sale Price	Adj. Sale Price	% Diff	Veg. Buffer
30	AM Best	Goldsboro	NC	5	400	2310 Granville	May-19	$280,000			Light
						634 Friendly	Jul-19	$267,000	$265,291	5%	
31	Summit	Moyock	NC	80	570	318 Green View	Sep-19	$357,000			Light
						336 Green View	Jan-19	$365,000	$340,286	5%	
32	Summit	Moyock	NC	80	440	164 Ranchland	Apr-19	$169,000			Light
						105 Longhorn	Oct-17	$184,500	$186,616	-10%	
33	Summit	Moyock	NC	80	635	358 Oxford	Sep-19	$478,000			Light
						176 Providence	Sep-19	$425,000	$456,623	4%	
34	Summit	Moyock	NC	80	970	343 Oxford	Mar-17	$490,000			Light
						218 Oxford	Apr-17	$525,000	$484,064	1%	
35	Innov 46	Hope Mills	NC	78.5	435	6849 Roslin Farm	Feb-19	$155,000			Light
						109 Bledsoe	Jan-19	$150,000	$147,558	5%	
36	Innov 42	Fayetteville	NC	71	340	2923 County Line	Feb-19	$385,000			Light
						2109 John McMillan	Apr-18	$320,000	$379,156	2%	
37	Innov 42	Fayetteville	NC	71	330	2935 County Line	Jun-19	$266,000			Light
						7031 Glynn Mill	May-18	$255,000	$264,422	1%	
38	Sunfish	Willow Sprng	NC	6.4	205	7513 Glen Willow	Sep-17	$185,000			Light
						205 Pine Burr	Dec-17	$191,000	$172,487	7%	
39	Neal Hawkins	Gastonia	NC	5	145	611 Neal Hawkins	Jun-17	$288,000			Light
						1211 Still Forrest	Jul-18	$280,000	$274,319	5%	
40	Clarke Cnty	White Post	VA	20	1230	833 Nations Spr	Aug-19	$385,000			Light
						2393 Old Chapel	Aug-20	$330,000	$389,286	-1%	
41	Sappony	Stony Creek	VA	20	1425	12511 Palestine	Jul-18	$128,400			Medium
						6494 Rocky Branch	Nov-18	$100,000	$131,842	-3%	
42	Camden Dam	Camden	NC	5	342	122 N Mill Dam	Nov-18	$350,000			Light
						548 Trotman	May-18	$309,000	$352,450	-1%	
43	Grandy	Grandy	NC	20	405	120 Par Four	Aug-19	$315,000			Light
						116 Barefoot	Sep-20	$290,000	$299,584	5%	
44	Grandy	Grandy	NC	20	477	269 Grandy	May-19	$275,000			Light
						103 Spring Leaf	Aug-18	$270,000	$275,912	0%	
45	Champion	Pelion	SC	10	505	517 Old Charleston	Aug-20	$110,000			Light
						1429 Laurel	Feb-19	$126,000	$107,856	2%	
46	Barefoot Bay	Barefoot Bay	FL	74.5	765	465 Papaya	Jul-19	$155,000			Medium
						1132 Waterway	Jul-20	$129,000	$141,618	9%	
47	Barefoot Bay	Barefoot Bay	FL	74.5	750	455 Papaya	Sep-20	$183,500			Medium
						904 Fir	Sep-20	$192,500	$186,697	-2%	
48	Barefoot Bay	Barefoot Bay	FL	74.5	690	419 Papaya	Jul-19	$127,500			Medium
						865 Tamarind	Feb-19	$133,900	$124,613	2%	
49	Barefoot Bay	Barefoot Bay	FL	74.5	690	413 Papaya	Jul-20	$130,000			Medium
						1367 Barefoot	Jan-21	$130,500	$139,507	-7%	
50	Barefoot Bay	Barefoot Bay	FL	74.5	690	343 Papaya	Dec-19	$145,000			Light
						865 Tamarind	Feb-19	$133,900	$142,403	2%	
51	Barefoot Bay	Barefoot Bay	FL	74.5	710	335 Papaya	Apr-18	$110,000			Light
						865 Tamarind	Feb-19	$133,900	$110,517	0%	
52	Miami-Dade	Miami	FL	74.5	1390	13600 SW 182nd	Nov-20	$1,684,000			Light
						17950 SW 158th	Oct-20	$1,730,000	$1,713,199	-2%	
53	Spotsylvania	Paytes	VA	617	1270	12901 Orange Plnk	Aug-20	$319,900			Medium
						12717 Flintlock	Dec-20	$290,000	$326,767	-2%	
54	Spotsylvania	Paytes	VA	617	1950	9641 Nottoway	May-20	$449,900			Medium
						11626 Forest	Aug-20	$489,900	$430,246	4%	
55	Spotsylvania	Paytes	VA	617	1171	13353 Post Oak	Sep-20	$300,000			Heavy
						12810 Catharpin	Jan-20	$280,000	$299,008	0%	
56	McBride Place	Midland	NC	75	470	5833 Kristi	Sep-20	$625,000			Light
						4055 Dakeita	Dec-20	$600,000	$594,303	5%	

MW	Avg. Distance
64.91	612
20.00	479
617.00	1,950
5.00	145

	Indicated Impact
Average	1%
Median	1%
High	10%
Low	-10%

I have further broken down these results based on the MWs, Landscaping, and distance from panel to show the following range of findings for these different categories.

Most of the findings are for homes between 201 and 500 feet. Most of the findings are for Light landscaping screens.

Light landscaping screens are showing no impact on value at any distances, including for solar farms over 75.1 MW.

MW Range 4.4 to 10									
Landscaping	**Light**	**Light**	**Light**	**Medium**	**Medium**	**Medium**	**Heavy**	**Heavy**	**Heavy**
Distance	**100-200**	**201-500**	**500+**	**100-200**	**201-500**	**500+**	**100-200**	**201-500**	**500+**
#	1	19	2	0	1	2	0	0	1
Average	5%	2%	3%	N/A	0%	4%	N/A	N/A	1%
Median	5%	1%	3%	N/A	0%	4%	N/A	N/A	1%
High	5%	10%	4%	N/A	0%	4%	N/A	N/A	1%
Low	5%	-5%	3%	N/A	0%	4%	N/A	N/A	1%

10.1 to 30									
Landscaping	**Light**	**Light**	**Light**	**Medium**	**Medium**	**Medium**	**Heavy**	**Heavy**	**Heavy**
Distance	**100-200**	**201-500**	**500+**	**100-200**	**201-500**	**500+**	**100-200**	**201-500**	**500+**
#	0	3	2	0	0	1	0	0	0
Average	N/A	4%	-1%	N/A	N/A	-3%	N/A	N/A	N/A
Median	N/A	5%	-1%	N/A	N/A	-3%	N/A	N/A	N/A
High	N/A	7%	0%	N/A	N/A	-3%	N/A	N/A	N/A
Low	N/A	0%	-1%	N/A	N/A	-3%	N/A	N/A	N/A

30.1 to 75									
Landscaping	**Light**	**Light**	**Light**	**Medium**	**Medium**	**Medium**	**Heavy**	**Heavy**	**Heavy**
Distance	**100-200**	**201-500**	**500+**	**100-200**	**201-500**	**500+**	**100-200**	**201-500**	**500+**
#	0	2	3	0	0	4	0	0	0
Average	N/A	1%	0%	N/A	N/A	0%	N/A	N/A	N/A
Median	N/A	1%	0%	N/A	N/A	0%	N/A	N/A	N/A
High	N/A	2%	2%	N/A	N/A	9%	N/A	N/A	N/A
Low	N/A	1%	-2%	N/A	N/A	-7%	N/A	N/A	N/A

75.1+									
Landscaping	**Light**	**Light**	**Light**	**Medium**	**Medium**	**Medium**	**Heavy**	**Heavy**	**Heavy**
Distance	**100-200**	**201-500**	**500+**	**100-200**	**201-500**	**500+**	**100-200**	**201-500**	**500+**
#	0	2	5	0	0	2	0	0	1
Average	N/A	-3%	2%	N/A	N/A	1%	N/A	N/A	0%
Median	N/A	-3%	4%	N/A	N/A	1%	N/A	N/A	0%
High	N/A	5%	5%	N/A	N/A	4%	N/A	N/A	0%
Low	N/A	-10%	-3%	N/A	N/A	-2%	N/A	N/A	0%

C. Summary of National Data on Solar Farms

I have worked in 19 states related to solar farms and I have been tracking matched pairs in most of those states. On the following pages I provide a brief summary of those findings showing 37 solar farms over 5 MW studied with each one providing matched pair data supporting the findings of this report.

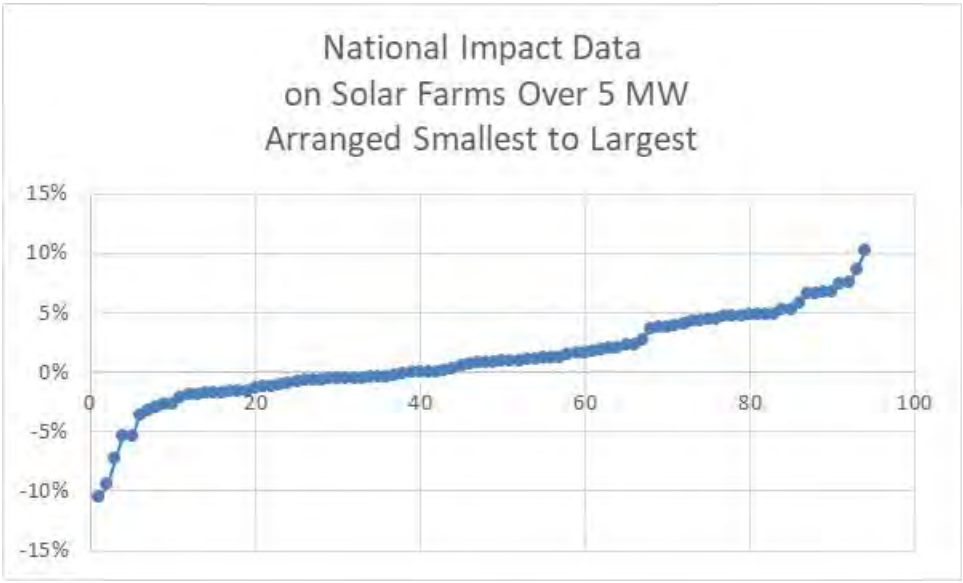
The solar farms summary is shown below with a summary of the matched pair data shown on the following page.

Matched Pair Summary							**Adj. Uses By Acreage**				**1 mile Radius (2010-2020 Data)**			
	Name	**City**	**State**	**Acres**	**MW**	**Topo Shift**	**Res**	**Ag**	**Ag/Res**	**Com/Ind**	**Popl.**	**Med. Income**	**Avg. Housing Unit**	**Veg. Buffer**
1	AM Best	Goldsboro	NC	38	5.00	2	38%	0%	23%	39%	1,523	$37,358	$148,375	Light
2	Mulberry	Selmer	TN	160	5.00	60	13%	73%	10%	3%	467	$40,936	$171,746	Lt to Med
3	Leonard	Hughesville	MD	47	5.00	20	18%	75%	0%	6%	525	$106,550	$350,000	Light
4	Gastonia SC	Gastonia	NC	35	5.00	48	33%	0%	23%	44%	4,689	$35,057	$126,562	Light
5	Summit	Moyock	NC	2,034	80.00	4	4%	0%	94%	2%	382	$79,114	$281,731	Light
7	Tracy	Bailey	NC	50	5.00	10	29%	0%	71%	0%	312	$43,940	$99,219	Heavy
8	Manatee	Parrish	FL	1,180	75.00	20	2%	97%	1%	0%	48	$75,000	$291,667	Heavy
9	McBride	Midland	NC	627	75.00	140	12%	10%	78%	0%	398	$63,678	$256,306	Lt to Med
10	Grand Ridge	Streator	IL	160	20.00	1	8%	87%	5%	0%	96	$70,158	$187,037	Light
11	Dominion	Indianapolis	IN	134	8.60	20	3%	97%	0%	0%	3,774	$61,115	$167,515	Light
12	Mariposa	Stanley	NC	36	5.00	96	48%	0%	52%	0%	1,716	$36,439	$137,884	Light
13	Clarke Cnty	White Post	VA	234	20.00	70	14%	39%	46%	1%	578	$81,022	$374,453	Light
14	Flemington	Flemington	NJ	120	9.36	N/A	13%	50%	28%	8%	3,477	$105,714	$444,696	Lt to Med
15	Frenchtown	Frenchtown	NJ	139	7.90	N/A	37%	35%	29%	0%	457	$111,562	$515,399	Light
16	McGraw	East Windsor	NJ	95	14.00	N/A	27%	44%	0%	29%	7,684	$78,417	$362,428	Light
17	Tinton Falls	Tinton Falls	NJ	100	16.00	N/A	98%	0%	0%	2%	4,667	$92,346	$343,492	Light
18	Simon	Social Circle	GA	237	30.00	71	1%	63%	36%	0%	203	$76,155	$269,922	Medium
19	Candace	Princeton	NC	54	5.00	22	76%	24%	0%	0%	448	$51,002	$107,171	Medium
20	Walker	Barhamsville	VA	485	20.00	N/A	12%	68%	20%	0%	203	$80,773	$320,076	Light
21	Innov 46	Hope Mills	NC	532	78.50	0	17%	83%	0%	0%	2,247	$58,688	$183,435	Light
22	Innov 42	Fayetteville	NC	414	71.00	0	41%	59%	0%	0%	568	$60,037	$276,347	Light
23	Demille	Lapeer	MI	160	28.40	10	10%	68%	0%	22%	2,010	$47,208	$187,214	Light
24	Turrill	Lapeer	MI	230	19.60	10	75%	59%	0%	25%	2,390	$46,839	$110,361	Light
25	Sunfish	Willow Spring	NC	50	6.40	30	35%	35%	30%	0%	1,515	$63,652	$253,138	Light
26	Picture Rocks	Tucson	AZ	182	20.00	N/A	6%	88%	6%	0%	102	$81,081	$280,172	None
27	Avra Valley	Tucson	AZ	246	25.00	N/A	3%	94%	3%	0%	85	$80,997	$292,308	None
28	Sappony	Stony Crk	VA	322	20.00	N/A	2%	98%	0%	0%	74	$51,410	$155,208	Medium
29	Camden Dam	Camden	NC	50	5.00	0	17%	72%	11%	0%	403	$84,426	$230,288	Light
30	Grandy	Grandy	NC	121	20.00	10	55%	24%	0%	21%	949	$50,355	$231,408	Light
31	Champion	Pelion	SC	100	10.00	N/A	4%	70%	8%	18%	1,336	$46,867	$171,939	Light
32	Eddy II	Eddy	TX	93	10.00	N/A	15%	25%	58%	2%	551	$59,627	$139,088	Light
33	Somerset	Somerset	TX	128	10.60	N/A	5%	95%	0%	0%	1,293	$41,574	$135,490	Light
34	DG Amp Piqua	Piqua	OH	86	12.60	2	26%	16%	58%	0%	6,735	$38,919	$96,555	Light
45	Barefoot Bay	Barefoot Bay	FL	504	74.50	0	11%	87%	0%	3%	2,446	$36,737	$143,320	Lt to Med
36	Miami-Dade	Miami	FL	347	74.50	0	26%	74%	0%	0%	127	$90,909	$403,571	Light
37	Spotyslvania	Paytes	VA	3,500	617.00	160	37%	52%	11%	0%	74	$120,861	$483,333	Med to Hvy
	Average			362	42.05	32	24%	52%	19%	6%	1,515	$66,292	$242,468	
	Median			150	17.80	10	16%	59%	7%	0%	560	$62,384	$230,848	
	High			3,500	617.00	160	98%	98%	94%	44%	7,684	$120,861	$515,399	
	Low			35	5.00	0	1%	0%	0%	0%	48	$35,057	$96,555	

From these 37 solar farms, I have derived 94 matched pairs. The matched pairs show no negative impact at distances as close as 105 feet between a solar panel and the nearest point on a home. The range of impacts is -10% to +10% with an average and median of +1%.

	MW	Avg. Distance		Indicated Impact
Average	44.80	569	**Average**	1%
Median	14.00	400	**Median**	1%
High	617.00	1,950	**High**	10%
Low	5.00	145	**Low**	-10%

While the range is broad, the two charts below show the data points in range from lowest to highest. There is only 3 data points out of 94 that show a negative impact. The rest support either a finding of no impact or 9 of the data points suggest a positive impact due to adjacency to a solar farm. As discussed earlier in this report, I consider this data to strongly support a finding of no impact on value as most of the findings are within typical market variation and even within that, most are mildly positive findings.



D. Larger Solar Farms

I have also considered larger solar farms to address impacts related to larger projects. Projects have been increasing in size and most of the projects between 100 and 1000 MW are newer with little time for adjoining sales. I have included a breakdown of solar farms with 20 MW to 80 MW facilities with one 617 MW facility.

Matched Pair Summary - @20 MW And Larger							Adj. Uses By Acreage				1 mile Radius (2010-2019 Data)			
	Name	City	State	Acres	MW	Topo Shift	Res	Ag	Ag/Res	Com/Ind	Popl.	Med. Income	Avg. Housing Unit	Veg. Buffer
1	Summit	Moyock	NC	2,034	80.00	4	4%	0%	94%	2%	382	$79,114	$281,731	Light
2	Manatee	Parrish	FL	1,180	75.00	20	2%	97%	1%	0%	48	$75,000	$291,667	Heavy
3	McBride	Midland	NC	627	75.00	140	12%	10%	78%	0%	398	$63,678	$256,306	Lt to Med
4	Grand Ridge	Streator	IL	160	20.00	1	8%	87%	5%	0%	96	$70,158	$187,037	Light
5	Clarke Cnty	White Post	VA	234	20.00	70	14%	39%	46%	1%	578	$81,022	$374,453	Light
6	Simon	Social Circle	GA	237	30.00	71	1%	63%	36%	0%	203	$76,155	$269,922	Medium
7	Walker	Barhamsville	VA	485	20.00	N/A	12%	68%	20%	0%	203	$80,773	$320,076	Light
8	Innov 46	Hope Mills	NC	532	78.50	0	17%	83%	0%	0%	2,247	$58,688	$183,435	Light
9	Innov 42	Fayetteville	NC	414	71.00	0	41%	59%	0%	0%	568	$60,037	$276,347	Light
10	Demille	Lapeer	MI	160	28.40	10	10%	68%	0%	22%	2,010	$47,208	$187,214	Light
11	Turrill	Lapeer	MI	230	19.60	10	75%	59%	0%	25%	2,390	$46,839	$110,361	Light
12	Picure Rocks	Tucson	AZ	182	20.00	N/A	6%	88%	6%	0%	102	$81,081	$280,172	Light
13	Avra Valley	Tucson	AZ	246	25.00	N/A	3%	94%	3%	0%	85	$80,997	$292,308	None
14	Sappony	Stony Crk	VA	322	20.00	N/A	2%	98%	0%	0%	74	$51,410	$155,208	None
15	Grandy	Grandy	NC	121	20.00	10	55%	24%	0%	21%	949	$50,355	$231,408	Medium
16	Barefoot Bay	Barefoot Bay	FL	504	74.50	0	11%	87%	0%	3%	2,446	$36,737	$143,320	Lt to Med
17	Miami-Dade	Miami	FL	347	74.50	0	26%	74%	0%	0%	127	$90,909	$403,571	Light
18	Spotyslvania	Paytes	VA	3,500	617.00	160	37%	52%	11%	0%	74	$120,861	$483,333	Med to Hvy
	Average			640	76.03		19%	64%	17%	4%	721	$69,501	$262,659	
	Median			335	29.20		12%	68%	2%	0%	293	$72,579	$273,135	
	High			3,500	617.00		75%	98%	94%	25%	2,446	$120,861	$483,333	
	Low			121	19.60		1%	0%	0%	0%	48	$36,737	$110,361	

The breakdown of adjoining uses, population density, median income and housing prices for these projects are very similar to those of the larger set. The matched pairs for each of these were considered earlier and support a finding of no negative impact on the adjoining home values.

I have included a breakdown of solar farms with 50 MW to 617 MW facilities adjoining.

Matched Pair Summary - @50 MW And Larger							Adj. Uses By Acreage				1 mile Radius (2010-2019 Data)			
	Name	City	State	Acres	MW	Topo Shift	Res	Ag	Ag/Res	Com/Ind	Popl.	Med. Income	Avg. Housing Unit	Veg. Buffer
1	Summit	Moyock	NC	2,034	80.00	4	4%	0%	94%	2%	382	$79,114	$281,731	Light
2	Manatee	Parrish	FL	1,180	75.00	20	2%	97%	1%	0%	48	$75,000	$291,667	Heavy
3	McBride	Midland	NC	627	75.00	140	12%	10%	78%	0%	398	$63,678	$256,306	Lt to Med
4	Innov 46	Hope Mills	NC	532	78.50	0	17%	83%	0%	0%	2,247	$58,688	$183,435	Light
5	Innov 42	Fayetteville	NC	414	71.00	0	41%	59%	0%	0%	568	$60,037	$276,347	Light
6	Barefoot Bay	Barefoot Bay	FL	504	74.50	0	11%	87%	0%	3%	2,446	$36,737	$143,320	Lt to Med
7	Miami-Dade	Miami	FL	347	74.50	0	26%	74%	0%	0%	127	$90,909	$403,571	Light
8	Spotyslvania	Paytes	VA	3,500	617.00	160	37%	52%	11%	0%	74	$120,861	$483,333	Med to Hvy
	Average			1,142	143.19		19%	58%	23%	1%	786	$73,128	$289,964	
	Median			580	75.00		15%	67%	0%	0%	390	$69,339	$279,039	
	High			3,500	617.00		41%	97%	94%	3%	2,446	$120,861	$483,333	
	Low			347	71.00		2%	0%	0%	0%	48	$36,737	$143,320	

The breakdown of adjoining uses, population density, median income and housing prices for these projects are very similar to those of the larger set. The matched pairs for each of these were considered earlier and support a finding of no negative impact on the adjoining home values.

The data for these larger solar farms is shown in the SE USA and the National data breakdowns with similar landscaping, setbacks and range of impacts that fall mostly in the +/-5% range as can be seen earlier in this report.

On the following page I show 81 projects ranging in size from 50 MW up to 1,000 MW with an average size of 111.80 MW and a median of 80 MW. The average closest distance for an adjoining home is 263 feet, while the median distance is 188 feet. The closest distance is 57 feet. The mix of adjoining uses is similar with most of the adjoining uses remaining residential or agricultural in nature. This is the list of solar farms that I have researched for possible matched pairs and not a complete list of larger solar farms in those states.

Parcel #	State	City	Name	Output (MW)	Total Acres	Used Acres	Avg. Dist to home	Closest Home	Adjoining Use by Acre			
									Res	Agri	Ag/R	Com
78	NC	Moyock	Summit/Ranchland	80	2034		674	360	4%	94%	0%	2%
133	MS	Hattiesburg	Hattiesburg	50	1129	479.6	650	315	35%	65%	0%	0%
179	SC	Ridgeland	Jasper	140	1600	1000	461	108	2%	85%	13%	0%
211	NC	Enfield	Chestnut	75	1428.1		1,429	210	4%	96%	0%	0%
222	VA	Chase City	Grasshopper	80	946.25				6%	87%	5%	1%
226	VA	Louisa	Belcher	88	1238.1			150	19%	53%	28%	0%
305	FL	Dade City	Mountain View	55	347.12		510	175	32%	39%	21%	8%
319	FL	Jasper	Hamilton	74.9	1268.9	537	3,596	240	5%	67%	28%	0%
336	FL	Parrish	Manatee	74.5	1180.4		1,079	625	2%	50%	1%	47%
337	FL	Arcadia	Citrus	74.5	640				0%	0%	100%	0%
338	FL	Port Charlotte	Babcock	74.5	422.61				0%	0%	100%	0%
353	VA	Oak Hall	Amazon East(ern sh	80	1000		645	135	8%	75%	17%	0%
364	VA	Stevensburg	Greenwood	100	2266.6	1800	788	200	8%	62%	29%	0%
368	NC	Warsaw	Warsaw	87.5	585.97	499	526	130	11%	66%	21%	3%
390	NC	Ellerbe	Innovative Solar 34	50	385.24	226	N/A	N/A	1%	99%	0%	0%
399	NC	Midland	McBride	74.9	974.59	627	1,425	140	12%	78%	9%	0%
400	FL	Mulberry	Alafia	51	420.35		490	105	7%	90%	3%	0%
406	VA	Clover	Foxhound	91	1311.8		885	185	5%	61%	17%	18%
410	FL	Trenton	Trenton	74.5	480		2,193	775	0%	26%	55%	19%
411	NC	Battleboro	Fern	100	1235.4	960.71	1,494	220	5%	76%	19%	0%
412	MD	Goldsboro	Cherrywood	202	1722.9	1073.7	429	200	10%	76%	13%	0%
434	NC	Conetoe	Conetoe	80	1389.9	910.6	1,152	120	5%	78%	17%	0%
440	FL	Debary	Debary	74.5	844.63		654	190	3%	27%	0%	70%
441	FL	Hawthorne	Horizon	74.5	684				3%	81%	16%	0%
484	VA	Newsoms	Southampton	100	3243.9		-	-	3%	78%	17%	3%
486	VA	Stuarts Draft	Augusta	125	3197.4	1147	588	165	16%	61%	16%	7%
491	NC	Misenheimer	Misenheimer 2018	80	740.2	687.2	504	130	11%	40%	22%	27%
494	VA	Shacklefords	Walnut	110	1700	1173	641	165	14%	72%	13%	1%
496	VA	Clover	Piney Creek	80	776.18	422	523	195	15%	62%	24%	0%
511	NC	Scotland Neck	American Beech	160	3255.2	1807.8	1,262	205	2%	58%	38%	3%
514	NC	Reidsville	Williamsburg	80	802.6	507	734	200	25%	12%	63%	0%
517	VA	Luray	Cape	100	566.53	461	519	110	42%	12%	46%	0%
518	VA	Emporia	Fountain Creek	80	798.3	595	862	300	6%	23%	71%	0%
525	NC	Plymouth	Macadamia	484	5578.7	4813.5	1,513	275	1%	90%	9%	0%
526	NC	Mooresboro	Broad River	50	759.8	365	419	70	29%	55%	16%	0%
555	FL	Mulberry	Durrance	74.5	463.57	324.65	438	140	3%	97%	0%	0%
560	NC	Yadkinville	Sugar	60	477	357	382	65	19%	39%	20%	22%
561	NC	Enfield	Halifax 80mw 2019	80	1007.6	1007.6	672	190	8%	73%	19%	0%
577	VA	Windsor	Windsor	85	564.1	564.1	572	160	9%	67%	24%	0%
579	VA	Paytes	Spotsylvania	500	6412	3500			9%	52%	11%	27%
582	NC	Salisbury	China Grove	65	428.66	324.26	438	85	58%	4%	38%	0%
583	NC	Walnut Cove	Lick Creek	50	1424	185.11	410	65	20%	64%	11%	5%
584	NC	Enfield	Sweetleaf	94	1956.3	1250	968	160	5%	63%	32%	0%
586	VA	Aylett	Sweet Sue	77	1262	576	1,617	680	7%	68%	25%	0%
593	NC	Windsor	Sumac	120	3360.6	1257.9	876	160	4%	90%	6%	0%
599	TN	Somerville	Yum Yum	147	4000	1500	1,862	330	3%	32%	64%	1%
602	GA	Waynesboro	White Oak	76.5	516.7	516.7	2,995	1,790	1%	34%	65%	0%
603	GA	Butler	Butler GA	103	2395.1	2395.1	1,534	255	2%	73%	23%	2%
604	GA	Butler	White Pine	101.2	505.94	505.94	1,044	100	1%	51%	48%	1%
605	GA	Metter	Live Oak	51	417.84	417.84	910	235	4%	72%	23%	0%
606	GA	Hazelhurst	Hazelhurst II	52.5	947.15	490.42	2,114	105	9%	64%	27%	0%
607	GA	Bainbridge	Decatur Parkway	80	781.5	781.5	1,123	450	2%	27%	22%	49%
608	GA	Leslie-DeSoto	Americus	1000	9661.2	4437	5,210	510	1%	63%	36%	0%
616	FL	Fort White	Fort White	74.5	570.5	457.2	828	220	12%	71%	17%	0%
621	VA	Spring Grove	Loblolly	150	2181.9	1000	1,860	110	7%	62%	31%	0%
622	VA	Scottsville	Woodridge	138	2260.9	1000	1,094	170	9%	63%	28%	0%
625	NC	Middlesex	Phobos	80	754.52	734	356	57	14%	75%	10%	0%
628	MI	Deerfield	Carroll Road	200	1694.8	1694.8	343	190	12%	86%	0%	2%
633	VA	Emporia	Brunswick	150.2	2076.4	1387.3	1,091	240	4%	85%	11%	0%
634	NC	Elkin	Partin	50	429.4	257.64	945	155	30%	25%	15%	30%

Parcel #	State	City	Name	Output (MW)	Total Acres	Used Acres	Avg. Dist to home	Closest Home	Adjoining Use by Acre Res	Agri	Ag/R	Com
638	GA	Dry Branch	Twiggs	200	2132.7	2132.7	-	-	10%	55%	35%	0%
639	NC	Hope Mills	Innovative Solar 46	78.5	531.87	531.87	423	125	17%	83%	0%	0%
640	NC	Hope Mills	Innovative Solar 42	71	413.99	413.99	375	135	41%	59%	0%	0%
645	NC	Stanley	Hornet	75	1499.5	858.4	663	110	30%	40%	23%	6%
650	NC	Grifton	Grifton 2	56	681.59	297.6	363	235	1%	99%	0%	0%
651	NC	Grifton	Buckleberry	52.1	367.67	361.67	913	180	5%	54%	41%	0%
657	KY	Greensburg	Horseshoe Bend	60	585.65	395	1,394	63	3%	36%	61%	0%
658	KY	Campbellsville	Flat Run	55	429.76	429.76	408	115	13%	52%	35%	0%
666	FL	Archer	Archer	74.9	636.94	636.94	638	200	43%	57%	0%	0%
667	FL	New Smyrna Bea	Pioneer Trail	74.5	1202.8	900	1,162	225	14%	61%	21%	4%
668	FL	Lake City	Sunshine Gateway	74.5	904.29	472	1,233	890	11%	80%	8%	0%
669	FL	Florahome	Coral Farms	74.5	666.54	580	1,614	765	19%	75%	7%	0%
672	VA	Appomattox	Spout Spring	60	881.12	673.37	836	335	16%	30%	46%	8%
676	TX	Stamford	Alamo 7	106.4	1663.1	1050	-	-	6%	83%	0%	11%
677	TX	Fort Stockton	RE Roserock	160	1738.2	1500	-	-	0%	100%	0%	0%
678	TX	Lamesa	Lamesa	102	914.5	655	921	170	4%	41%	11%	44%
679	TX	Lamesa	Ivory	50	706	570	716	460	0%	87%	2%	12%
680	TX	Uvalde	Alamo 5	95	830.35	800	925	740	1%	93%	6%	0%
684	NC	Waco	Brookcliff	50	671.03	671.03	560	150	7%	21%	15%	57%
689	AZ	Arlington	Mesquite	320.8	3774.5	2617	1,670	525	8%	92%	0%	0%
692	AZ	Tucson	Avalon	51	479.21	352	-	-	0%	100%	0%	0%
				81								
			Average	111.80	1422.4	968.4	1031	263	10%	62%	22%	6%
			Median	80.00	914.5	646.0	836	188	7%	64%	17%	0%
			High	1000.00	9661.2	4813.5	5210	1790	58%	100%	100%	70%
			Low	50.00	347.1	185.1	343	57	0%	0%	0%	0%

VIII. Distance Between Homes and Panels

I have measured distances at matched pairs as close as 105 feet between panel and home to show no impact on value. This measurement goes from the closest point on the home to the closest solar panel. This is a strong indication that at this distance there is no impact on adjoining homes.

However, in tracking other approved solar farms across Virginia, North Carolina and other states, I have found that it is common for there to be homes within 100 to 150 feet of solar panels. Given the visual barriers in the form of privacy fencing or landscaping, there is no sign of negative impact.

I have also tracked a number of locations where solar panels are between 50 and 100 feet of single-family homes. In these cases the landscaping is typically a double row of more mature evergreens at time of planting. There are many examples of solar farms with one or two homes closer than 100-feet, but most of the adjoining homes are further than that distance.

IX. Topography

As shown on the summary charts for the solar farms, I have been identifying the topographic shifts across the solar farms considered. Differences in topography can impact visibility of the panels, though typically this results in distant views of panels as opposed to up close views. The topography noted for solar farms showing no impact on adjoining home values range from as much as 160-foot shifts across the project. Given that appearance is the only factor of concern and that distance plus landscape buffering typically addresses up close views, this leaves a number of potentially distant views of panels. I specifically note that in Crittenden in KY there are distant views of panels from the adjoining homes that showed no impact on value.

General rolling terrain with some distant solar panel views are showing no impact on adjoining property value.

X. Potential Impacts During Construction

Any development of a site will have a certain amount of construction, whether it is for a commercial agricultural use such as large-scale poultry operations or a new residential subdivision. Construction will be temporary and consistent with other development uses of the land and in fact dust from the construction will likely be less than most other construction projects given the minimal grading. I would not anticipate any impacts on property value due to construction on the site.

I note that in the matched pairs that I have included there have been a number of home sales that happened after a solar farm was approved but before the solar farm was built showing no impact on property value. Therefore the anticipated construction had no impact as shown by that data.

XI. Scope of Research

I have researched over 750 solar farms and sites on which solar farms are existing and proposed in Virginia, Illinois, Tennessee, North Carolina, Kentucky as well as other states to determine what uses are typically found in proximity with a solar farm. The data I have collected and provide in this report strongly supports the assertion that solar farms are having no negative consequences on adjoining agricultural and residential values.

Beyond these 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.

Percentage By Adjoining Acreage

	Res	Ag	Res/AG	Comm	Ind	Avg Home	Closest Home	All Res Uses	All Comm Uses
Average	19%	53%	20%	2%	6%	887	344	91%	8%
Median	11%	56%	11%	0%	0%	708	218	100%	0%
High	100%	100%	100%	93%	98%	5,210	4,670	100%	98%
Low	0%	0%	0%	0%	0%	90	25	0%	0%

Res = Residential, Ag = Agriculture, Com = Commercial

Total Solar Farms Considered: 705

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

Percentage By Number of Parcels Adjoining

	Res	Ag	Res/AG	Comm	Ind	Avg Home	Closest Home	All Res Uses	All Comm Uses
Average	61%	24%	9%	2%	4%	887	344	93%	6%
Median	65%	19%	5%	0%	0%	708	218	100%	0%
High	100%	100%	100%	60%	78%	5,210	4,670	105%	78%
Low	0%	0%	0%	0%	0%	90	25	0%	0%

Res = Residential, Ag = Agriculture, Com = Commercial

Total Solar Farms Considered: 705

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 or residential/agricultural use.

XII. Specific Factors Related To Impacts on Value

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 a 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

A 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 and even most agricultural uses.

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

2. Odor

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

3. Noise

Whether discussing passive fixed solar panels, or single-axis trackers, there is no negative impact associated with noise from a solar farm. The transformer reportedly has a hum similar to an HVAC 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.

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 farms are adjoining elementary, middle and high schools as well as churches and subdivisions. I note that one of the solar farms in this report not only adjoins a church, but is actually located on land owned by the church. 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

I note that larger solar farms using fixed or tracking panels are a passive use of the land that is 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 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, that development 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.

Whenever you consider the impact of a proposed project on viewshed or what the adjoining owners may see from their property it is important to distinguish whether or not they have a protected viewshed or not. Enhancements for scenic vistas are often measured when considering properties that adjoin preserved open space and parks. However, adjoining land with a preferred view today conveys no guarantee that the property will continue in the current use. Any consideration of the impact of the appearance requires a consideration of the wide variety of other uses a property already has the right to be put to, which for solar farms often includes subdivision development, agricultural business buildings such as poultry, or large greenhouses and the like.

Dr. Randall Bell, MAI, PhD, and author of the book **Real Estate Damages**, Third Edition, on Page 146 "Views of bodies of water, city lights, natural settings, parks, golf courses, and other amenities are considered desirable features, particularly for residential properties." Dr. Bell continues on Page 147 that "View amenities may or may not be protected by law or regulation. It is sometimes argued that views have value only if they are protected by a view easement, a zoning ordinance, or covenants, conditions, and restrictions (CC&Rs), although such protections are relatively

uncommon as a practical matter. The market often assigns significant value to desirable views irrespective of whether or not such views are protected by law."

Dr. Bell concludes that a view enhances adjacent property, even if the adjacent property has no legal right to that view. He then discusses a "borrowed" view where a home may enjoy a good view of vacant land or property beyond with a reasonable expectation that the view might be partly or completely obstructed upon development of the adjoining land. He follows that with "This same concept applies to potentially undesirable views of a new development when the development conforms to applicable zoning and other regulations. Arguing value diminution in such cases is difficult, since the possible development of the offending property should have been known." In other words, if there is an allowable development on the site then arguing value diminution with such a development would be difficult. This further extends to developing the site with alternative uses that are less impactful on the view than currently allowed uses.

This gets back to the point that if a property has development rights and could currently be developed in such a way that removes the viewshed such as a residential subdivision, then a less intrusive use such as a solar farm that is easily screened by landscaping would not have a greater impact on the viewshed of any perceived value adjoining properties claim for viewshed. Essentially, if there are more impactful uses currently allowed, then how can you claim damages for a less impactful use.

7. Conclusion

On the basis of the factors described above, it is my professional opinion that the proposed solar farm will not negatively impact adjoining property values. The only category of impact of note is appearance, which is addressed through setbacks and landscaping buffers. The matched pair data supports that conclusion.

XIII. Conclusion

The matched pair analysis shows no negative impact in home values due to abutting or adjoining a solar farm as well as no impact to abutting or adjacent vacant residential or agricultural land. The criteria that typically correlates with downward adjustments on property values such as noise, odor, and traffic all support a finding of no impact on property value.

Very similar solar farms in very similar areas have been found by hundreds of towns and counties not to have a substantial injury to abutting or adjoining properties, and many of those findings of no impact have been upheld by appellate courts. Similar solar farms have been approved adjoining agricultural uses, schools, churches, and residential developments.

I have found no difference in the mix of adjoining uses or proximity to adjoining homes based on the size of a solar farm and I have found no significant difference in the matched pair data adjoining larger solar farms versus smaller solar farms. The data in the Southeast is consistent with the larger set of data that I have nationally, as is the more specific data located in and around Virginia.

Based on the data and analysis in this report, it is my professional opinion that the solar farm proposed at the subject property will have no negative impact on the value of adjoining or abutting property. I note that some of the positive implications of a solar farm that have been expressed by people living next to solar farms include protection from future development of residential developments or other more intrusive uses, reduced dust, odor and chemicals from former farming operations, protection from light pollution at night, it's quiet, and there is no traffic.

Kirkland Appraisals, LLC

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

Professional Experience

Kirkland Appraisals, LLC, Raleigh, N.C. — 2003 – Present
Commercial appraiser

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

Professional Affiliations

MAI (Member, Appraisal Institute) designation #11796 — 2001
NC State Certified General Appraiser # A4359 — 1999
VA State Certified General Appraiser # 4001017291
SC State Certified General Appraiser # 6209
FL State Certified General Appraiser # RZ3950
IL State Certified General Appraiser # 553.002633
KY State Certified General Appraiser # 5522

Education

Bachelor of Arts in English, University of North Carolina, Chapel Hill — 1993

Continuing Education

Florida Appraisal Laws and Regulations	2020
Michigan Appraisal Law	2020
Uniform Standards of Professional Appraisal Practice Update	2020
Uniform Appraisal Standards for Federal Land Acquisitions (Yellow Book)	2019
The Cost Approach	2019
Income Approach Case Studies for Commercial Appraisers	2018
Introduction to Expert Witness Testimony for Appraisers	2018
Appraising Small Apartment Properties	2018
Florida Appraisal Laws and Regulations	2018
Uniform Standards of Professional Appraisal Practice Update	2018
Appraisal of REO and Foreclosure Properties	2017
Appraisal of Self Storage Facilities	2017
Land and Site Valuation	2017
NCDOT Appraisal Principles and Procedures	2017
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

JesseD@ips-solar.com

From: Snell, Steve <steve.snell@vdot.virginia.gov>
Sent: Thursday, January 13, 2022 10:34 AM
To: jessed@ips-solar.com
Cc: rlove@co.prince-edward.va.us; Charles Edwards
Subject: Re: Proposed Solar Project off of Llama Road near Pamplin, VA - Reeve (Prince Edward County, VA)

Jesse,

The proposed entrance for the Reeve Solar site Llama Road near Pamplin, VA is fine for a low volume entrance. Please submit a plan with available sight distance shown when requesting an entrance permit.

Thanks,
Steve

On Fri, Dec 3, 2021 at 4:02 PM <jessed@ips-solar.com> wrote:

> Good Afternoon Steve,
>
> I am following up to my request below. Please let me know if you need anything additional for your review.
>
> I am working with Prince Edward County, VA to get an application prepped for submittal. They mentioned that I need verification from VDOT that the driveway access is adequately addressed prior to submittal. Please let me know what you need to proceed with your review.
>
> Thanks,
>
> **Jesse Dimond**
>
> *Senior Project Developer*
>
> M: (651) 285-2253
>
> ips-solar.com
>
> 
>
> ***Building Better Energy.***

From: jessed@ips-solar.com <jessed@ips-solar.com>
Sent: Wednesday, November 24, 2021 9:17 AM
To: steve.snell@vdot.virginia.gov
Subject: Proposed Solar Project off of Llama Road near Pamplin, VA - Reeve (Prince Edward County, VA)

Good Day Steve,

I am working with Prince Edward County, VA to get an application prepped for submittal. They mentioned that I need verification from VDOT that the driveway access is adequately addressed prior to submittal. Please let me know what you need to proceed with your review.

Thanks,

Jesse Dimond

Senior Project Developer

M: (651) 285-2253

ips-solar.com

Building Better Energy.

This message and its contents are confidential.

--
Steve Snell, P.E.
Assistant Resident Engineer

Farmville Residency
434-610-6319