From:	david west
To:	EFSEC mi Comments
Cc:	Hafkemeyer, Ami (EFSEC); Snarski, Joanne (EFSEC); Drew, Kathleen (EFSEC)
Date:	Monday, April 24, 2023 6:32:38 AM
Attachments:	Becks solar farm property appraisal.pdf maclaystudy property values.pdf solar acres.pdf Goldendale Valley Graphic.pdf GV parcels.pdf

External Email

Please accept my comments and register me for the Tuesday meeting in Goldendale

David West
300 Simcoe Mtn Rd
Centerville, Wa.

GOLDENDALE CARRIGER SOLAR PROJECT

Klickitat County has long welcomed renewable energy projects. There are currently hundreds of wind turbines. And approximately 2,700 acres of solar energy in operation or currently being permitted through the County process. Also, in the planning stages is a publicly popular pump storage project which may permit through the County.

These projects have all been placed in remote areas where their presence will not damage the enjoyment of, or impact neighboring property values.

However, there are myriad social and economic impacts for consideration when thousands of acres are converted to industrial use in such a populated area as the Goldendale valley.

Based on the results of recent public hearings, the Carriger project has scant public support to be positioned as proposed in the Goldendale valley.

The lack of support is driven by the fact the proposed area is hardly remote and will harm thousands of property owners and future residential development.

The Goldendale valley is a scenic rapidly growing rural residential area with a population of over 8,500, of which only about 3,500 live in the City of Goldendale. In the last 40 years the City of Goldendale has not gained 50 residents. Which indicates all the growth has been in the rural areas.

Nowhere in our State has an industrial solar site of thousands of acres been permitted in such a populated scenic growth area. The rolling terrain of the Goldendale Valley creates amphitheaters multiplying the visual impact of industrial scale solar sites. View has value. Changing the view, changes the value. Without careful extensive research and public input, the placement of thousands of acres of industrial site will irrevocably damage the market value of residential and open land. Lowered home and land values decrease equity and the ability

to acquire home equity loans, reverse mortgages etc. Will compensation be required for real estate value damage?

Late last year internal documents came to the attention of the current Board of County Commissioners which show solar corporations are positioning for over 9,000 acres in the Goldendale area. Thus, the reason the current BOCC recognized the need to stop the permitting process until expanded zoning could be implemented for local control of how much and where is acceptable within the Goldendale area.

The obvious reason solar corporations wish to locate in such a populated area is short/cheap connection to transmission points in the valley. There are areas in the valley and just East of the valley which could avoid all siting conflicts. Carriger would be welcome sited in the remote areas. Our need for green energy will not be curtailed if not sited in the Goldendale valley. It will just cost corporate more to connect if moved to a low impact location.

Corporate profits should not be subsidized by the damage caused to peoples lives and property.

OBSERVATIONS

Numerous application instances where claim of compliance is merely…….. ***A PLAN TO HAVE A PLAN.***
Using distorted context to project an appearance of compliance used multiple times in the application. This certainly, damages credibility of application. Perhaps explains Tetra Tech in recent years having credibility problems with the U. S. Dept. of Justice.

EFSEC per RCW 80.50.090 (2) Bound by County land use plans in effect at the date of application
Reviewing hearing records of other EFSEC projects I is see where EFSEC has accepted and uses this RCW is siting considerations.
To consider in Klickitat County.

- Energy Overlay Zone. Ordinance in place for many years. Governs projects, including solar. Wording with stipulations which indicate projects must go thru County process including legal settlement requiring EIS. Among other requirements in original EOZ EIS is visual considerations and the point that solar will be small and few.

- Klickitat County requires any solar project which would connect to Knight Road substation to be subject to County CUP. Which is a County process. This is a land use restriction in place for about 2 years.

Therefore, does EFSEC have jurisdiction to permit any solar project which would connect to Knight Road substation or be governed by the Energy Overlay Zone?
Or does EFSEC have the burden to assure our land use restrictions are enforced?

BOTANICAL SURVEY REPORT

2.2.4 Preservation Act 1981. Relevant and current?

2.2.6 GMA considers solar as conversion of land use. Klickitat CAO compliance not factually evident.

3.1 Evidence of WDFW concurrence?

3.2.3 Table 1. Refers to list, of communities. Does not list.

3.3 Unusual weather impacted accuracy.

Various: **Noxious Weeds.** Unusual weather may have impacted accurate evaluation of typical populations.

Will work with County Weed Board is not a plan.

Essential to prevent the spread of noxious weeds during construction and operation.

5.0 **Avoid priority habitats……to the extent feasible.** Not acceptable. Should be avoided at any costs.

6.0 Aged and perhaps inadequate reference materials.

Figure 4 Confidential…… Omitted information creates a vague process.

Much of the proposed area has multiple years of accumulated Cereal Rye. Without actual removal, it presents fire danger during construction.

No recognition for need of mitigation, and therefore no mitigation plans.

"NO NET LOSS" concept not applied. **Plans need to come before permits**

HYDOLOGIC AND HYDRAULIC ASSESSMENT

1. Why bounded by Hwy 97

3.2 "A post construction study should be undertaken before construction" Obviously studies are incomplete.

Page 6. Assumptions. 1. Proof of results required……. do not assume.

LAND USE CONSISTENCY

1.2.3 1977 Comprehensive Plan states EXCLUSIVE AG

1.2.4 Must adhere to EOZ stipulations. Not acknowledged. Non identified.

1.2.5 CAO per chapter one quote……. Out of context and self-serving rationalization. A narrative not evidence of compliance.

2.1.1 'policies must be those of its citizens' No evidence project is aligned with that excerpt.

2.1.2 Massive scale of the project violates any perception of what the County Code would allow in such a populated area.

2.1.4 A narrative wish list plan to comply. Assumes water would be available. And could be converted to an industrial use.

2.1.6 Not in compliance. Destabilizes agriculture and associated businesses. As large tracts of agriculture are removed from production supply is diminished. Thus increasing the demand on

remaining land and subsequent price increase to rent or buy. Therefore, decreasing the profitability for those still in production.

Additionally, property value studies, not paid for by solar corporations, show significant decrease in market value. Agricultural borrowing depends on amount of equity in real estate. Diminished real estate values damages equity in farm properties and therefore harms the ability of remaining farmers to access the credit they could have prior to solar. As residential value is market value for farm ground, devaluation would have drastic consequences. Compensation for difference between Current Use assessed value and appraised market value should be required to assure the surrounding area is made whole for solar damage. Mitigation principle for lost agricultural land should apply.

2.1.7 p11. Uses NRCS productivity index. Which is a theoretical projection. Does not reflect Actual Production History. No actual research.
Statement of "moderate to low inherent crop productivity" is blatant misrepresentation.
The Goldendale Valley of about 60,000 acres of cropland has the highest Actual Production History of any region of this size in the County.

FRED H. BECK AND ASSOCIATES, LLC
Real Estate Appraisers
& Consultants

CONSULTATION

Proposed Webbs Road Solar Farm Adjacent to the Sailview Subdivision
Webbs Road and Burton Lane
Denver, Lincoln County, North Carolina 28037

PREPARED FOR

Concerned Citizens of Lake Norman
c/o Tim Mooney
4320 Crepe Ridge Drive
Denver, NC 28037

EFFECTIVE DATE OF ANALYSIS

October 17, 2013

DATE OF REPORT

November 4, 2013

PREPARED BY

FRED H. BECK & ASSOCIATES, LLC
Fred H. Beck, Jr., MAI, CCIM, MRICS
Geoffrey Zawtocki

8924 Blakeney Professional Drive, Charlotte, North Carolina 28277-6660
Phone: 704.544.4884 / Fax: 704.544.6520 / Website: *www.fredhbeck.com*

FRED H. BECK AND ASSOCIATES, LLC
Real Estate Appraisers & Consultants

November 4, 2013

Concerned Citizens of Lake Norman
c/o Tim Mooney
4320 Crepe Ridge Drive
Denver, NC 28037

REFERENCE: **CONSULTATION**
Proposed Webbs Road Solar Farm Adjacent to the Sailview Subdivision
Webbs Road and Burton Lane
Denver, Lincoln County, North Carolina 28037

Dear Mr. Mooney:

As requested, we have completed a consultation on the proposed Strata Solar farm on Webbs Road in Denver, Lincoln County, North Carolina 28037. Our analyses and conclusions are presented herein.

Your attention is invited to the Assumptions and Limiting Conditions attached and made a part of this report. We certify that we have no present or contemplated future interest in the property and that our fee for this assignment is in no way contingent on the conclusions.

This report complies with the Uniform Standards of Professional Appraisal Practice (USPAP) including the ethics and competency provisions, as promulgated by the Appraisal Standards Board of The Appraisal Foundation.

The undersigned hereby acknowledges considerable input, investigation, and analysis by Geoffrey A. Zawtocki, who contributed to the information set forth in the attached narrative. Thank you for the opportunity to be of service and please let us know if you have any questions.

Respectfully Submitted,
Fred H. Beck & Associates, LLC

Fred H. Beck, Jr., MAI, CCIM, MRICS
State-Certified General Real Estate Appraiser
N.C. Certificate No. A1329

Geoffrey A. Zawtocki
State-Certified General Real Estate Appraiser
N.C. Certificate No. 7697

8924 Blakeney Professional Drive, Charlotte, North Carolina 28277-6660
Phone: 704.544.4884 / Fax: 704.544.6520 / Website: *www.fredhbeck.com*

APPRAISAL INSTITUTE CERTIFICATE OF THE APPRAISER / MAI

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

- The statements if fact contained in this report are true and correct.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions and are my personal, impartial, and unbiased professional analyses, opinions and conclusions.
- I have no present or prospective interest in the property that is the subject of the report and no personal interest with respect to the parties involved.
- I have not performed services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment.
- I have no bias with respect to this property that is the subject of this report or to the parties involved with this assignment.
- My engagement in this assignment was not contingent upon developing or reporting predetermined results.
- My compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result or the occurrence of a subsequent event directly related to the intended use of this appraisal.
- My analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the *Uniform Standards of Professional Appraisal Practice*.
- I have made a personal inspection of the property that is the subject of this report.
- No one provided significant real property appraisal assistance to the person signing this certification, other than ***Geoffrey A. Zawtocki.***
- The reported analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute.
- The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives.
- As of the date of this report, I ***Fred H. Beck. Jr., MAI, CCIM, MRICS*** have completed the continuing education program for Designated Members of the Appraisal Institute.

11/4/2013

FRED H. BECK, JR., MAI, CCIM, MRICS **DATE**

State-Certified General Real Estate Appraiser
N.C. Certificate No. A1329

USPAP CERTIFICATE OF THE APPRAISER / MAI

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

1. The statements of facts contained in this report are true and correct.

2. The reported analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute.

3. I have no present or prospective interest in the property that is the subject of this report and no personal interest with respect to the parties involved.

4. I have not performed services, as an appraiser or in any other capacity, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment.

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7. My compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.

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9. I have made personal inspection of the property that is the subject of this report.

10. No one provided significant real property appraisal assistance to the person signing this certification other than ***Geoffrey A. Zawtocki.***

11. As of the date of this report, I ***Fred H. Beck, Jr., MAI, CCIM, MRICS*** have completed the continuing education program for Designated Members of the Appraisal Institute.

11/4/2013

FRED H. BECK, JR., MAI, CCIM, MRICS **DATE**

State-Certified General Real Estate Appraiser
N.C. Certificate No. A1329

CERTIFICATE OF THE APPRAISER

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

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9. I have made personal inspection of the property that is the subject of this report.

Geoffrey Zawtocki

11/4/2013

GEOFFREY A. ZAWTOCKI **DATE**

State-Certified General Real Estate Appraiser
N.C. Certificate No. A7697

TABLE OF CONTENTS

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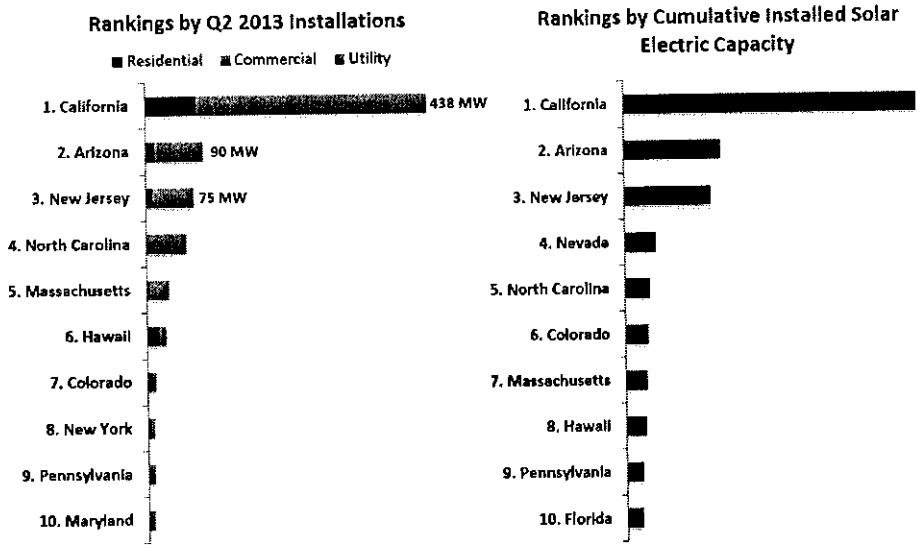
EXECUTIVE SUMMARY

In this report, we studied the effect of adjacent or nearby solar farms on residential property values. Our research included actual evidence from comparable solar farms located in residential areas, market participant interviews, the effect of a commercial use on an adjacent subdivision's property values, consideration of peer reviewed and accepted research and literature, and examples of decisions from other public municipalities.

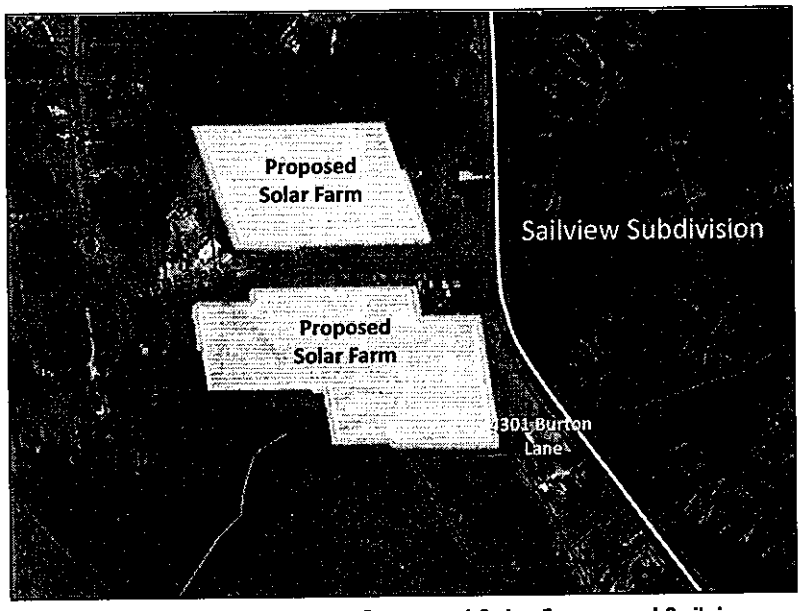
Based on our research of solar farms and their impact on adjacent or nearby residential property values, we have come to the following conclusions:

- Solar farms are a burgeoning industry nationally and in North Carolina, and there has been limited time to accumulate enough data to analyze their effects on residential property values. Only in the last couple years, the industry has expanded substantially in North Carolina to $3.7 billion. North Carolina is currently ranked 4th and 5th respectively for installations and installed capacity.



- The location of the proposed Webbs Road solar farm is not indicative of location of typical solar farms. Based on the distribution of households, household income, and median housing values, the Webbs Road solar farm is located in an area atypical of where solar farms are generally located.

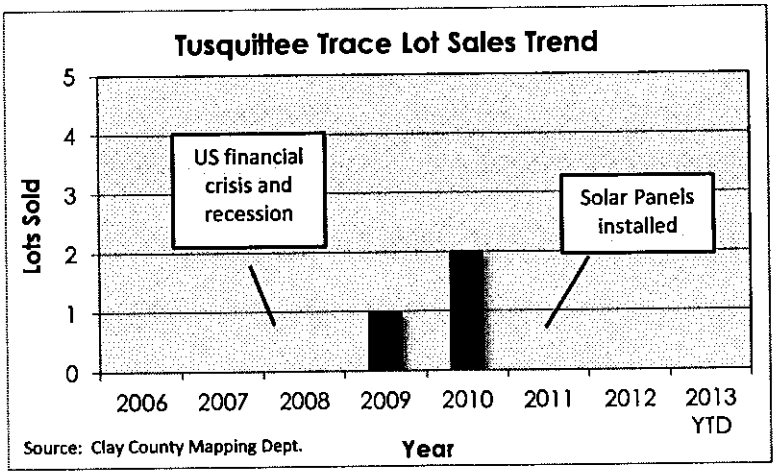
- The proposed Webbs Road solar farm has already impacted the value of 4301 Burton Lane. A sale contract was signed for $200,000, but the buyer decided to cancel the contract upon learning about the adjacent Webbs Road solar farm. The buyer would not reconsider even with a significant discount in purchase price.



Aerial of 4301 Burton Lane, Proposed Solar Farm, and Sailview

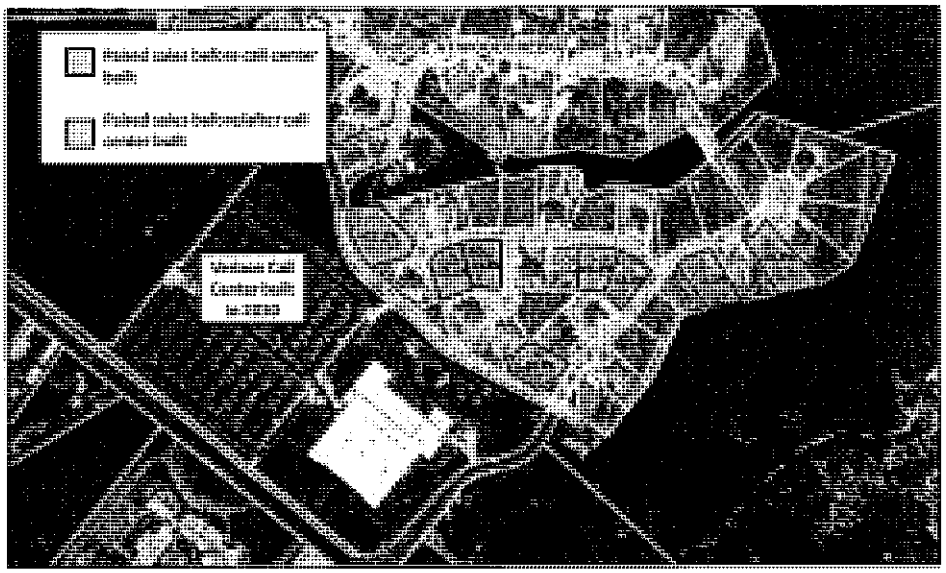
- Solar farms have impacted property values of higher priced homes.

  » As shown in the graph below, in the 15-lot Tusquittee Trace subdivision for 2nd homes in Hayesville, Clay County, North Carolina, no lots have sold since the developer sold 3 lots from 2009 to 2010. In 2011, a 1 Megawatt solar farm was built adjacent to the subdivision, and many lots have a direct view of it. Housing prices in Tusquittee trace are planned for about $325,000.



» Starting in June 2011, the Clay County Board of Equalization recognized solar farms were reducing adjacent property values, and began allowing residents to appeal assessed values. Thus far, 19 parcels have had their assessed values reduced by an average of about 30.8%.

» In fall 2010, Verizon Wireless completed a 146,000 square foot call center on about 29 acres adjacent to the Southridge subdivision in Elgin, Richland County South Carolina, with houses ranging from about $400,000 to $800,000. Matched paired sales before the call center was constructed showed average appreciation averaged 21.3%. However, paired sales before/after the call center was built showed an average decline of 15.2%.



Aerial of Southridge showing matched pair sales

- A survey of market participants reveals consensus that solar farms negatively impact nearby and/or adjacent residential property values

- Solar farms appear to have no significant impact on modestly-priced homes. The 6.65 Megawatt AM Best Solar Farm in Goldsboro, Wayne County, North Carolina was completed adjacent to the Spring Garden subdivision in June 2013. Based on an analysis of the recent property sales and interviews with brokers selling houses in Spring Garden, there has neither been an impact on sales prices per square foot, nor any voiced concerns by buyers purchasing houses. However, the solar farm and other neighboring uses are zoned I-2 (General Business), and past and current buyers are aware neighboring parcels are zoned for potential business or industrial

uses, and expect that a commercial or industrial use will be located on adjacent land. The table on the following page shows housing prices increased at Spring Gardens 2013 to date.

Residential Sale Summary - Spring Garden			
	House	Avg	Avg
Year	Sales	Price/SF	HLA (sq ft)
2010	1	$100.54	2,606
2011	0	N/A	N/A
2012	6	$72.86	3,155
2013 YTD	9	$73.92	3,353

Note: Sales as of October 2013

- Studies and literature of high voltage transmission lines and wind farms, similar in public perception to solar farms, using advanced statistical methods over long time periods, show these uses impair both adjacent and nearby residential property values. The impairment appears proportional to the property's value. These findings support the direct evidence shown above.

- With the expansion of solar farm industry in North Carolina, public opposition has compelled other North Carolina municipalities to recognize solar farms can impact residential property values, and may not be in harmony with surrounding land uses. Thus far in 2013, North Carolina municipalities voting against solar farm installations include:

  - Robeson County
  - The City of Laurinburg
  - Moore County
  - Yadkin County
  - The City of Shelby

Most municipalities sited a concern with decreasing property values or the solar farm not being in harmony with surrounding land uses.

In conclusion, there is limited evidence as to the effect of solar farms on residential property values. However, it appears from direct evidence solar farms appear to impair property values on adjacent properties and higher-priced homes. However, they may not affect modestly priced homes, especially in location where homeowners know an adjacent commercial use is most likely.

According to several brokers, buyers of higher-priced homes appear to be more discriminating in their choice of a house. This is supported by evidence from literature

and studies of uses similar to solar farms, including high voltage transmission lines, and find farms. In addition, local municipalities have recently had to confront the issues of decreased property values and harmony with surrounding land uses due to solar farms, as the public has brought these to the forefront. Many municipalities have recently passed regulations on solar farms for security and protection of property values. In addition, several North Carolina municipalities have rejected requests for solar farm installations, due to the concerns about property values and harmony with surrounding uses. Overall, based on the evidence, it appears the proposed Webbs Road solar farm will have a significant negative impact on homes in the Sailview subdivision as well as other nearby subdivisions.

INTRODUCTION

In this report we analyzed the effect a proposed 5-megawatt solar farm would have on adjacent or nearby residential property values in the Sailview subdivision area in Denver, Lincoln County, North Carolina.

OVERVIEW

In August 2013, Strata Solar and Webb Solar Farm LLC filed a conditional use permit with Lincoln County, requesting the county grant construction of a 5 Megawatt solar farm on both sides of Webbs Road at Burton Lane, adjacent to the Sailview subdivision. The land is currently owned by the Dellinger family and would be leased to the solar power company for 20 years. This would be the second solar power farm in Lincoln County. Strata Solar received permission from the county earlier this year to construct a similar farm in west Lincoln.

The property is currently zoned R-SF (Residential Single-Family) which allows predominantly single-family development by right, and some other more intensive uses with conditions. Among these conditional uses are providing public utilities.

> **4. R-SF | Residential Single Family**
>
> Established to provide for traditional single-family subdivisions and/or maintain areas in the County for traditional single-family residential uses, such areas, in general, do not presently contain mobile or manufactured homes, duplexes or multi-family dwelling developments. Since manufactured homes and other types of residential dwelling units are accommodated in many of the other residential districts, certain areas of the County can be set aside exclusively for single-family purposes. Unlike the R-S district where public utilities are currently in place or expected to be in the near future, the provision of public utilities is not a factor in the location of the R-SF district. Thus, the R-SF district may be applied to areas which have received both suburban and more rural types of development in the past.

Lincoln County Zoning Districts – Unified Development Ordinance -§2.1.1.4

As perspective, the next level of the Lincoln County zoning ordinance is R-S (Residential Suburban). In this zoning class, utilities may or may not be in place for all non-residential uses, and aesthetics must be a major concern for potential uses.

> **3. R-S | Residential Suburban**
>
> Established to encourage residential type development in portions of the County where one or more public utilities are currently in service or are anticipated to be installed in the future, residential subdivision development is somewhat more likely in this district than in the R-R or R-T districts. Given that residential will be the major use of land in this area, careful attention must be given to the list of nonresidential uses which can take place in order to maximize aesthetics and the overall quality of life in such areas.

Lincoln County Zoning Districts – Unified Development Ordinance -§2.1.1.3

Although a solar farm is generally considered a commercial or industrial use, Strata Solar has successfully categorized solar farms as public utilities to local municipalities, even though they are not regulated as such, and do not sell directly to the public. Defined as a public utility, Strata Solar only needs to apply for a conditional use permit instead of rezoning the property. Lincoln County is not among the 42 North Carolina local governments that have adopted solar-energy ordinances as the industry quickly expanded over the last few years. The table below shows a major utility is a conditional use in the R-SF district.

	R-R	R-T	R-S	R-SF	R-CR	R-14	R-20	R-MR	R-MF	O-R	B-N	B-G	B-C	I-L	I-G	Use Standard
P = Permitted | S = Special Use (§9.10) | C = Conditional Use (§9.11) | * = Group of Uses (§2.3)																
Utility, minor *	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Utility, major *	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Wireless facility and tower (up to 60 ft)	P	P	P	P	P	P			P	P	P	P	P	P	P	§4.3.7
Wireless facility and tower (60-100 ft)	C	C	C	C	C	C				C	C	C	C	P	P	§4.3.7
Wireless facility and tower (101-325 ft.)	C	C										C	C	C	C	§4.3.7

Lincoln County Permitted Use Table – Zoning Ordinance - §2.2.1 Use Table

An initial public hearing was held on September 9, 2013, and it was attended by about 300 residents, many in opposition to the conditional use request. As a result of the community involvement in this case, the commissioners granted a two-month continuance so residents could consult with attorneys and appraisers on the solar farm's expected impact on property values. The next hearing is scheduled for November 2013.

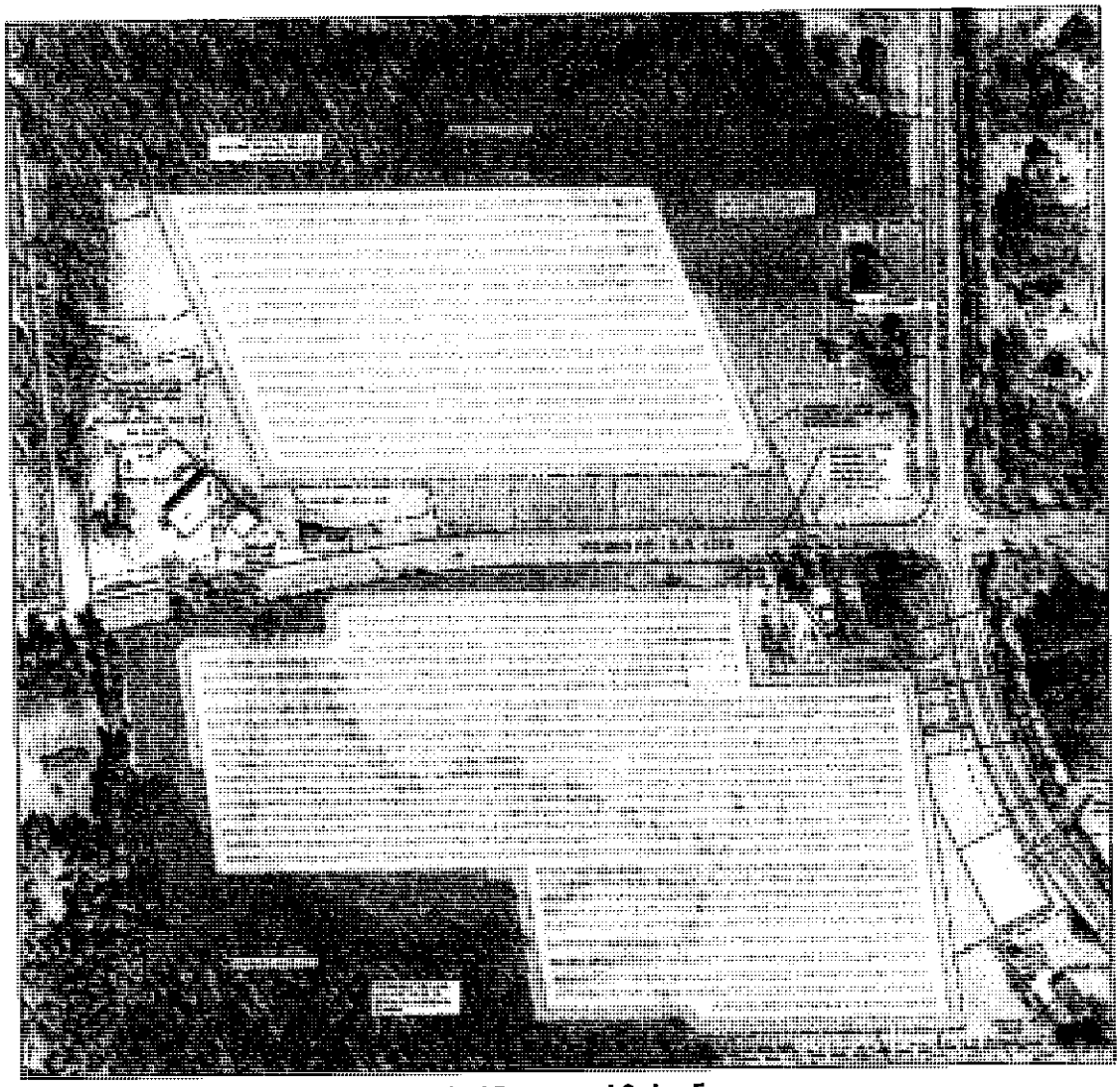
Conditional use approval for the solar farm rests on meeting the Lincoln County Planning Board's standards on four (4) findings of fact shown as the following:

1. The use will not materially endanger the public health or safety if located where proposed and developed to plan.
2. The use meets all required conditions and specifications.
3. The use will not substantially ***injure the value of adjoining or abutting property*** unless the use is a public necessity.
4. The location and character of 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*** and will be in general conformity with the Land Use Plan for the area in question.

Our report focuses on findings of fact 3 and 4, providing evidence that the proposed solar farm will substantially injure property values, and the use is not in harmony with the surrounding land uses.

PROPERTY IDENTIFICATION

The Strata Solar Farm is proposed on the two adjacent parcels on Webbs Road. The two parcels are identified as Parcel IDs 90501 and 30199. The two parcels total approximately 42.12 acres, and are owned by Timothy and Gary Dellinger. The two parcels are used for agricultural purposes. As shown in the aerial on the following page, the solar panels are proposed on both the northern and southern sides of Webbs Road, and require about 36 acres.



Aerial of Proposed Solar Farm

DATE OF REPORT

The date of this report is November 4, 2013.

DATE OF INSPECTION

The subject was physically inspected on October 17, 2013.

INTENDED USE/USER OF REPORT

The intended user is the **CONCERNED CITIZENS OF LAKE NORMAN.** This report is intended to assist the client in in determining the effect of the solar farm on the property surrounding the proposed farm.

TESTIMONY, CONSULTATION, COMPLETION OF CONTRACT FOR REPORT SERVICES

The contract for report, consultation, or analytical service is fulfilled and the total fee payable upon completion of the report, unless otherwise specified. **Fred H. Beck & Associates, LLC** or those assisting in preparation of the report, will not be asked or required to give testimony in court or hearing because of having made the report, in full or in part, nor engage in post report consultation with client or third parties except under separate and special arrangement and at an additional fee. If testimony or deposition is required because of any subpoena, the client shall be responsible for any additional time, fees and charges, regardless if issuing party.

SCOPE OF WORK

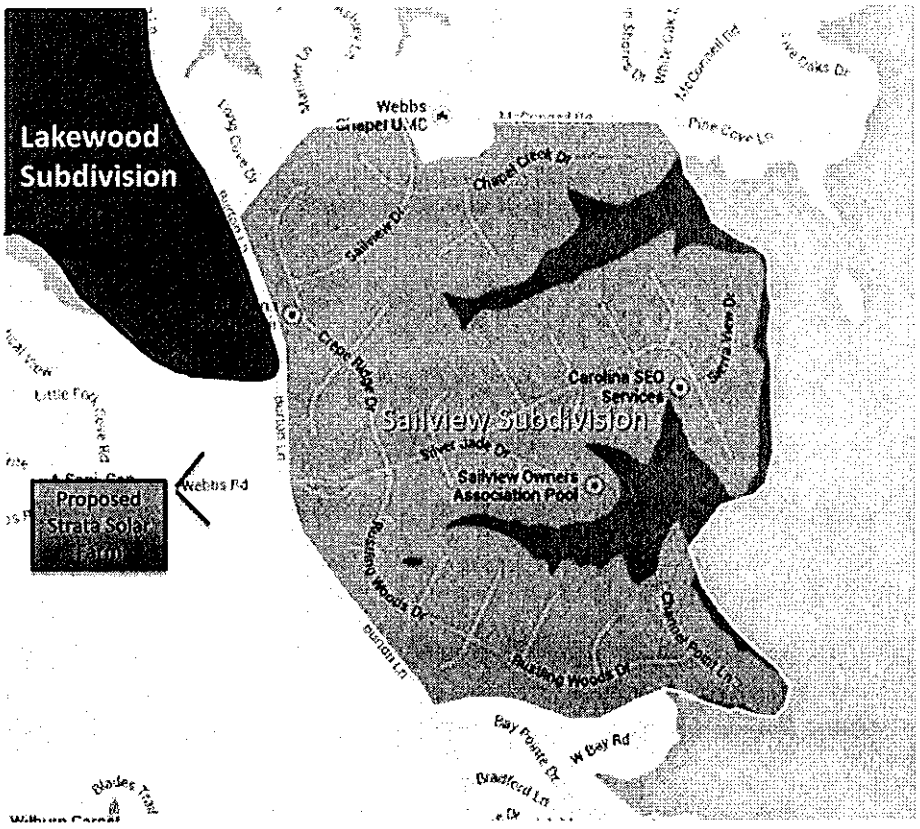
The following steps were completed for this assignment:

1. Identified the subject;
2. Stated clearly the intended use and user;
3. Analyzed the demographics of all major publically announced completed solar farms in North Carolina
4. Researched and analyzed subdivisions with an existing adjacent solar farm showing residential property value impairment.
5. Presented findings on from studies and literature on other similar uses that have shown to affect residential property values.
6. Listed other North Carolina municipalities that have rejected proposed solar farms, due to property value impairment and/or the use not conforming to local land uses.

AREA AND NEIGHBORHOOD ANALYSIS

We personally inspected the neighborhood on October 17, 2013. Relevant information was obtained from various publications, demographic reports from The Nielsen Company, our files, and discussions with real estate professionals familiar with the area.

NEIGHBORHOOD ANALYSIS

LOCATION	The neighborhood is located in the unincorporated community of Denver, Lincoln County, North Carolina. It is on the western shore of Lake Norman, nearly 30 miles north of downtown Charlotte, North Carolina.
BOUNDARIES	The neighborhood is generally the Sailview subdivision, bounded by the following: North: McConnell Road East: Lake Norman South: Bay Pointe Drive West: Burton Lane  **Map of Neighborhood** The extended neighborhood extends throughout the peninsula, including other similar subdivisions.
LAND USES	Land uses within the neighborhood are a mostly residential, with a mix of commercial uses along major thoroughfares. Residential uses are mostly single-family homes in established subdivisions. Commercial uses consist of mostly strip retail and office.
ACCESS, TRAFFIC, & TRANSPORTATION	Primary access to the neighborhood and entire peninsula is via Webbs Road. Burton Lane provides local north/south access along the peninsula.

POPULATION AND INCOME

As shown in the table below, there was strong population growth, within a one-mile radius, over the last 13 years. The neighborhood is projected to have slower population growth over the next 5 years. Based on demographics, the neighborhood appears to be upper-income.

SELECTED NEIGHBORHOOD DEMOGRAPHICS			
	1 mile	3 miles	5 miles
Population			
2018 Projection	2,796	13,506	34,115
2013 Estimate	2,544	12,471	31,786
2010 Census	2,387	11,847	30,403
2000 Census	1,041	6,562	19,209
Annual Change (2000-2013)	7.12%	5.06%	3.95%
Annual Change (2013-2018)	1.91%	1.61%	1.42%
Households			
2018 Projection	987	5,011	12,846
2013 Estimate	913	4,683	12,082
2010 Census	873	4,504	11,654
2000 Census	414	2,563	7,517
Annual Change (2000-2013)	9.19%	6.93%	5.41%
Annual Change (2013-2018)	1.57%	1.36%	1.23%
Additional Demographics			
2013 Est. Average Household Income	$131,260	$107,647	$100,595
2013 Est. Median Household Income	$84,586	$73,200	$67,210
2013 Est. Median Home Value	$451,515	$411,852	$383,340
2013 Est. College Graduates	48.93%	40.48%	39.25%
Source: Nielsen			

CONCLUSION

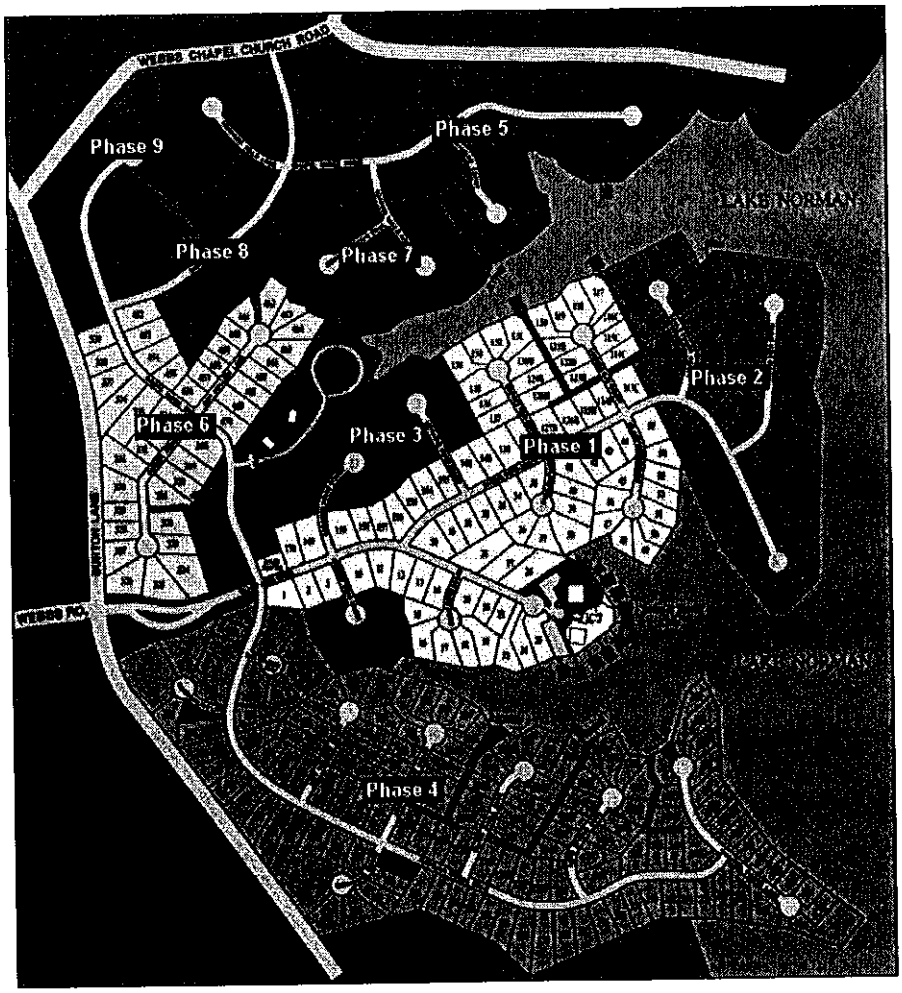
The neighborhood is located about 30 miles north of downtown Charlotte. The immediate neighborhood is predominantly suburban with mostly single-family residential uses, and some commercial along major thoroughfares. Demographics indicate an upper-income neighborhood. In the neighborhood life cycle, the neighborhood is in a state of growth.

SAILVIEW SUBDIVISION

Typical house in Sailview

Sailview is a Crescent Community of homes along the western shore of Lake Norman. Community amenities include a Swim and Tennis club overlooking Lake Norman, an 8-acre park with playgrounds, exercise station, walking trails, Woman's Club, public boat launch, volleyball courts, and an organized community swim team. The community began in 1999 with a variety of house prices and sizes. Houses range from about $400,000 to over $2 million, and range in size from about 3,000 to 6,000 square feet. Some homes include a deeded boat slip.

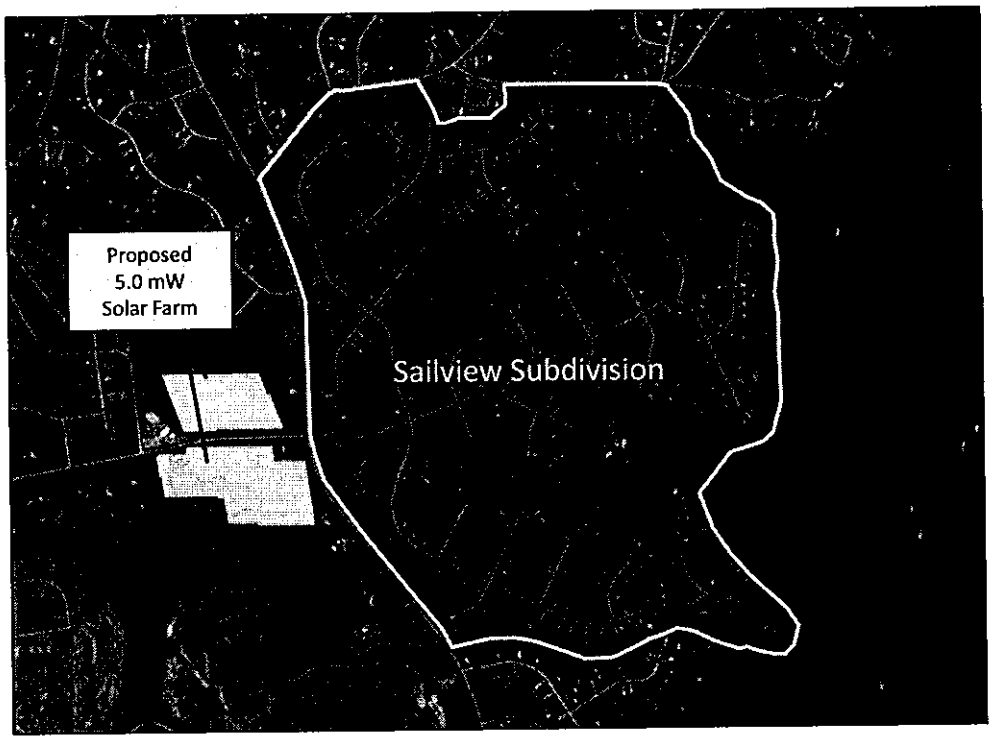
As shown in the community map below, the Sailview has nine (9) phases with over 400 homes. The main entrance for the community is at the intersection of Webbs Road and Burton Lane.



Sailview Community Map

STRATA SOLAR FARM

As shown in the aerial below, Strata Solar is planning to construct the solar farm at the entrance of the Sailview subdivision at the western half of the intersection of Webbs Road and Burton Lane. The solar farm is planned for both the north and south sides of Webbs Road, and will consist of 26,000 240-watt solar panels. The panels will be 8-feet tall, and each array will be chain-linked fenced and gated with barbed wire for security. Strata Solar has signed a 20-year lease with the current land owner, with two 5-year options. The power to be generated will be sold to Duke Energy through a Power Purchase Agreement (PPA).



Aerial picture of Apple Solar Farm

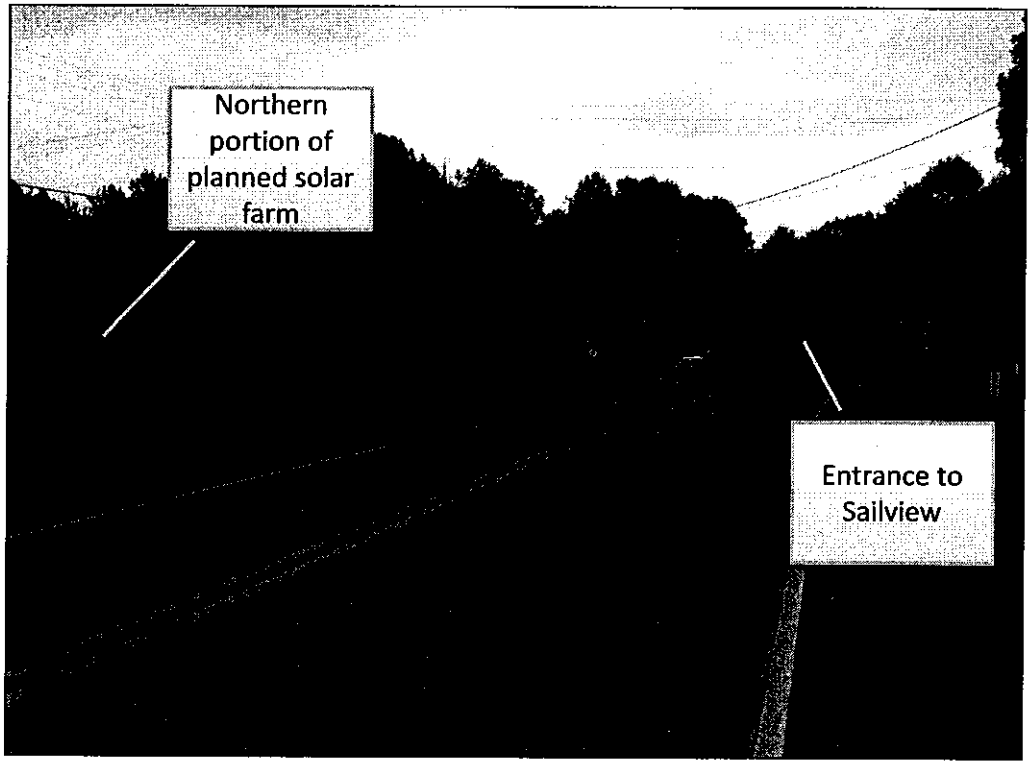
The picture below shows the margin of Webbs Road and the southern portion of the area planned for the solar farm.

Picture of Webbs Road where southern array of solar farm is planned

The picture below shows where the northern portion of the area planned for the solar farm.

Picture of Webbs Road where northern array of solar farm is planned

The picture below shows where the northern portion of the solar farm is planned in relation to main entrance to the Sailview community.



Picture of Webbs Road showing main entrance to Sailview

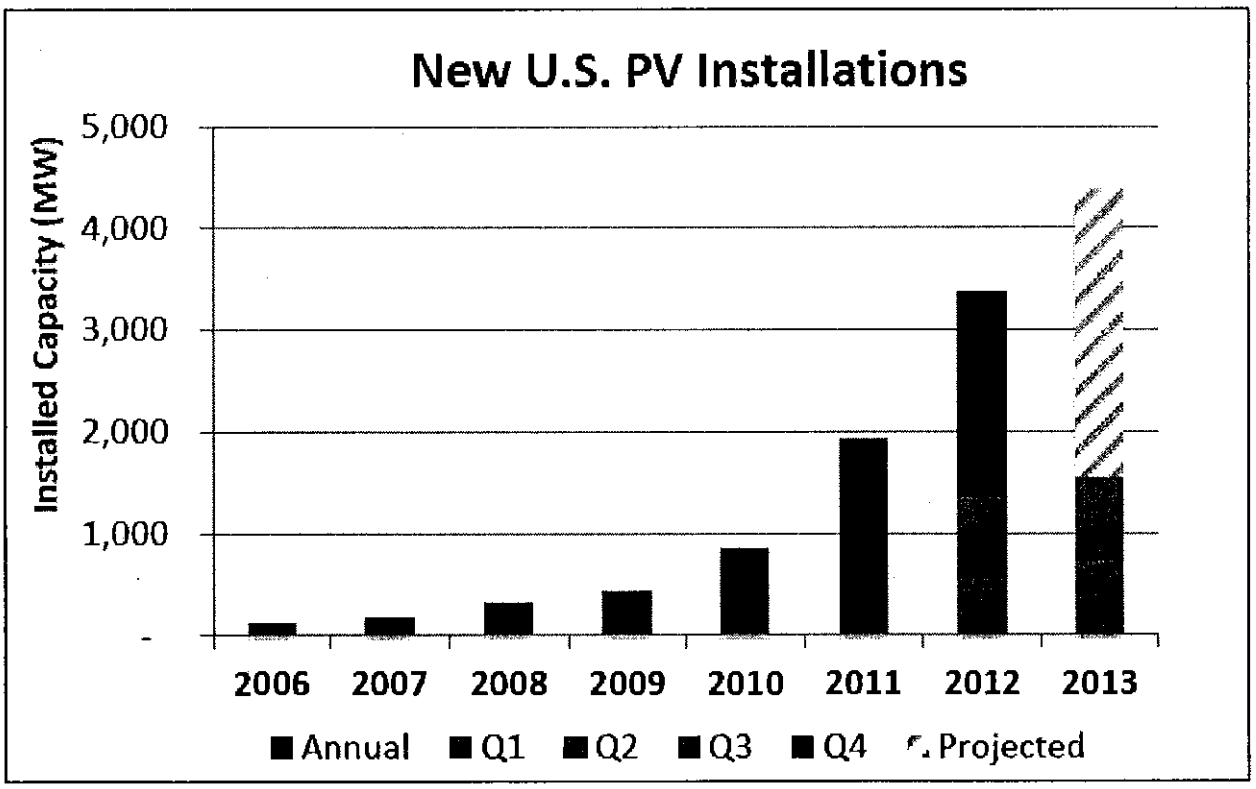
Residents will primarily drive daily between the north and south solar arrays to get to Sailview, as Webbs Road is the primary access road to the peninsula.

DEMOGRAPHIC ANALYSIS OF NC SOLAR FARMS

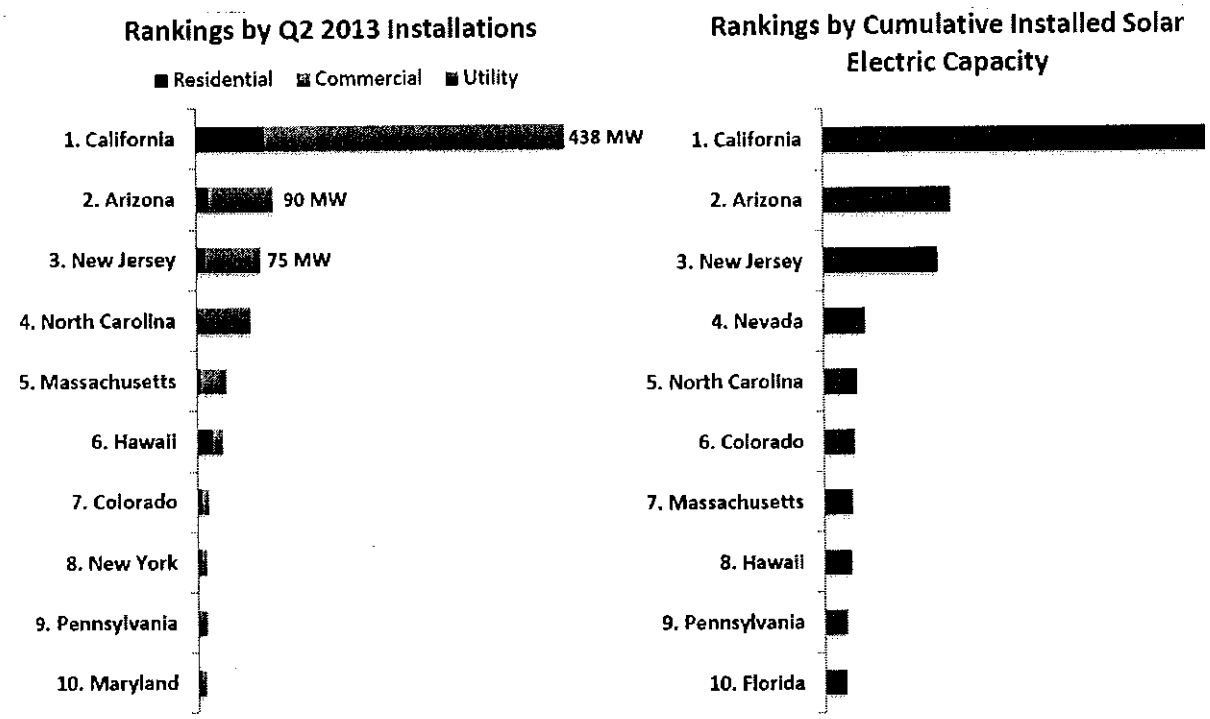
We analyzed all the completed major publicly announced solar farms in North Carolina from the Solar Energy Industries Association (SEIA). According to SEIA, North Carolina has 228 operating solar farms, and 59 are currently under construction. In addition, 162 solar farms are under development for a total of 449 solar farms.

NATIONAL

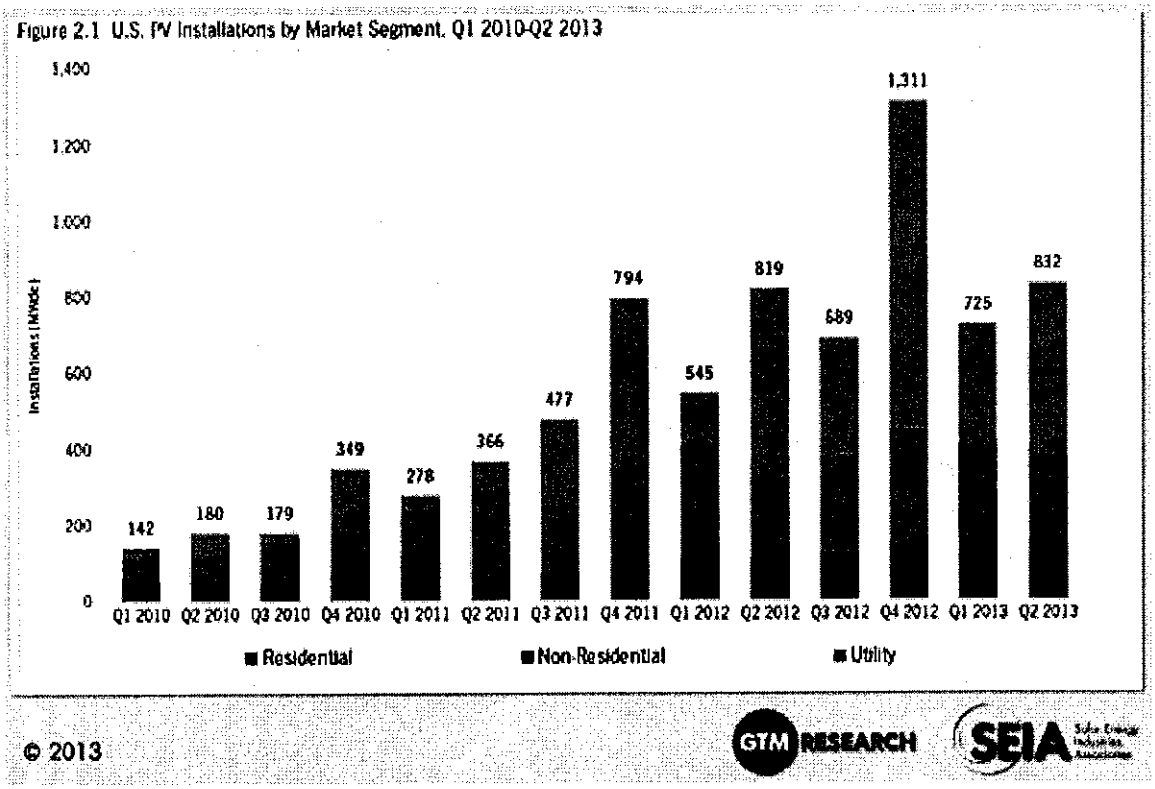
As shown in the graph below, the solar farm industry has expanded significantly only in the last couple years. In 2010, installed capacity was less the 1,000 Megawatts, but in 2013 installations are expected to reach approximately 4,400 Megawatts. In total, there are over 9,370 Megawatts of capacity operating in the United States.



As shown in the graph below, of the top ten states for installations and installed capacity, North Carolina ranks 4th and 5th respectively.



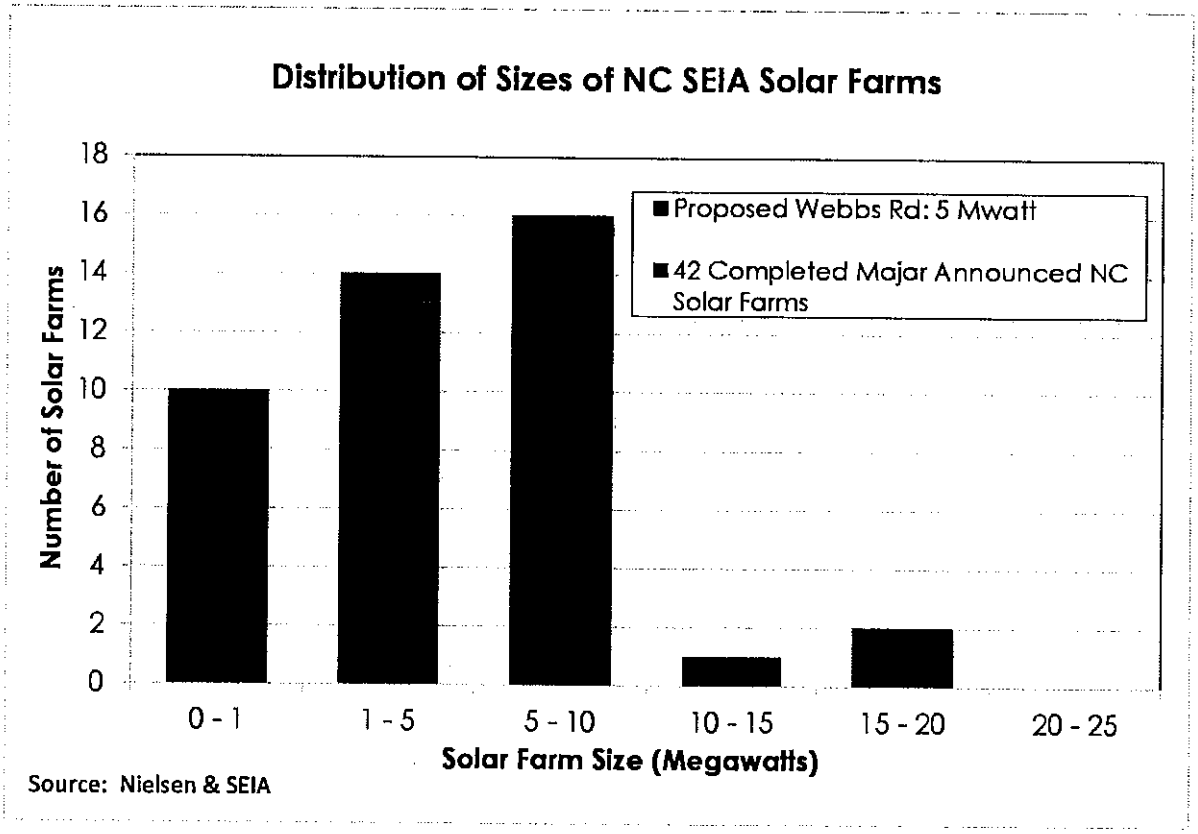
As shown in the graph below, installations in Q2 2013 were the second largest the U.S. solar market's history. The industry installed 832 MW of photovoltaic (PV) capacity, 15% higher than Q1 2013. The utility photovoltaic market drove much of the growth, with over 450 MW of projects commissioned. The overall solar electric market is on pace for the installation of about 4,400 MW of PV and over 900 MW of concentrating solar power (CSP) in 2013.



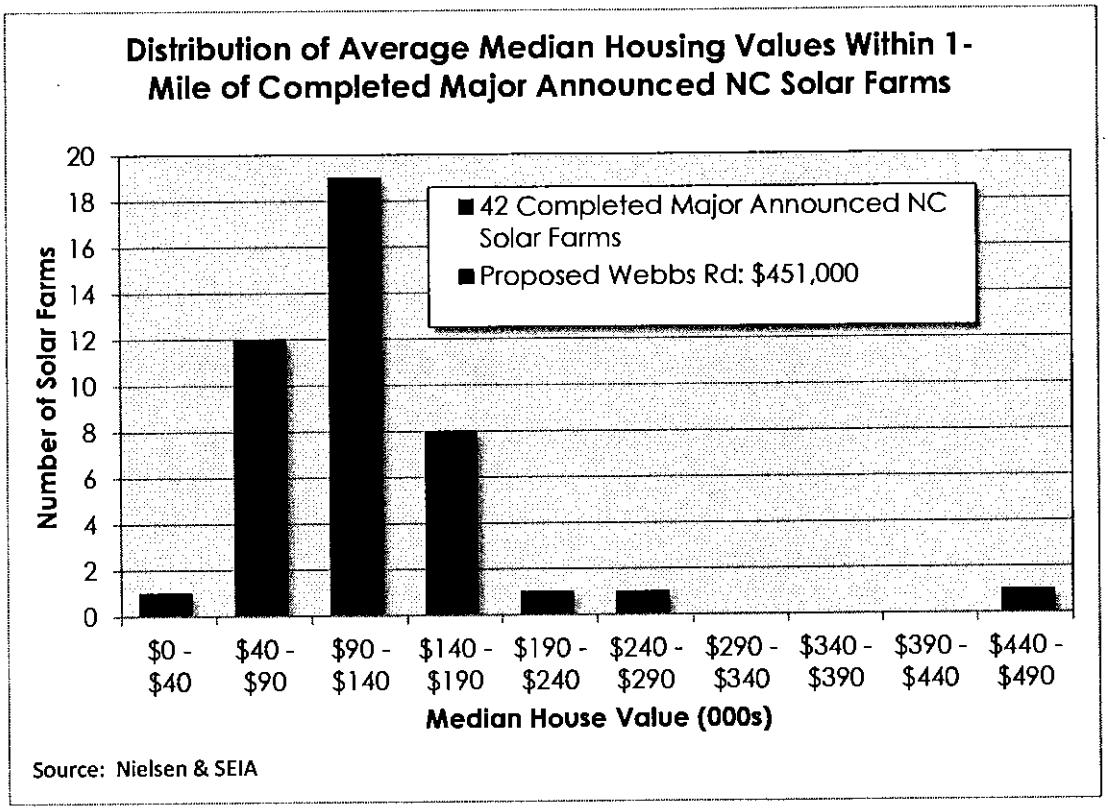
NORTH CAROLINA

Solar power is part of a $3.7 billion clean energy industry in the state. The analysis below shows the demographics of all 42 completed major publically announced solar farms in North Carolina according to SEIA, and compares them to the proposed Webbs Road solar farm, within a one-mile radius.

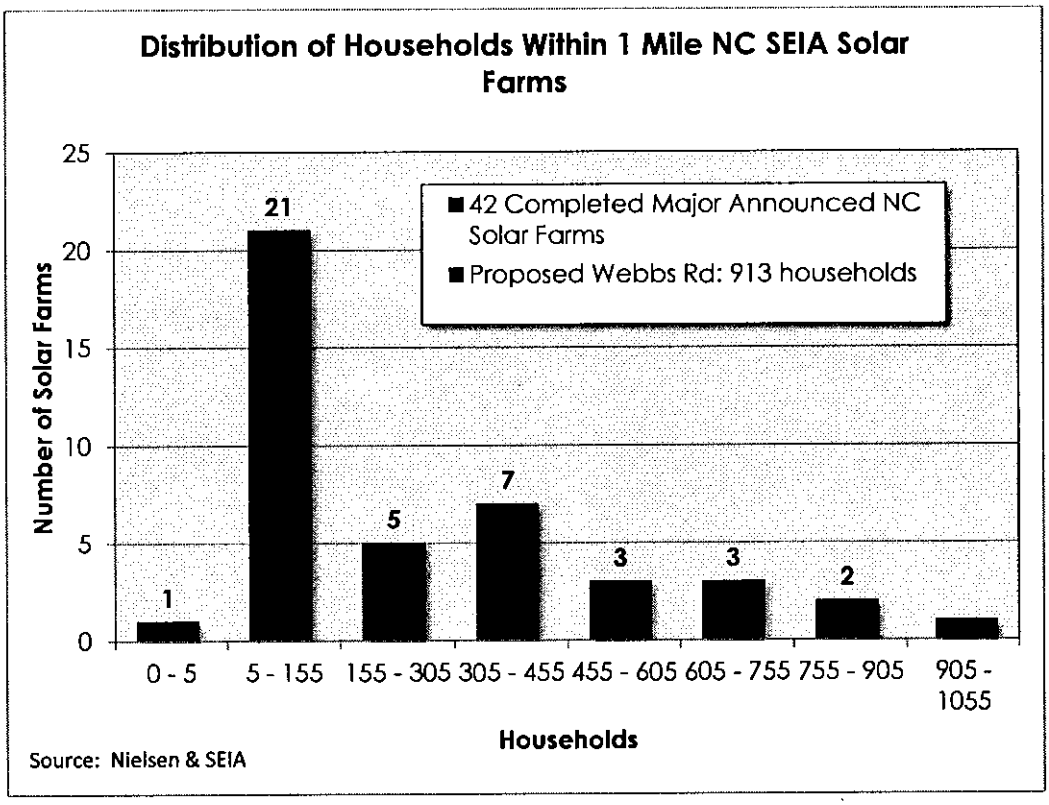
As shown in the graph below, the proposed Webbs Road solar farm is a typical size for major publically announced solar farms, planned for about 5 Megawatts. Typical major publically announced solar farms range from approximately 1 to nearly 20 Megawatts.



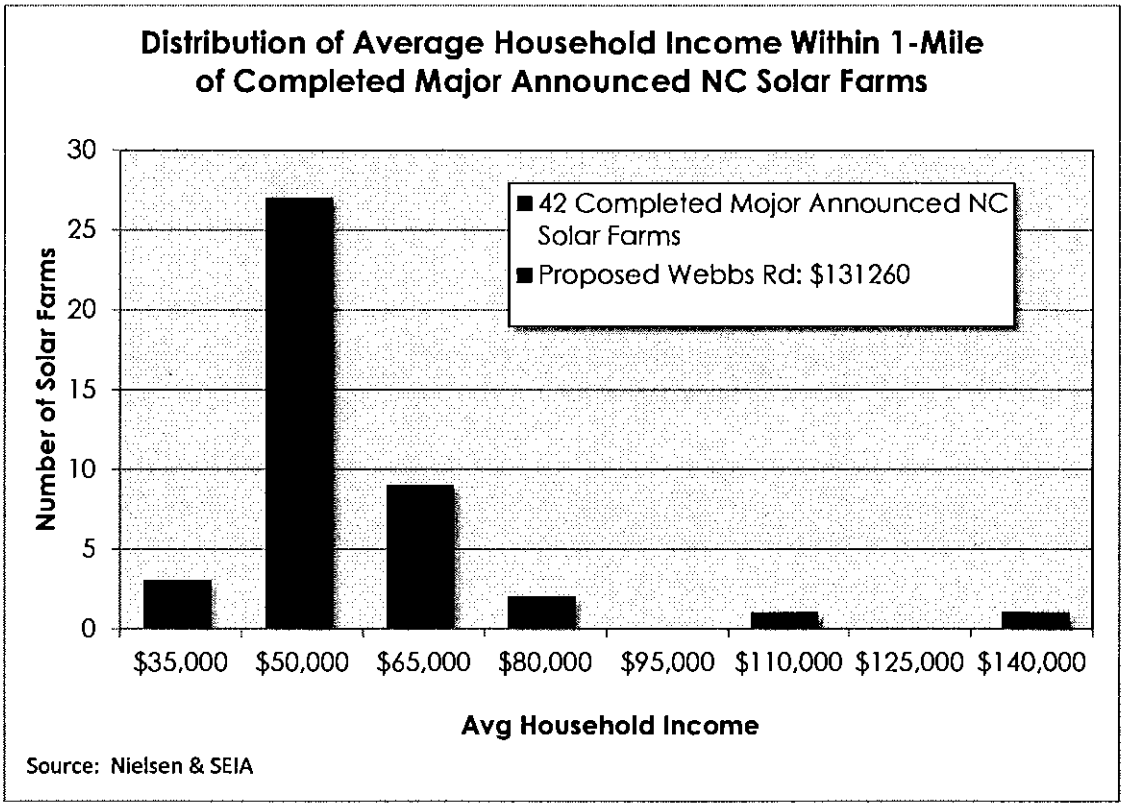
As shown in the graph below, for the 42 completed major publically announced solar farms in North Carolina, the median housing value within a 1-mile radius, ranged from $38,942 to $259,424 , and averaged $113,976. In contrast, the location of the Webbs Road Solar farm had a median housing value of about $451,515, well above the typical range for recently completed solar farms.



As shown in the graph below, the number of households within a one-mile radius from the 42 major publically announced completed solar farms ranged from 2 to 814, and averaged 266 households. Most solar farms are located in areas with less than 155 households, within one mile from the facility. In contrast, the location of the proposed Webbs Road solar farm has 913 households, within a one-mile radius. Again, this is outside the typical distribution range for solar farms locations.



As shown in the graph below, the 42 major publically announced completed solar farms in North Carolina had an average household income within a one-mile radius, ranging from $33,876 to $103,169 , averaging $49,328 annually. In contrast, the location of the proposed Webbs Road solar farm has an average household income within a one-mile radius of $131,260 . Again, this is well outside the range for typical solar farm locations.



Based on the various demographics of typical solar farm locations, the location of the proposed Webbs Road solar farm is not typical of other completed solar farm locations. Solar farms are typically located in rural areas with much lower population and household densities. In addition, these areas tend to have lower housing values and household incomes. In all demographic categories, the Webbs Road solar farm is outside the distribution of the 42 major publically announced completed solar farms in North Carolina.

CONCLUSION

Solar farms are a burgeoning industry both nationally and in North Carolina. Only in the last couple years have we seen the industry expand substantially in North Carolina. At 3.7 billion annually, North Carolina is ranked 4th and 5th respectively for installations and installed capacity. Therefore, as a young industry, there has been a limited amount of time to accumulate data about their effects on residential property values. Based on the above analysis, the proposed Webbs Road solar farm is a typical sized solar farm. However, based on the distribution of households, household income, and median housing values, the Webbs Road solar farm is located in an area atypical from where solar farms are generally located.

DIRECT EVEIDENCE OF IMPAIRMENT OF RESIDENTIAL PROPERTY VALUE OF NON-RESIDENTIAL USES THAT IMPACT VIEW OR THE HOMOGENENITY OF THE NEIGHBORHOOD

This section identifies and presents direct evidence of the impairment of residential property values by neighboring or adjacent non-residential uses. These uses impair the view and/or homogeneity of the residential uses causing significant damage to property value.

AFFECT ON ADJACENT PROPERTY TO WEBBS FARM SOLAR FARM

The following is an actual cancelled sale contract, after a potential buyer was informed of the proposed Strata Solar farm on Webbs Road. In this transaction we verified ownership, the sales contract, and interviewed both the buyer and seller. This transaction demonstrates the significant damage the proposed solar farm has already had on adjacent property values.

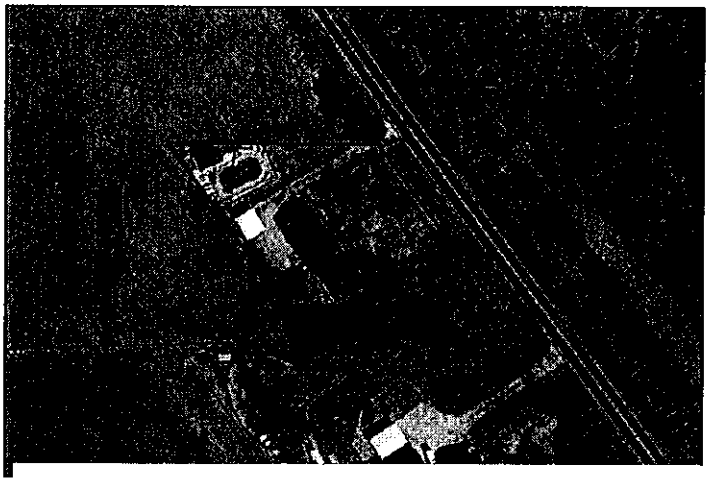
4301 BURTON LANE

Picture of 4301 Burton Lane from Lincoln County GIS

Mr. Daniel Mclean and his wife Martha Mclean currently own the property at 4301 Burton Lane, Denver, NC 28037[1]. The property totals about 0.60 acres, and is located across Burton Lane from Sailview. The dwelling is a split level, containing approximately 1,200 to 1,500 square feet on the main level, and 600 to 900 square feet on the upper level, for a total about 1,800 to 2,300 square feet. The property also has a 24x26 storage building and a swimming pool.

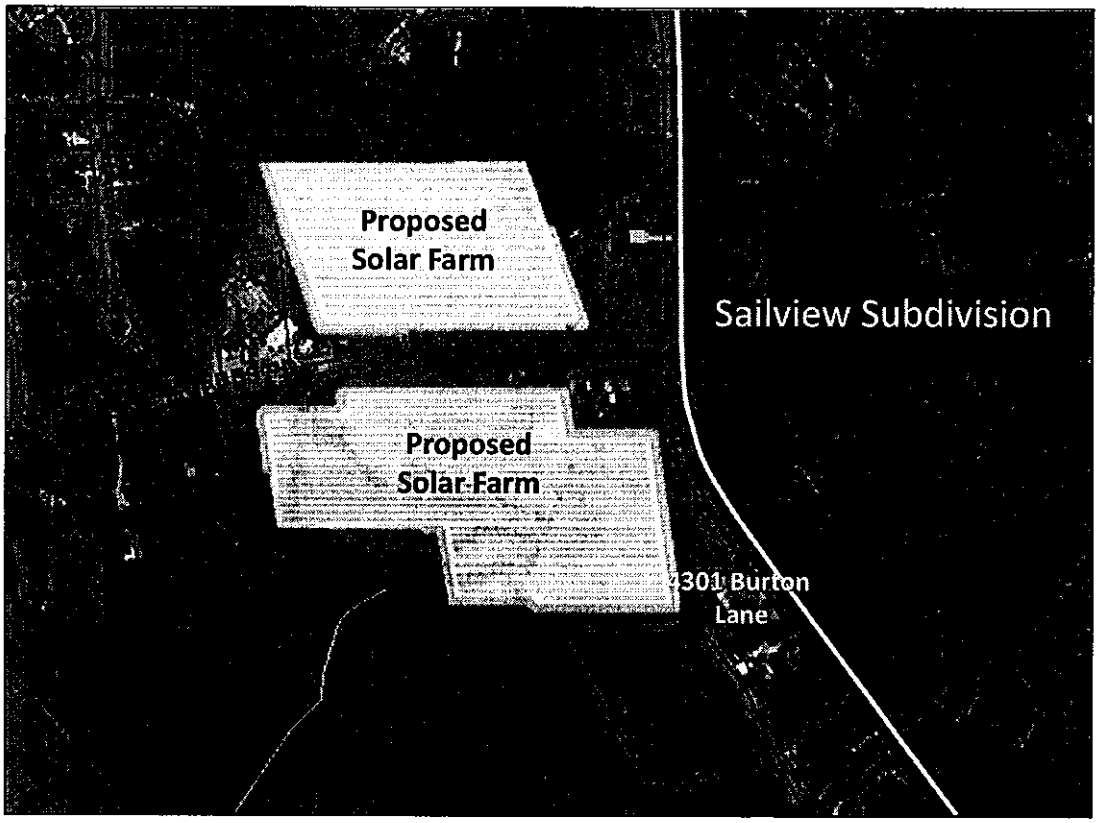
[1] Recorded in Lincoln County Register of Deeds Book/Page 589/479, June 29, 1982.

The owners listed the property for sale in July 2013, with residential real estate broker Marty Wulkhorst at an asking price of $225,000 (MLS #2163652). The Listing sheet is enclosed as an exhibit in this report.



Aerial Picture of 4301 Burton Lane from Lincoln County GIS

In mid-August, 2013, approximately 30 days on the market, the owners received an offer to purchase the property for $200,000 from David Hibben and Christine Hibben. A copy of a portion of the offer to purchase is enclosed within this report. After the contract was signed, the buyers asked to amend the original contract (dated August 22, 2013), changing the end of the due diligence period to October 25, 2013, with settlement on October 30, 2013.



Aerial Showing 4301 Burton Lane, Proposed Solar Farm, and Sailview

During the due diligence period, the general public became aware of Strata Solar's proposed Webbs Road solar farm. According to the seller (Mrs. Martha Mclean), once the general public became aware of the solar farm, Mr. Hibben contacted Mrs.

Mclean, requesting to cancel the contract immediately, due to the proposed solar farm. However, Mrs. Mclean convinced Mr. Hibben to delay cancellation, until immediately prior to the ending of the due diligence period on October 25, 2013. Unfortunately, Mr. Hibben withdrew their offer a few days prior to the end of the due diligence period.

According to Mr. David Hibben, the public announcement of the solar farm was the impetus to cancel the contract. Mr. Hibben is in the construction business. He commented the solar farm would be unattractive, and the view would not be complimentary to single family dwellings. He mentioned he could not justify putting money in a dwelling that would be negatively affected by the solar farm for many years. We asked Mr. Hibben if he would reconsider if the purchase price was reduced by $50,000. He said would not even consider a more substantial reduction in the purchase price.

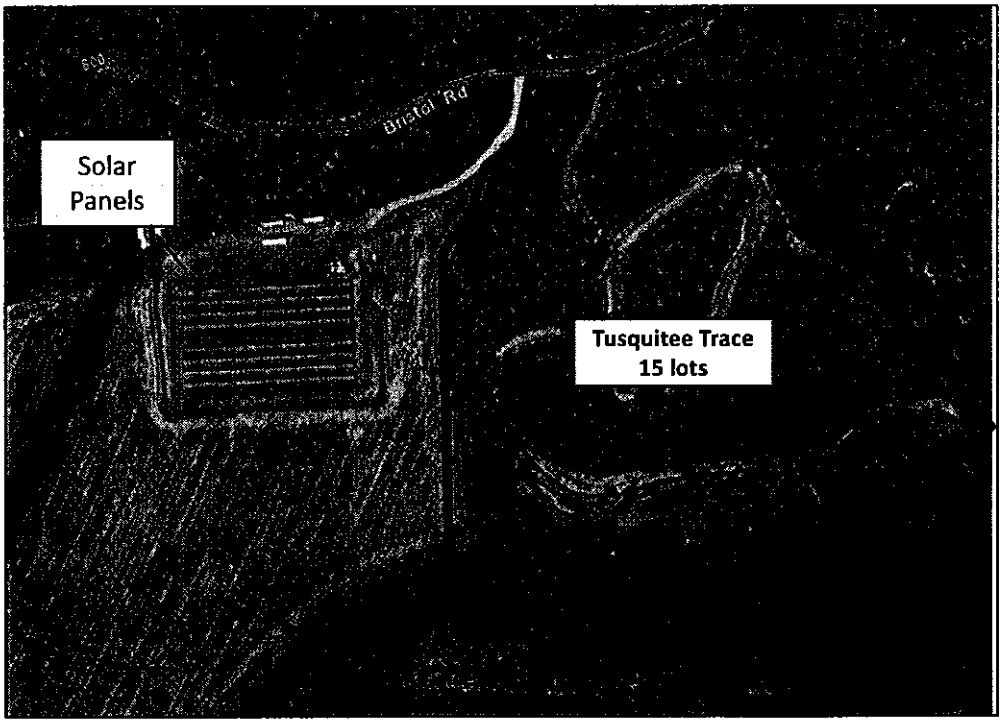
Based on the results of the interviews and information above, we believe this clearly shows just the proposed Strata Solar Farm negatively affected the value of this dwelling. Even with a substantial reduction in purchase price, the buyer would not consider purchasing the property, due to the potential of a future adjacent solar farm. The Sailview neighborhood is directly across Burton Lane from this property, and it appears property values would also be negatively affected by the solar farm.

AFFECT ON ADJOINING PROPERTY

This example shows how a solar farm has affected the sales of lots in a second home subdivision in Hayesville North Carolina.

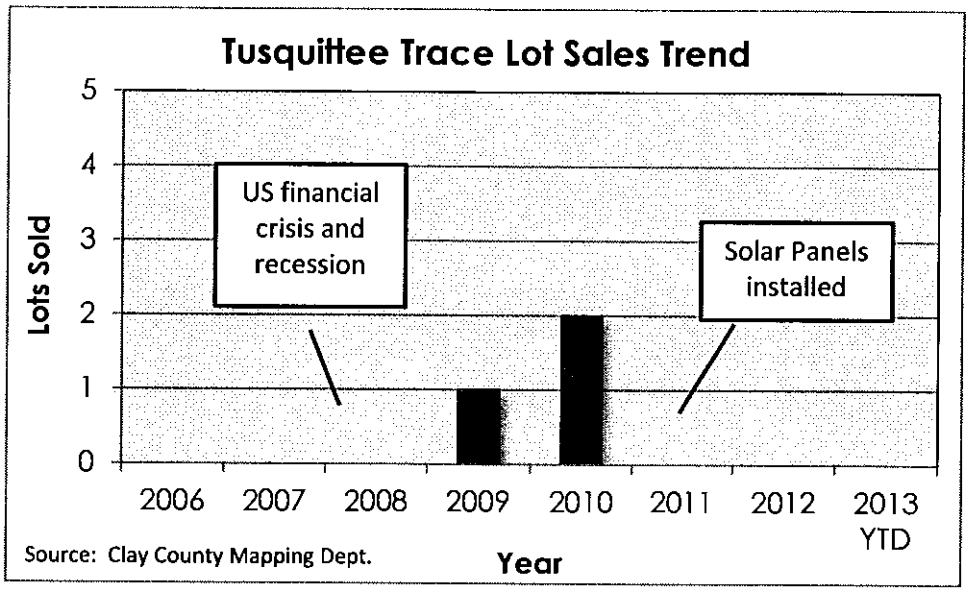
TUSQUITTEE TRACE SUBDIVISION

Tusquittee Trace is a 15-lot subdivision in Hayesville, Clay County, North Carolina. Hayesville consists of mostly second homes for residents from North Carolina, Georgia, and as far away as Florida. The subdivision is located on Bristol Road about three miles north of downtown Hayesville. The subdivision began in 2006 by developer Gary Reffit, and entered the market just before the recent US recession (December 2007 to June 2009). The developer mentioned construction costs for houses will be around $250,000, and total property values are about $325,000.



Aerial of Tusquittee trace and Adjacent Solar Farm

As shown in the graph below, during the recession, no lots were sold. However, once the lingering effects of the recession subsided, the project began selling lots. In 2009 the first lot was sold for $73,000, and in 2010 two lots sold for $75,000 each. In 2011, the adjacent farm owner signed a ground lease for small solar array, taking up a portion of the owner's corn field. Many lots in Tusquittee Trace have a direct view of the solar farm. It is also visible at the entrance, and driving on the interior roads. As shown in the graph on the following page, since the construction of the solar farm, there have been no lot sales in the subdivision.



According to the developer, several real estate brokers have brought potential buyers to look at the lots. However, all the brokers have said buyers are turned off by the solar array on the adjacent farm, and they chose other lots without impaired views.

CLAY COUNTY BOARD OF EQUALIZATION

In June 2011, Clay County residents voiced their concern that solar farms are devaluing their homes values, and wanted the county to enact regulations. The County Commissioner Dan McGlamery told the audience he appealed his property tax value, based on the neighboring solar farm hampering his views. After hearing the arguments from Mr. McGlamery and others, the Board of Equalization granted Mr. McGlamery a reduction in assessed property value. Since, several parcels have had their assessed values reduced, due to proximity to a solar farm. According to Board of Equalization Member, Tina Mallamus, they estimated values were impaired on average by about 30%.

As shown in the table below, the property assessment for 19 parcels have been successfully appealed. Overall, the appeals reduced assessed values by $552,500, and property taxes on those parcels were reduced about 30.8%.

Property Tax Reduction - Hayesville - Clay County					
PIN	Lot	Subdivision Addess	Prior Tax Value	Appealed Tax Value	Difference
5561-00-36-9934	1	Tusquittee Trace	$60,000	$35,700	$24,300
5561-00-47-1013	2	Tusquittee Trace	$60,000	$32,100	$27,900
5561-00-46-0699	3	Tusquittee Trace	$70,000	$36,800	$33,200
5561-00-36-7782	4	Tusquittee Trace	$70,000	$38,000	$32,000
5561-00-46-3665	5	Tusquittee Trace	$75,000	$38,200	$36,800
5561-00-46-2551	6	Tusquittee Trace	$65,000	$35,000	$30,000
5561-00-46-0481	7	Tusquittee Trace	$65,000	$35,000	$30,000
5561-00-36-8452	8	Tusquittee Trace	$70,000	$37,100	$32,900
5561-00-36-6292	9	Tusquittee Trace	$80,000	$45,000	$35,000
5561-00-36-8142	10	Tusquittee Trace	$75,000	$45,000	$30,000
5561-00-46-1152	12	Tusquittee Trace	$75,000	$45,000	$30,000
5561-00-46-2189	13	Tusquittee Trace	$75,000	$45,000	$30,000
5469-00-49-9674	14	65 Chatuga Dam Rd	$112,800	$99,000	$13,800
5469-00-49-6992	15	Chatuga Dam Rd	$61,200	$45,600	$15,600
5469-00-58-0897	16	Chatuga Dam Rd	$192,500	$185,900	$6,600
5469-00-59-3546	17	Chatuga Dam Rd	$87,300	$69,100	$18,200
5469-00-48-9397	18	Chatuga Dam Rd	$49,500	$46,000	$3,500
5570-04-93-0008	19	Hwy 64E	$452,200	$329,500	$122,700
Total			**$1,795,500**	**$1,243,000**	**$552,500**
Tax Rate			**$0.36**	**$0.36**	**$0.36**
Property Taxes			**$6,464**	**$4,475**	**$1,989**
Percent Difference					**30.8%**

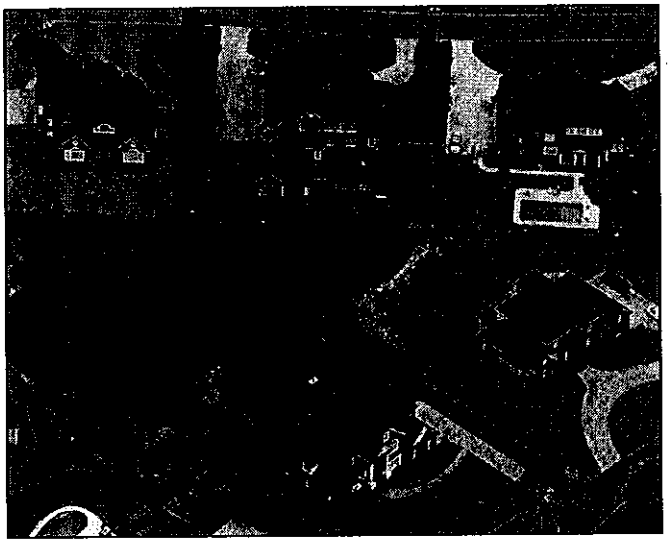
As a result of these and other solar farm issues, the Clay County commissioners, the commissioners passed a solar farm ordinance in October 2011. The ordinance set fencing, setbacks, buffers, and development permit standards. In addition, the commission recognized solar farms can have "***adverse impacts on the value of properties adjacent thereto as well as other properties located nearby.***"

The ordinance included a requirement for safety fencing at least 6 feet in height, including barbed wire above the fencing. All fences must remain gated and locked at all times. Setbacks are generally 100 feet from property lines, streams, or roads. In addition, evergreen buffers of 6 feet in height are required

IMPAIRMENT BY OF VIEW BY NON-RESIDENTIAL USE

In addition to obtaining direct evidence of solar farms impairing residential property values, we also analyzed the very similar case of a commercial use locating adjacent to a higher-priced subdivision to show how an incompatible commercial use in a neighborhood significantly impairs nearby residential property values.

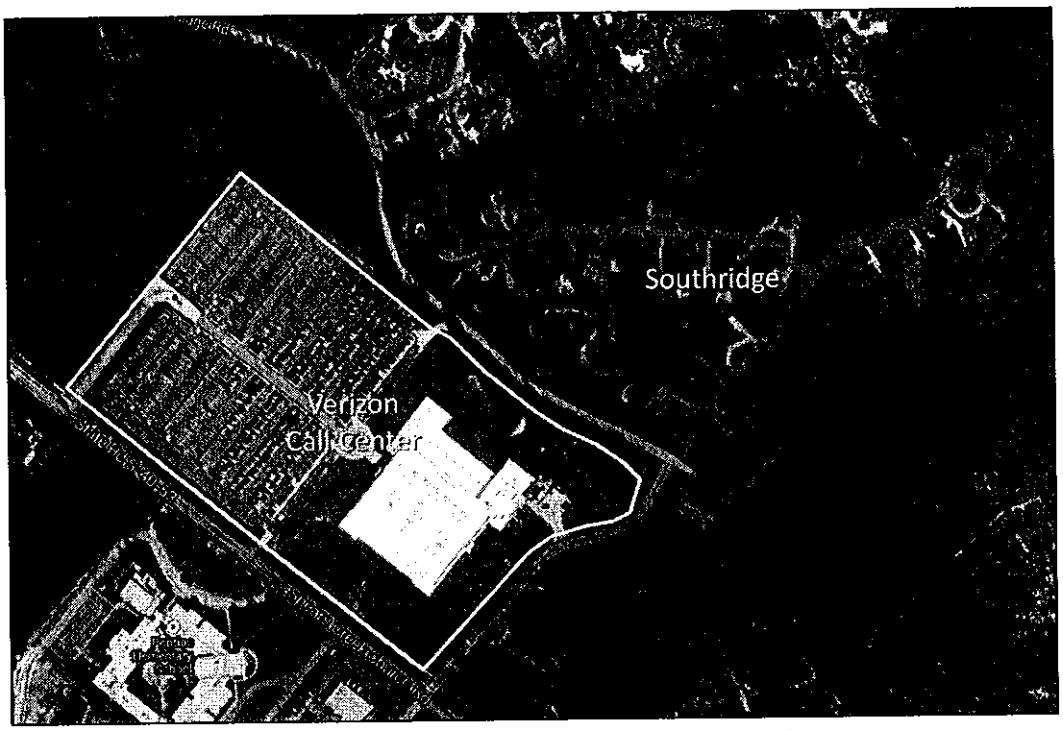
SOUTHRIDGE



Typical houses in Southridge

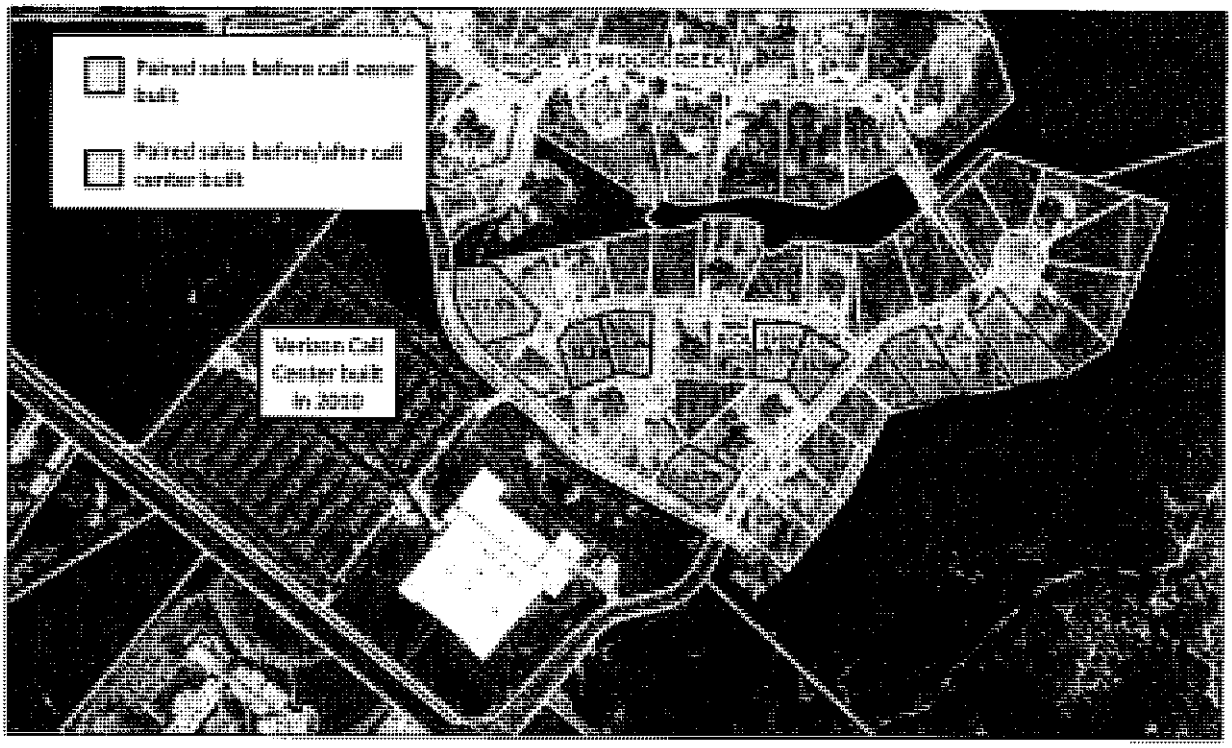
The Southridge community is located in Elgin, Richland County South Carolina. It is a gated community, with houses ranging from about $400,000 to $800,000. The houses were built in the mid-2000s, and range in size from just over 4,000 to almost 8,000 square feet. This is similar to the Sailview community.

As shown in the aerial below, in the fall of 2010, Verizon Wireless completed a 146,000 square foot call center on about 29 acres adjacent to Southridge, across Woodcreek Ridge Drive. The call center is not adequately buffered, and the houses along Woodcreek Ridge Drive, built before the call center, now have a direct view of it from the second story.



Aerial showing Southridge and Verizon Call Center

The aerial below shows a number of matched paired sales in Southridge. All the matched paired sales, before the call center was built, show price appreciation. In contrast, all matched paired sales, with a sale before and after the call center was built, show a value decline. The decline was experienced not only by houses with a direct view of the call center, but all houses with paired sales in Southridge.



Aerial showing location of paired sales in Southridge

The table below shows all the recent matched paired sales in the Southridge. The appreciation in housing prices, before the call center was built, ranged from 9.6% to 27.5%, and averaged 21.3%. The matched paired sales, before/after the call center was built, showed a decline of 10.7% to 23.1%, and averaged 15.2%.

Matched Paired Sales in Southridge - Elgin, Richland County, SC Effect of Adjacent Verizon Call Center - Built in 2010							
TMS	**Number**	**Street**	**HLA**	**Sale date**	**Sale Price**	**Price/SF**	**Verified**
R28804-01-19	113	Southridge Way	4,254	12/14/2006	$540,000	$126.94	Yes
R28804-01-19	113	Southridge Way	4,254	3/3/2013	$468,000	$110.01	Yes
			Total Difference		($72,000)	($16.93)	
			% Difference			**-13.3%**	
R28804-01-20	205	Southridge Drive	4,030	10/15/2007	$575,000	$142.68	Yes
R28804-01-20	205	Southridge Drive	4,030	4/17/2009	$630,000	$156.33	Yes
			Total Difference		$55,000	$14	
			% Difference			**9.6%**	
R28804-01-26	219	Southridge Drive	3,957	4/6/2005	$615,951	$155.66	Yes
R28804-01-26	219	Southridge Drive	3,957	2/6/2012	$520,000	$131.41	Yes
			Total Difference		($95,951)	($24.25)	
			% Difference			**-15.6%**	
R28804-01-27	223	Southridge Drive	4,500	5/8/2006	$715,491	$159.00	Reliable source
R28804-01-27	223	Southridge Drive	4,500	8/4/2010	$550,000	$122.22	Reliable source
			Total Difference		($165,491)	($36.78)	
			% Difference			**-23.1%**	
R28804-01-29	228	Southridge Way	4,866	8/2/2006	$650,000	$133.58	Yes
R28804-01-29	228	Southridge Way	4,866	7/3/2007	$829,000	$170.37	Yes
			Total Difference		$179,000	$37	
			% Difference			**27.5%**	
R28804-01-45	128	Southridge Way	7,581	8/20/2008	$541,402	$71.42	Reliable source
R28804-01-45	128	Southridge Way	7,581	2/2/2010	$686,250	$90.52	Yes
			Total Difference		$144,848	$19	
			% Difference			**26.8%**	
R28804-01-47	120	Southridge Way	4,150	12/8/2008	$480,500	$115.78	Yes
R28804-01-47	120	Southridge Way	4,150	6/28/2012	$417,000	$100.48	Yes
			Total Difference		($63,500)	($15.30)	
			% Difference			**-13.2%**	
R28804-01-54	101	Southridge Way	4,087	2/18/2005	$528,700	$129.36	Reliable source
R28804-01-54	101	Southridge Way	4,087	9/6/2011	$472,000	$115.49	Yes
			Total Difference		($56,700)	($13.87)	
			% Difference			**-10.7%**	

Overall, this example shows a commercial use, not in harmony with surrounding residential land uses, causes a significant loss in housing values. The values of the houses are impaired significantly for the higher-priced homes. Furthermore, the adjacent commercial use affects not only the houses with a direct view, but all the houses in the community.

SURVEY METHOD

We surveyed market participants, including real estate brokers, appraisers, and developers both locally in Denver, North Carolina and in Hayesville, North Carolina, mentioned earlier in this report. Below are the results of our interviews with these market participants.

LOCAL DENVER MARKET PARTICIPANT

We contacted several local market participants, including residential real estate brokers, active in the immediate area, to obtain a consensus of the effect a solar farm would have on housing values. Overall, the brokers agreed a solar farm would negatively impact property value in Sailview. Furthermore, the impact of the solar farm would be more severe, due to area's average housing values. In addition, brokers agreed if the solar farm is sufficiently hidden by setback, berms, and landscaping, residential property values would most likely not be impacted.

FRANCES DAWSON (RE/MAX EXECUTIVE REALTY AT THE LAKE): Ms. Dawson previously lived in Sailview, and has several listings for both land and houses. She mentioned the potential solar farm will have a negative impact on housing values in Sailview. Due to the community activism, bringing the potential solar farm to the public forefront, she has begun receiving questions from buyers about the solar farm. She also fields question from buyers about the other commercial uses along Webbs Road, before entering the subdivision. She said the solar panels will have a negative impact on housing values, if they cover a large area and they are visible, creating more visual pollution along Webbs Road.

Ms. Dawson mentioned residents from Sailview are still trying to recover from the recent recession, and housing prices are finally increasing. The existence of the solar farm will make the houses in Sailview less competitive, with potential buyers looking at competing subdivisions, including Lakeview, West Bay, Pebble Bay, and Westport. However, she believes the farm could be a good neighbor if the panels can't be seen. The panels do not move, and do not emit any distasteful odors. She believes if the homeowners work with the Mr. Dellinger and construct an earth berm buffer with additional landscaping, residents would not see the solar farm and other motorists would not even know it was there. She mentioned possibly using a similar earth berm and landscaping as used at Sailview might be sufficient.

NADINE DEASON (ALLEN TATE REALTY): Ms. Deason previously lived in Sailview, and is one of the top recognized brokers in the Lake Norman area, selling homes in higher-priced subdivisions. She has sold houses in Sailview and currently has multiple house and lot listings there. She believes the solar farm will have a devastating effect on housing values in the community, possibly reducing values up to 30%. She does not believe the solar farm would be in harmony with the area. As an industrial use, it would add to the detrimental uses, already located on Webbs Road. She mentioned she fields concerns about the existing commercial and industrial uses on Webbs Road. Potential buyers ask if there is another way to access the community. Since the solar farm has become public knowledge, she is now required to disclose the potential solar farm on the North Carolina Residential Property Disclosure Form.

She mentioned as a luxury resort community, the negative effects of a solar farm are more pronounced than in rural communities. Potential buyers have begun showing apprehension about buying homes in Sailview, due to the potential solar farm. Although buffering the solar farm from view is an option, she doesn't think it would be feasible to add sufficient landscaping including berms, trees and shrubs, to completely conceal the solar farm from view.

JANE RODDY (ALLEN TATE): Ms. Roddy is a real estate broker who sells houses in Sailview, and also lives in the community. Ms. Roddy believes potential buyers will be turned-off by the solar farm at the entrance, and it is not in harmony with the surrounding land. If the solar farm is approved, she will seriously consider selling her house in Sailview. The solar farm in addition to the concrete plant and Sani-Can business will combine to depress the homes values. Currently, sellers in the neighborhood are concerned about their housing values, and potential buyers already complain about the existing industrial uses on Webbs Road before the entrance.

DEBBIE BEAM (LAKE NORMAN – RE/MAX EXECUTIVE REALTY): Ms. Beam lives in the neighboring Governor's Island community, with homes starting at $1 million. She grew up in Lincoln County, and has listings in Governor's Island, Lakewood, Norman Pointe, and West Bay. Ms. Beam cannot see how the solar farm would be a positive attribute to the area or the Sailview community, and expects housing values to decline if the solar farm is built. She also believes the solar farm will negatively affect the other neighboring communities in the area, since Webbs Road is the primary access road for the entire peninsula. She mentioned it is already difficult to convince buyers to purchase a house on the west side of the lake. The solar farm will make it much more difficult for future residential sales on the entire peninsula. Buyers at this price range are more discriminating, and will choose other communities not on the peninsula. She also mentioned she does not believe landscaping

alone will completely conceal the solar farm from view.

MARCIA HERRING (ALLEN TATE): Ms. Herring is a local real estate broker who lives on the peninsula, and would have to drive by the proposed solar farm daily. She said it is hard to determine the effect a solar farm would have on residential property values, but it would most likely be a negative impact. She mentioned as both a home owner and real estate broker in the area, she sees the area as fairly forgiving regarding adjacent property uses. As an example she mentioned a doublewide may be located next to a mansion. She feels initially fear will significantly negatively affect residential values, but she is unsure if this would be permanent. She would prefer not to see the solar panels at this site, mentioning there are less populated more rural areas in Lincoln County for a solar farm. However, she understands the land owner has a right to develop and use his land. She believes effective landscaping could possibly mitigate the view issues, but is unsure if it could conceal the chain-link and barbed wire fence around the site. Overall, she believes it would negatively affect property values.

BILL AHLS (NHB GROUP, INC): Mr. Ahls has a limited service lot listing in Sailview. He had not heard of the potential solar farm, and had not heard anything about it from either the seller or a potential buyer. He does not feel the solar farm will affect housing values, unless the panels are tall and dominate the field of view.

DAVID DISABATO: Mr. Disabato is not a broker, but is selling his home as the homeowner. He is selling his home which he purchased in 2005. He mentioned homes usually sell fairly quickly in Sailview, but he has had only a few inquiries on his home. He mentioned everyone is well aware of the potential solar farm, and he feels it will have a negative impact on housing prices in the neighborhood. He is concerned that any type of commercial development at the entrance of the subdivision would have a negative impact on housing prices.

CLAY COUNTY MARKET PARTICIPANTS INTERVIEWS

We also spoke to several real estate market participants about the effects of solar farms in Clay County. As mentioned later, Clay County has enacted regulations after residents voiced their disapproval about solar farms constructed adjacent or nearby their properties. Below are summaries of each interview. Overall, the interviewees agreed solar farms reduce property values, especially for higher-priced homes, with more discriminating buyers. They agreed the solar farms affect property value by impairing a property's view.

GARY REFFIT: Mr. Reffit is a real estate developer whose Tusquittee Trace subdivision is directly impacted by an adjacent solar farm. According to Mr. Reffit, multiple real estate brokers commented the solar farm pushed away potential buyers. There are hundreds of lots available in Clay and the surrounding counties, and typical second home buyers prefer lots with unadulterated scenic views. With such a large supply of competitive scenic lots, even a small solar farm makes his lots uncompetitive in the market. He mentioned it is similar to having a view of a pig farm. He mentioned Clay County does not have zoning, and the adjacent land owner was able to put in a solar farm without requiring approval. He mentioned if solar farms are buffered and out of direct view, he does not think they will affect property value or competitiveness. Mr. Reffit was able to get his property tax value reduced on the Tusquittee Trace lots, due to their proximity to a solar farm.

SONJA SILVERS: Ms. Silvers is a native of Hayesville, and real estate broker who owns Sonja Silvers Realty Group. Ms. Silver's feels if a solar farm is in direct view, it significantly detracts from the property value. She mentioned Hayesville is a second-home area, and buyers will not sacrifice their views. With several lots to choose from, any lot with even partially impaired by a solar farm will be uncompetitive. Further, with continued high construction costs, buyers are selecting existing homes over new construction. This further reduces demand, making lots even more competitive. Ms. Silvers, is not against having solar farms in the area, but she feels they need to be in areas not visible by home buyers.

TINA MALLAMAS: Ms. Mallamas is a residential real estate appraiser and realtor in Hayesville. She is also on the Clay County Board of Equalization. Ms. Mallamas said there is not enough information to show quantitatively how much residential property values are impaired being adjacent to a solar farm, but based on the consensus from several property owners and real estate brokers, she estimates land value is impaired about 30%.

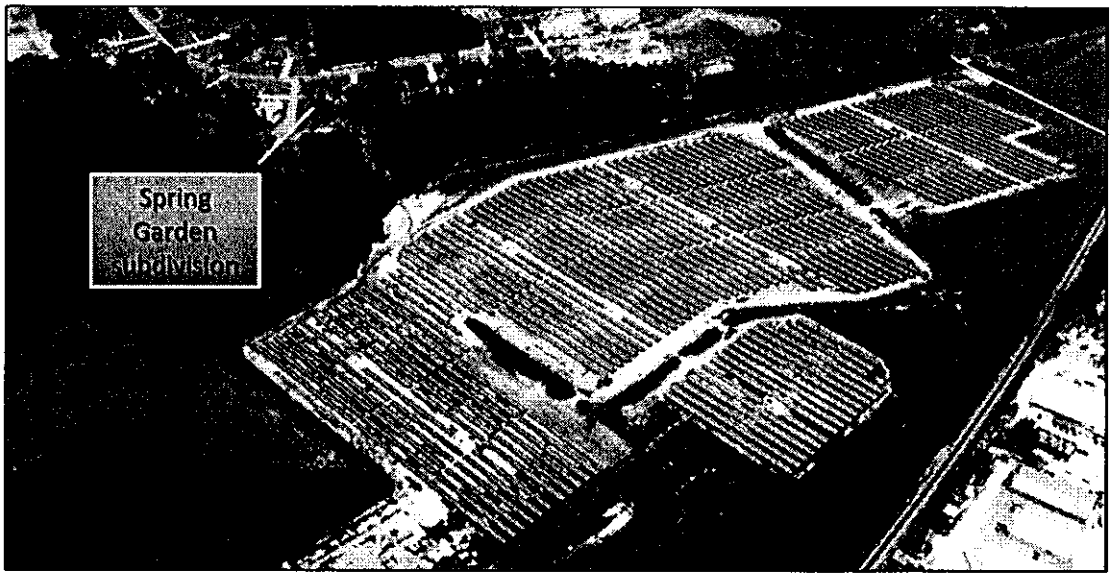
CRAIG STAFFORD: Mr. Stafford is a real estate broker with at Coldwell Banker, with several lot listings in the Bristol Ridge subdivision neighboring Tusquittee Trace. Mr. Stafford mentioned he has not seen any evidence of the nearby solar farm affecting his lot listings, but if the lots had a direct view of the solar farm, they would be significantly impaired. However, he does not believe the lots in Bristol Ridge are impaired, due to their proximity to the solar farm. He mentioned there is a large supply of competitive lots, and by the principle of substitution, a typical buyer would choose another lot over one with a view impaired by a solar farm.

EFFECT ON MODESTLY PRICED HOUSES

The example below shows solar farms appear to have a diminishing or no negative impact on residential property at lower housing values. As mentioned previously by real estate brokers, higher-priced house buyers are fairly discriminating, and an uncompetitive property will struggle to sell at those market levels. The example below, shows buyers of more modestly-priced houses appear to be less discriminating about adjacent or nearby commercial uses.

AM BEST SOLAR FARM

One of the few solar farms in North Carolina, adjacent to a developing neighborhood, is the AM Best Solar farm in Goldsboro, Wayne County, North Carolina. The project was completed by Strata Solar and totals approximately 6.65 Megawatts. The facility was constructed on vacant land adjacent to the Spring Garden subdivision. Facility construction lasted 14 weeks, beginning in March, 2013, and completed in June 2013.



Aerial of AM Best Solar farm and adjacent Spring Garden

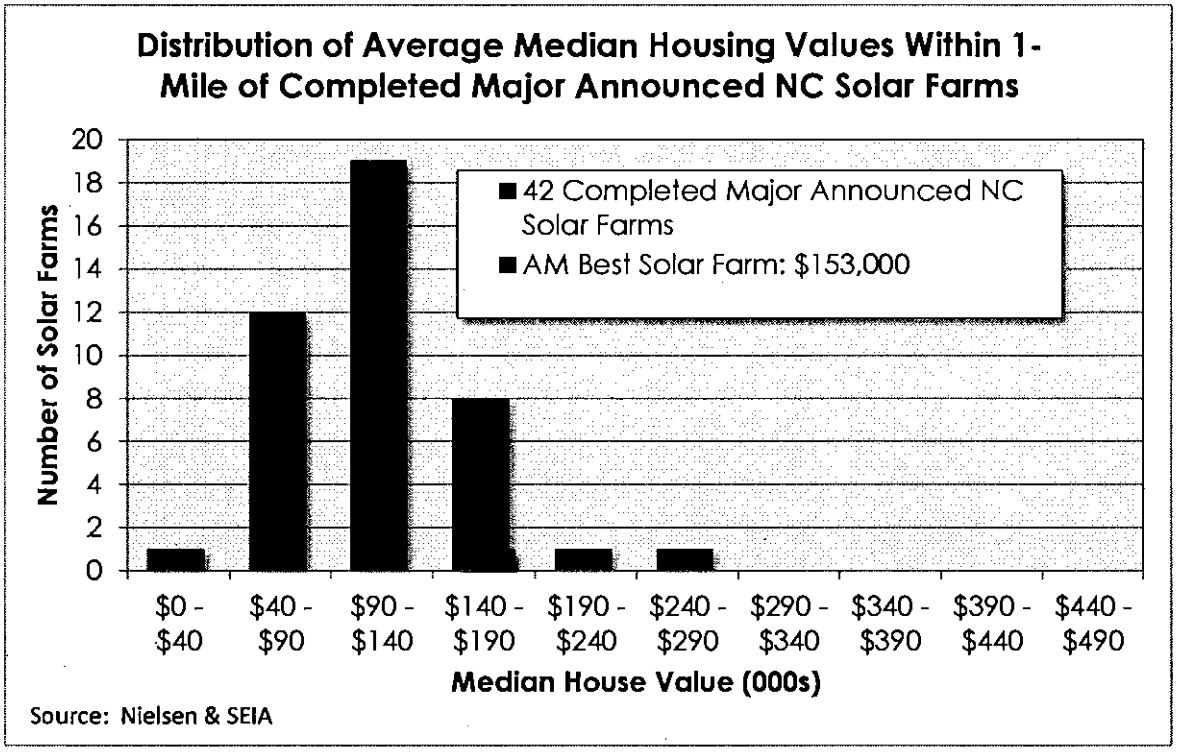
According to the Goldsboro Planning Department, the AM Best Solar Farm is currently zoned I-2 (General Industrial). Although the planning department could not verify when the property was rezoned to I-2, it appears the property has been zoned I-2 for several years. The definition of the I-2 zoning classification is shown below.

General Industry - I-2

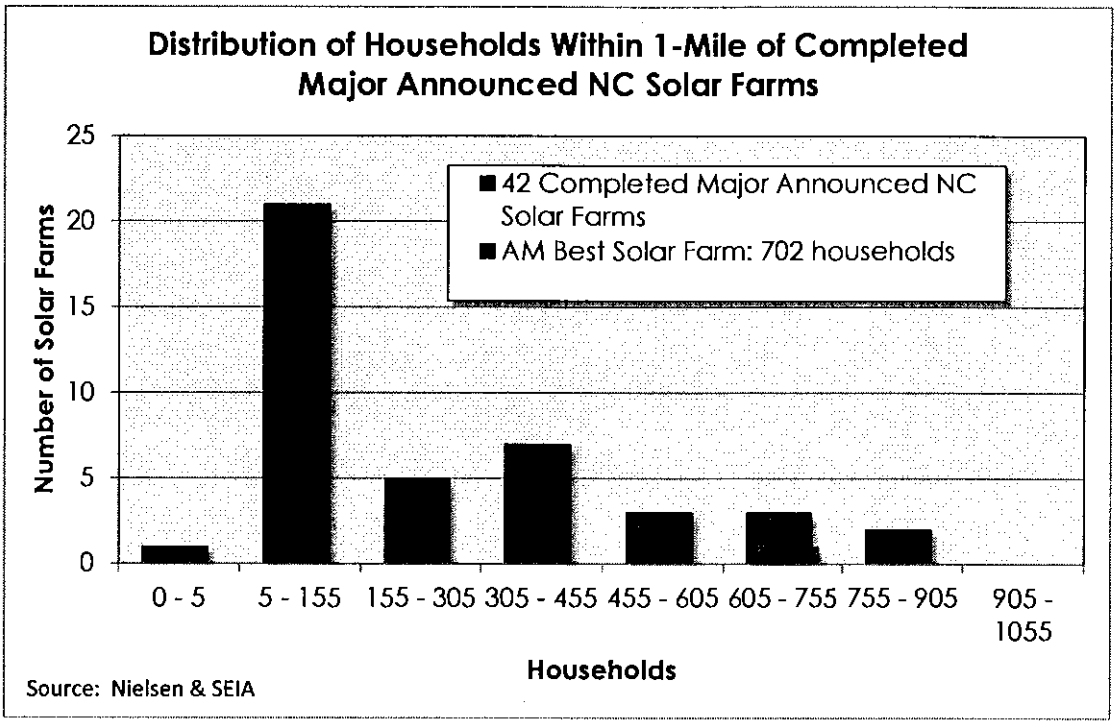
The General Industrial district is established to accommodate the widest range of manufacturing, wholesale and distribution uses, provided the use does not create smoke, dust, noise, vibration or fumes beyond the lot line. The district also prohibits those uses that would interfere with the future development of industrial establishments. There is no minimum lot size.

Based on the permitted uses, various commercial uses are possible for the site, past and present home buyers understand and expect a commercial use would eventually be put on the site.

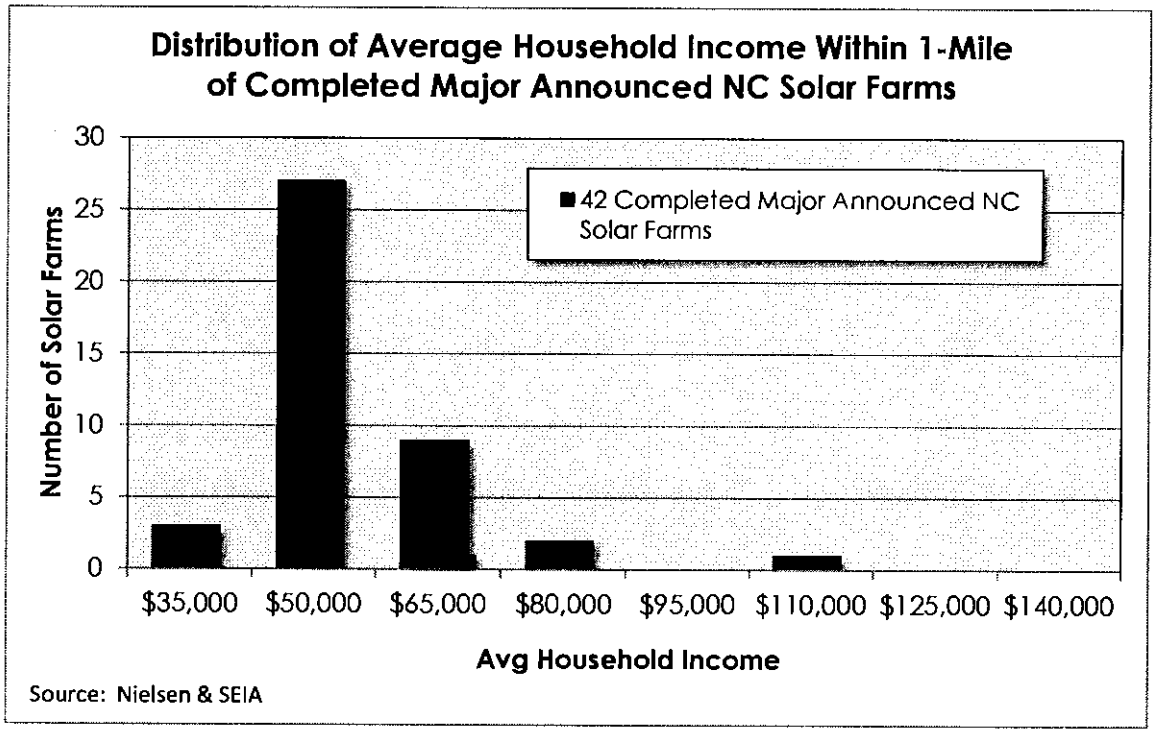
As shown in the graph below, the median housing values, within a 1-mile radius of the AM Best solar farm, are about $153,000, typical for solar farms in North Carolina.



As shown in the graph below, the AM Best solar farm is located in an area with a housing density of 702 houses within a one mile radius typical of other facilities.


Distribution of Households Within 1-Mile of Completed Major Announced NC Solar Farms
Number of Solar Farms
25
20
15
10
5
0
42 Completed Major Announced NC Solar Farms
AM Best Solar Farm: 702 households
0 - 5
5 - 155
155 - 305
305 - 455
455 - 605
605 - 755
755 - 905
905 - 1055
Households
Source: Nielsen & SEIA

As shown in the graph below, the AM Best solar farm is located in an area with average household income of about $51,543, typical of other solar farm locations.



SPRING GARDEN

Typical house in Spring Garden

The Spring Garden subdivision began in the late 1990s and currently has nearly 60 home sites. Current listings range from about $237,000 to $260,000 for houses ranging from about 3,200 to 3,500 square feet. The builder is H&H Homes, which has purchased several lots from the developer. The community does not have any amenities. Past and current home buyers understand the subdivision is located adjacent industrially zoned land.

As shown in the table below, both the house size and average sale price per square foot increased from 2012 to October 2013. The average sale price per square foot in 2012 was $72.86, and in 2013 to date it was $73.82. The average heated living area of the houses increased in 2013 to date from 3,155 square feet to 3,380 square feet.

Residential Sale Summary - Spring Garden			
	House	Avg	Avg
Year	Sales	Price/SF	HLA (sq ft)
2010	1	$100.54	2,606
2011	0	N/A	N/A
2012	6	$72.86	3,155
2013 YTD	9	$73.92	3,353

Note: Sales as of October 2013

BROKER OPINIONS

We contacted the two real estate brokers selling houses in Spring Garden to obtain their opinion on the effect of the solar farm on the community.

COEY GALLIMORE (COLDWELL BANKER): Ms. Gallimore has sold homes in Spring Garden and has multiple listings their currently. According to Ms. Gallimore, there has been no dissatisfaction with any buyers about the adjacent solar farm. She currently has three houses under contract, and none of the buyers has mentioned the solar farm as being an issue. She mentioned the houses currently being sold do not have any view of the solar farm as they are buffered by trees. However, home owners may see the solar farm in the winter months. She believes in this price range, buyers prefer an adjacent solar farm to a

chicken or hog farm.

BRUCE GATES (COLDWELL BANKER): Mr. Gates also sells homes in Spring Garden and currently has multiple listings in the community, with houses currently under construction. Mr. Gates also said there has been no concern over the adjacent solar farm from potential buyers. Mr. Gates conceded up until now, buyers had no direct view of the solar farm. However, future buyers will have a direct view of the solar farm from at least the second story. He mentioned other neighboring uses typically cause more concern for buyers, including a graveyard.

CONCLUSION

Although the sale prices per square foot in Spring Garden have not experienced a decline to date, the solar farm was only completed in June 2013. According to brokers, none of the recent buyers had houses with a direct view of the solar farm. However, future buyers will have the solar farm in direct view as the remaining lots do not have a tree line buffer. In addition, brokers mentioned buyers in this price range are not as discriminating, satisfied the adjacent property is not a chicken or hog farm. Past and current buyers understand the subdivision is located adjacent to industrial zoned land, and expect a commercial use could be located adjacent to the subdivision. Overall, until more sales are tabulated, including sales with a view of the solar farm, it is too early to make a determination as to the effect of the solar farm on Spring Garden's housing values. However, evidence currently suggests there is no impact on value in this price range.

LITERATURE AND STUDIES

Solar farms are still a bourgeoning industry, and there is a lack of literature or analytical studies to more fully understand their impact on property value. Therefore, as a proxy to solar farms, we researched published studies on high voltage power lines and wind farms which are shown to impair the residential property values.

The studies below are comprehensive studies using advanced statistical methods over long time periods to accurately quantify the effects of these adjacent or nearby uses on residential property values. Overall, the studies are mixed, but some conclude these uses impair residential property values. The extent of impairment is appears proportional to the property's value, and proximity and not just a direct view impair value. In addition, smaller properties and less unique properties were more seriously affected.

• In 2008, S. Bottemiller, MAI, and M. Wolverton, Ph.D., MAI published a study titled **The Price Effects of HVTLs[2] on Abutting Homes**. In the study, they analyzed single-family house sales in the Portland, Oregon and Seattle, Washington areas from 2005 through the first half of 2007. It covered 538 house sales in Portland and 568, and 1,136 house sales in King County, Washington.

The study confirms the findings of previous studies. It found that more typically priced homes revealed a very small negative and statistically insignificant HVTL price effect. However, the HVTL effect for higher-priced home (mean sales price of $1,035,105) is substantial and highly significant. The study concluded using a multi-variate regression analysis that higher priced homes abutting an HVTL sold for about 11.225% less. This equated to a difference of $130,882. The study also concluded that HVTL proximity had no effect on the rate of change in home prices in the Seattle market during the study period.

• In 2012, James A. Chalmers, Ph.D., completed a study titled, **High-Voltage Transmission Lines and Rural, Western real Estate Values**. The 11-year study looked at the impact of transmission lines on sale prices and time on the market. Data was collected across 640 miles and 15 counties in Montana, and includes sales of rural subdivisions, agricultural, recreational, and mixed-use properties. Unlike other studies, this one examined the effect of transmission lines on specific properties.

According to the results, the impact of transmission lines on property sales varies by use, size and uniqueness. Recreational and agricultural properties were not affected, but

[2] High Voltage Transmission Line

some residential properties sold for 20% to 50% less than comparables. Smaller properties are more vulnerable to transmission lines, unlike larger properties where the lines tend to interfere less with the use of the property. If a property affected by transmission lines is similar to other competing properties not affected, it is more likely to sell for less and take longer to sell.

• In 2011, Martin D. Heintzelman and Carrie M. Tuttle completed an analysis titled, **Values in the Wind: A Hedonic Analysis of Wind Power Facilities**. Mr. Hientzelman is Assistant Professor, Clarkson University School of Business. The analysis used 11,369 arm's-length property transactions over 9 years in northern New York to explore the effects of new wind turbine facilities on property values. They used a repeat sales fixed-effects hedonic analysis to reach their conclusions.

The results concluded that nearby wind facilities significantly reduce property values. Houses within one mile of the nearest turbine had price decline of between 7.73% and 14.87%. Houses within one-half miles from the nearest turbine had a price decline of between 10.87% to 17.77%. In addition, the findings showed the negative impact decreased as the distance from the nearest turbine increased.

GROWING PUBLIC OPPOSITION

The examples below show growing public opposition to solar farms in North Carolina. In each example, the local municipality denied or voted against a proposed solar farm. The decisions are generally based on solar farms ***not being in harmony with the surrounding land uses***, and a likely ***reduction in property values***.

• In April 2013, the Robeson County Board of Commissioners denied a permit to establish a solar farm near Rowland. Carolina Solar Energy, a green energy company in Durham, requested a conditional use permit to build a five-megawatt solar farm on 64 acres, outside Rowland in Robeson County. Several adjoining property owners questioned ***the depreciation of property values***, the visibility of the more than 26,000 panels, and that the proposed site is on fertile farming land.[3]

• In April 2013, the Laurinburg City Council denied the development of a solar farm off U.S. 501. The 4-1 vote was taken shortly after a four-hour public hearing. Strata Solar, a Chapel Hill company, petitioned to install 26,000 panels on 30 acres within the city's extraterritorial jurisdiction. Councilman Kenton Spencer made the motion to deny the request, based on expert testimony that could ***not disprove property values wouldn't be negatively affected,*** and it ***was not in harmony with the surrounding community.***[4]

• In May 2013, the Moore County Planning Board rejected a proposed text amendment to the county zoning ordinance that would have allowed solar farms. The unanimous decision hinged on federal and state tax credits subsidizing more than half the solar farm construction costs. The board did not want to promote that use of government funds, with taxpayers subsidizing the construction. The Planning Board was also concerned who would be responsible for decommissioning the equipment, once it exceeded its useful life. The Board was concerned there would eventually be abandoned solar farms, similar to the abandoned wind farms in the Midwest. Argand Energy Solutions in Charlotte had submitted plans for two five-megawatt solar farms outside Eagle Springs, and Strata Solar in Chapel Hill planned a seven-megawatt project on N.C. 24/27 east of Carthage.[5]

• In October 2013, two solar farms planned for Yadkin County are heading to a Nov. 19 public hearing after complaints were filed with the N.C. Utilities Commission. Strata Solar

[3] http://www.fayobserver.com/articles/2013/04/02/1247640
[4] http://fayobserver.com/articles/2013/04/18/1251103
[5] http://thepilot.www.clients.ellingtoncms.com/news/2013/may/15/county-board-rejects-solar-farm-plans/

proposed both solar farms would be about 5 megawatts. The November hearings are set for the Yadkinville Town Hall. Filers listed six primary reasons for denying the application: ***devaluation of property values; harm to neighborhood appearance;*** addition of fencing; erosion and run-off concerns; construction noise and inconvenience; and lack of buffer zone.[6]

• In September 2013, the Shelby City Council voted down a rezoning request to allow a solar farm to be built on Earl Road. Opponents contended the solar panels would change their views and would ***reduce the value of their properties***. Members of council voted against the rezoning because it did not fit seven specific requirements for a special-use permit. Those requirements included that the property rezoning fit the city's current use plan, must ***be in harmony with nearby properties, and must not injure the value of any adjacent properties***. The council determined that the rezoning did not fit those requirements.[7]

[6] http://www.renewablesbiz.com/article/13/10/complaints-lead-public-hearings-proposed-yadkin-solar-farms
[7] http://www.shelbystar.com/news/local/city-council-leaders-reject-proposed-solar-farm-1.204054?page=1

NC Solar Farm Data Set										
Index	County	Status	Year Completed	Size (MW)	Address	City	State	House$ (1 mi)	HHs (1 mi)	Avg HH $ (1 mi)
Subject	**Lincoln**	**Proposed**	**N/A**	**5**	**Webbs Rd/Burton Ln**	**Denver**	**NC**	**$451,515**	**913**	**$131,260**
1	Catawba	Existing	2012	20	6028 Startown Rd	Maiden	NC	$135,971	122	$49,372
2	Wake	Existing	2008	2.5	Trenton Rd	Cary	NC	$259,424	698	$103,169
3	Edgecombe	Existing	2008	1	QVC Blvd	Rocky Mount	NC	$77,976	54	$44,755
4	Washington	Existing	2012	2.4	872 McNair Rd	Plymouth	NC	$93,687	139	$43,074
5	New Hanove	Existing	2009	1	801 Sutton Steam Plant	Wilmington	NC	$135,696	2	$45,726
6	Alexander	Existing	2010	1	Boston Rd	Taylorsville	NC	$91,986	306	$33,892
7	Wayne	Existing	2013	6.65	381 Fedelon Trail	Goldsboro	NC	$153,213	702	$51,544
8	Lenior	Existing	2013	6	3200 Wheat Swamp R	Kinston	NC	$78,003	113	$47,835
9	Davidson	Existing	2011	20	New Jersey Church Rd	Linwood	NC	$113,882	324	$46,417
10	Wayne	Existing	2013	6.65	640 Bert Martin Rd	Mt Olive	NC	$99,925	428	$49,072
11	Gaston	Existing	2012	7	Dixson Dairy Rd	Kings Moutnai	NC	$103,808	252	$46,185
12	Robeson	Existing	2012	5	Charlie Watts Rd	Maxton	NC	$52,727	462	$35,070
13	Robeson	Existing	2012	5	7821 NC 710	Rowland	NC	$38,942	61	$34,710
14	Robeson	Existing	2012	5	NC 71 and Shannon Rd	Shannon	NC	$55,238	141	$40,188
15	Robeson	Existing	2012	6.4	737 N Railroad St	St Pauls	NC	$74,221	657	$48,324
16	Catawba	Existing	2012	6.4	2355 NC 16	Conover	NC	$132,534	441	$50,901
17	Cleveland	Existing	2012	5	5617 Fallston Rd	Lanwdale	NC	$95,532	110	$45,302
18	Richmond	Existing	2013	6	King St	Rockingham	NC	$99,295	30	$59,035
19	Lenior	Existing	2013	6	4416 Odham Rd	Kinston	NC	$80,412	132	$47,716
20	Warren	Existing	2012	5.6	Hicksville Rd	Warrenton	NC	$75,908	172	$44,358
21	Davie	Existing	2012	6.4	462 Eaton Rd	Mocksville	NC	$123,722	551	$49,050
22	Columbus	Existing	2012	7	942 Midway Dr	Whiteville	NC	$82,905	142	$44,121
23	Hoke	Existing	2012	6.4	E Palmer St	Raeford	NC	$110,610	814	$48,063
24	Wake	Existing	2013	6.4	Old Store Rd	Fuquay	NC	$181,483	455	$66,366
25	Catawba	Existing	2013	6.4	3425 Zion Church Rd	Hickory	NC	$133,314	347	$52,487
26	Caswell	Existing	2013	6.4	1434 DIBRELL RD	Pelham	NC	$91,769	61	$44,587
27	Wilson	Existing	2013	6.4	507 S Parker St	Elm City	NC	$85,594	580	$43,292
28	Wilson	Existing	2012	2	Lewis Rd	Elm City	NC	$136,106	125	$64,394
29	Surry	Existing	2011	4.5	Quarry Rd	Mt Airy	NC	$103,768	125	$43,237
30	Franklin	Existing	2012	4	NC 98 Hwy E	Bunn	NC	$111,721	375	$48,580
31	Robeson	Existing	2012	4	916 Monroe St	Fairmont	NC	$67,800	116	$37,083
32	Robeson	Existing	2012	4	Futura Rd	Maxton	NC	$52,995	227	$33,876
33	Surry	Existing	2011	1	Wastewater Treatment	Mt Airy	NC	$96,254	813	$40,797
34	Cherokee	Existing	2011	1	899 Brasstown Rd	Murphy	NC	$205,311	122	$40,580
35	Cherokee	Existing	2011	1	7426 US Hwy 64	Murphy	NC	$167,996	87	$49,456
36	Cherokee	Existing	2011	1	Weeping Willow Dr	Culberson	NC	$149,042	117	$44,284
37	Cherokee	Existing	2011	1	1135 Sutawig Rd	Murphy	NC	$169,029	111	$48,079
38	Beaufort	Existing	2013	13	White Post Rd	Bath	NC	$151,562	62	$57,173
39	Person	Existing	2012	3	Montgomery Dr	Timberlake	NC	$156,028	176	$68,978
40	Gaston	Existing	2010	1	Aviation Dr	Shleby	NC	$156,724	285	$59,508
41	Person	Existing	2012	1	Hwy 501	Roxboro	NC	$132,231	109	$62,597
42	Scotland	Existing	2012	2	Hwy 501	Laurinburg	NC	$72,632	40	$58,555

ADDENDA

SEIA MAJOR SOLAR PROJECTS IN THE US, OPERATING, UNDER CONSTRUCTION, OR UNDER DEVELOPMENT
DEED – 4301 BURTON LANE
LINCOLN COUNTY PROPERTY CARD – 4301 BURTON LANE
WAYNE COUNTY PROPERTY CARD – N WILLIAM STREET
CONDITIONAL USE PERMIT APPLICATION – STRATA SOLAR
OFFER TO PURCHASE CONTRACT – 4301 BURTON LANE
ASSUMPTIONS AND LIMITING CONDITIONS
COPY OF APPRAISERS' CERTIFICATION / POCKET CARD(S)
QUALIFICATIONS OF THE APPRAISERS

Major Solar Projects in the United States
Operating, Under Construction, or Under Development

Updated September 3, 2013

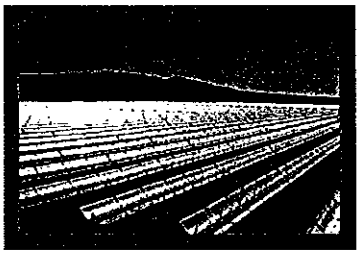
SEIA Solar Energy Industries Association®

Overview

This list is for informational purposes only, reflecting projects and completed milestones in the public domain. The information in this list was gathered from public announcements of solar projects in the form of company press releases, news releases, and, in some cases, conversations with individual developers. It is not a comprehensive list of all major solar projects under development. This list may be missing smaller projects that are not publicly announced. Particularly, many smaller projects located outside of California that are built on a short time-scale may be underrepresented on this list. Also, SEIA does not guarantee that every identified project will be built. Like any other industry, market conditions may impact project economics and timelines. SEIA will remove a project if it is publicly announced that it has been cancelled. SEIA actively promotes public policy that minimizes regulatory uncertainty and encourages the accelerated deployment of utility-scale solar power.

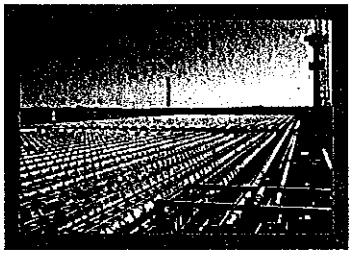
This list includes ground-mounted solar power plants larger than 1 MW.

Example Projects



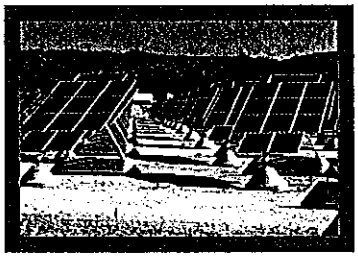
Nevada Solar Dne

Developer: Acciona
Electricity Purchaser: NV Energy
Location: Boulder City, NV
Technology: Trough
Capacity: 64 MW
Source: Acciona North America



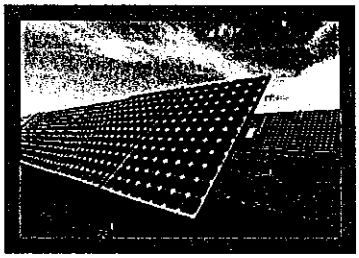
Sierra SunTower

Developer: eSolar
Electricity Purchaser: Southern California Edison
Location: Antelope Valley, CA
Technology: Tower
Capacity: 5 MW
Source: eSolar



Nellis Air Force Base

Developer: MMA Renewable Ventures
Electricity Purchaser: Nellis AFB
Location: Clark County, NV
Technology: PV
Capacity: 14 MW
Source: MMA Renewable Ventures



DeSoto Next Generation Solar Energy Center
Developer: Florida Power & Light Co.
Electricity Purchaser: Florida Power & Light Co.
Location: Arcadia, FL
Technology: PV
Capacity: 25 MW
Source: Florida Power & Light

Major Steps to Bring a Utility-Scale Solar Plant Online

Private versus Public Land

Solar projects proposed on public lands overseen by the federal government must complete a full Environmental Impact Statement before being issued a construction permit by the U.S. Department of the Interior. This review process, which takes as long as four years to complete, involves coordinated analyses by federal, state and local stakeholders to identify the potential impacts of a proposed project.

On June 29th, 2009, Secretary of the Interior Ken Salazar announced "Fast-Track" initiatives for solar projects on lands in the West. Currently, 14 solar projects have received the "Fast-Track" distinction and are undergoing environmental review. The "Fast-Track" initiative goal is to focus BLM efforts on promising projects in order to complete review prior to the December 2010 deadline required to qualify for some funding programs under the American Recovery and Reinvestment Act. For more information on the "Fast-Track" solar projects, please visit: http://www.blm.gov/wo/st/en/prog/energy/renewable_energy/fast-track_renewable.html

For more information:

If you have comments on this list, please contact research@seia.org.

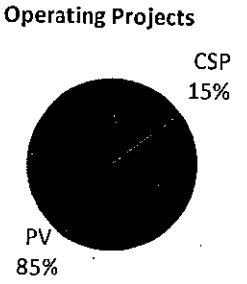
Major Solar Projects in the United States
Operating, Under Construction, or Under Development

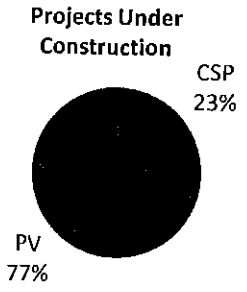
Updated September 3, 2013

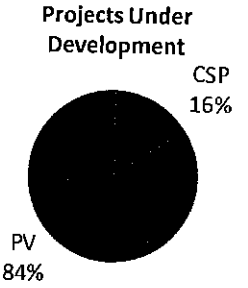
SEIA Solar Energy Industries Association

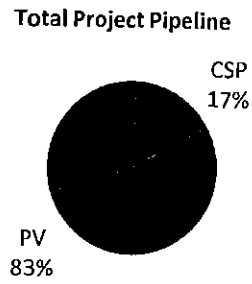
Major Solar Project Capacity by Technology and Completion Status (MW)

Technology	Operating	Under Construction	Under Development	Total
CSP	523	1,187	3,684	5,394
PV	3,047	3,871	19,452	26,371
Total	**3,570**	**5,058**	**23,136**	**31,765**









Major Solar Project Capacity by State and Project Completion Status (MW)

State	Operating	Under Construction	Under Development	Total
Arizona	657	468	1,974	3,099
California	1,432	3,408	13,747	18,587
Colorado	109		267	377
Connecticut			10	10
Delaware	27	2		29
Florida	136	40	964	1,140
Georgia	2	30	10	42
Hawaii	22	1	49	72
Idaho		20	70	90
Illinois	30		60	90
Indiana		10	40	50
Kentucky	2			2
Massachusetts	37	7	48	92
Maryland	39		25	64
Minnesota	2		2	4
North Carolina	228	59	162	449
New Jersey	148	12	144	304
New Mexico	159	80	375	614
Nevada	335	818	4,032	5,185
New York	37			37
Ohio	35	3	68	106
Oregon	10			10
Pennsylvania	27	1	30	58
Puerto Rico			30	30
Tennessee	16	4	40	60
Texas	75	89	719	883
Utah			155	155
Vermont	7	2	5	14
Washington			75	75
unknown			36	36
RI		4		4
Total	**3,570**	**5,058**	**23,136**	**31,765**

SEIA Solar Energy Industries Association

Major Solar Projects in the United States
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Developer	Project Name	Electricity Purchaser	City/County	State	PV/CSP	Technology	Status	Land Type	Date Announced	Online Date	Capacity
Acciona	Nevada Solar One	NV Energy	Boulder City	NV	CSP	Parabolic Trough	Operating	Private	2007	2007	64
Acciona	Nevada Solar One Expansion	NV Energy	Boulder City	NV	CSP	Parabolic Trough	Operating	Private		Sep-09	11
Advanced Solar Products	Linden Solar Farm	PSE&G	Linden	NJ	PV	c-Si	Operating	Private			4
Alexander & Baldwin	Port Allen Solar Farm	Kaua'i Island Utility Cooperative	Kauai	HI	PV	c-Si	Operating	Private	Mar-12	12-Dec	6
AllEarth Renewables	South Burlington Solar Farm	Vermont National Guard	South Burlington	VT	PV	c-Si	Operating	Private			2
American Capital Energy	Yardville Solar Farm	PSE&G	Hamilton	NJ	PV	c-Si	Operating	Private			5
American Capital Energy	William Stanley Business Park	Western Massachusetts Electric Co	Pittsfield	MA	PV	c-Si	Operating	Private		2010	2
American Municipal Power	Napoleon Solar Facility	American Municipal Power	Napoleon	OH	PV	c-Si	Operating	Private		Sep-12	4
ARCO Solar Inc., Siemens Solar	Rancho Seco Nuclear Station	Sacramento Municipal Utility Distri	Herald	CA	PV	c-Si	Operating	Private		1984	3
Arizona Public Service	Foothills Solar Plant	Arizona Public Service	Yuma County	AZ	PV	c-Si	Operating	Public	Apr-12	Apr-13	17
Arizona Public Service	Prescott Solar Power Plant	Arizona Public Service	Prescott	AZ	PV	c-Si	Operating	Private		2006	3
AstroSol	AstroSol Tech Park AZ	Tucson Electric Power	Tucson	AZ	PV	Thin-film	Operating	Private		May-12	5
Ausra	Kimberlina	California's wholesale market	Bakersfield	CA	CSP	Other	Operating	Private	2007	2009	5
Axio Power	Cascade Solar Park	Southern California Edison	Joshua Tree	CA	PV	c-Si	Operating	Private		Q4 2011	10
Birdseye Renewable Energy	Manis Solar Farm	Progress Energy	Laurinburg	NC	PV	c-Si	Operating	Private		Apr-12	2
Bithenergy/Smart Energy Capital	UMMS Solar Farm	UMMS	Somerset	MD	PV	c-Si	Operating	Private		Apr-13	4
BNB Renewable Energy Holdings	BNB Napoleon Solar LLC: Phase 1	Campbell Soup Company	Napoleon	OH	PV	c-Si	Operating	Private		Jun-12	10
Borrego Solar	Plymouth Schools Solar Farm	Plymouth School District	Plymouth	MA	PV	c-Si	Operating	Private		Aug-13	6
Borrego Solar	Edwards Air Force Base Solar Farm	Edwards Air Force Base	Kern County	CA	PV	c-Si	Operating	Private		Feb-12	3
Borrego Solar	Madera Community Hospital	Madera Community Hospital	Madera	CA	PV	c-Si	Operating	Private		2011	1
BP Solar	Long Island Solar Farm	Long Island Power Authority	Brookhaven	NY	PV	c-Si	Operating		2009	Nov-11	32
BP Solar	Colorado State University, Pueblo Solar Farm	Colorado State University, Pueblo	Pueblo	CO	PV	c-Si	Operating			2009	1
BP Solar	USMC 29 Palms	United States Marine Corps	Twentynine Palms	CA	PV	c-Si	Operating			2008	1
Carolina Solar Energy	Pearson County Airport	Progress Energy	Timberlake	NC	PV	c-Si	Operating	Private		Aug-12	3
Carolina Solar Energy/Strata Solar	Person County Solar Farm	Progress Energy	Person County	NC	PV	c-Si	Operating	Private		Oct-11	1
Cathartes Private Investments		National Grid	Westford	MA	PV	c-Si	Operating	Private	Aug-11	Apr-12	5
Cenergy Power	Nickel 1 Solar Farm		Kern County	CA	PV	c-Si	Operating	Private	Jun-11	Mar-12	2
Chevron Technology Ventures	Questa	Kit Carson Electric Cooperative	Questa	NM	PV	CPV	Operating	Private		2011	1
Cleantech America Inc.	CalRENEW-1	Pacific Gas & Electric	Mendota	CA	PV	Other	Operating	Private	2009	Apr-10	5
Cogentrix	Alamosa Solar Generating Project	Public Service Company of Colorad	Alamosa	CO	PV	CPV	Operating	Private	Sep-11	May-12	30
Community Energy	Keystone Solar Project	Exelon Generation LLC/Wholesale	Lancaster County	PA	PV	c-Si	Operating	Private	May-11	Oct-12	6
Con Edison	Frenchtown I	JCP&L	Frenchtown	NJ	PV	c-Si	Operating	Private		Q1 2012	3
Con Edison	Frenchtown II	JCP&L	Frenchtown	NJ	PV	c-Si	Operating	Private		Q4 2011	3
Con Edison	Shrewsbury Solar Farm	SELCO	Shrewsbury	MA	PV	c-Si	Operating	Private		Q4 2012	3
Con Edison	Dartmouth II	NSTAR	Dartmouth	MA	PV	c-Si	Operating	Private		Q4 2012	2
Con Edison	Lebanon Solar	JCP&L	Glen Gardner	NJ	PV	c-Si	Operating	Private		Q4 2011	2
Con Edison	Dartmouth Business Solar Park	NSTAR	Dartmouth	MA	PV	c-Si	Operating	Private		Q1 2011	2
Con Edison	Alcatel-Lucent Solar Farm	JCP&L	Murray Hill	NJ	PV	c-Si	Operating			Q2 2011	1
Con Edison/Panda Energy	Pilesgrove Solar Project	Atlantic City Electric	Pilesgrove Townsh	NJ	PV	c-Si	Operating	Private		Aug-11	18
Conergy	Exelon-Conergy Solar Energy Center	Exelon Generation LLC	Fairless Hills	PA	PV	c-Si	Operating	Private		2008	3
Constellation Energy		Holyoke Gas & Electric	Holyoke	MA	PV	c-Si	Operating	Private	7/1/2011		5
Cupertino Electric	Westside Solar Station	Pacific Gas & Electric	Fresno	CA	PV	c-Si	Operating	Private		Sep-11	15
Cupertino Electric	Stroud Solar Station	Pacific Gas & Electric	Fresno	CA	PV	c-Si	Operating	Private		Sep-11	20
Cupertino Electric	Porterville Solar Plant	Southern California Edison	San Joaquin Valley	CA	PV	c-Si	Operating	Private		Feb-11	5
Cupertino Electric	Huron Solar Farm	Pacific Gas & Electric	Fresno	CA	PV	c-Si	Operating	Private		Jun-12	20
Cupertino Electric		Pacific Gas & Electric	Huron	CA	PV	c-Si	Operating	Private		May-13	20
Cupertino Electric		Pacific Gas & Electric	Huron	CA	PV	c-Si	Operating	Private		May-13	10
Duke Energy/SunEnergy1	Washington White Post Solar Project	N.C. Eastern Municipal Power Age	Bath	NC	PV	c-Si	Operating	Private		Jan-13	13
E.ON	Valencia Solar	Tucson Electric Power	Tucson	AZ	PV	c-Si	Operating	Private		Jun-13	13
Ecos Energy	Slayton Solar	Xcel Energy	Slayton	MN	PV	c-Si	Operating	Private		Jan-13	2
EDF Renewables	Sacramento Solell 2008	Sacramento Municipal Utility Distri	Sacramento	CA	PV	c-Si	Operating	Private		2008	1
EDF Renewables	Yamhill Solar	Portland General Electric	Yamhill	OR	PV	c-Si	Operating	Private		Oct-11	1
EDF Renewables	Bellevue Solar	Portland General Electric	Yamhill	OR	PV	c-Si	Operating	Private		Oct-11	2
EDF Renewables	Eastern Long Island Solar Project II	Long Island Power Authority		NY	PV	c-Si	Operating	Private		2012	5
EDF Renewables	Pocono Raceway Solar Facility		Lond Pond	PA	PV		Operating	Private			3
EDF Renewables	Catalina Solar Project	San Diego Gas & Electric	Kern County	CA	PV	c-Si	Operating	Private	7/1/2011	Q1 2013	60
EDF Renewables	Catalina Solar Project	San Diego Gas & Electric	Kern County	CA	PV	c-Si	Operating	Private	7/1/2011	Aug-13	50
EDF Renewables	Belle Mead Solar Project	Carrier Clinic	Belle Mead	NJ	PV	c-Si	Operating	Private		Dec-09	2
Efficient Energy of Tennessee		Tennessee Valley Authority	Knox County	TN	PV	c-Si	Operating	Private		2010	1
Efficient Energy of Tennessee		Tennessee Valley Authority	Jackson	TN	PV	c-Si	Operating	Private			1
Enel Green Power	Stillwater Solar-Geothermal Plant	NV Energy	Fallon	NV	PV	c-Si	Operating	Private		Dec-11	24
Energy Solutions LLC	Kent County Public Works Solar Array	Kent County Wastewater Facility	Kent	DE	PV	c-Si	Operating	Private		2011	1
EOS Ventures	Southern Vermont Solar Array		Williamstown	VT	PV	c-Si	Operating	Private		Mar-13	2
ESA Renewables		Tennessee Valley Authority	Blairsville	GA	PV	c-Si	Operating	Private		2011	1
ESA Renewables	Martins Creek Solar Farm	Tennessee Valley Authority	Murphy	NC	PV	c-Si	Operating	Private		Mar-11	1
ESA Renewables	Murphy Farm	Tennessee Valley Authority	Culberson	NC	PV	c-Si	Operating	Private		Apr-11	1
ESA Renewables	Wingate Solar Farm	Tennessee Valley Authority	Murphy	NC	PV	c-Si	Operating	Private		May-11	1
ESA Renewables	Holiness Solar Farm	Tennessee Valley Authority	Murphy	NC	PV	c-Si	Operating	Private		May-11	1
eSolar	Sierra SunTower	Southern California Edison	Antelope Valley	CA	CSP	Power Tower	Operating	Private	2008	2009	5
Eurus	Sun City Project	Pacific Gas & Electric	Avenal	CA	PV	c-Si	Operating	Private		Aug-11	23
Eurus	Sand Drag Solar Project	Pacific Gas & Electric	Avenal	CA	PV	c-Si	Operating	Private		Aug-11	22
Eurus	Avenal Park Solar Project	Pacific Gas & Electric	Avenal	CA	PV	c-Si	Operating	Private		Aug-11	6
First Solar	Hondale Solar Farm	PNM	Deming	NM	PV	Thin-film	Operating	Private		Aug-11	5
First Solar	Alamogordo Solar Energy Center	PNM	Alamogordo	NM	PV	Thin-film	Operating	Private		Oct-11	5
First Solar	Cimarron I Solar Project	Tri-State Generation and Transmis	Cimarron	NM	PV	Thin-film	Operating	Private		Dec-10	30
First Solar	Roadrunner Solar Electric Facility	El Paso Electric	Santa Theresa	NM	PV	Thin-film	Operating	Private		Aug-11	20
First Solar	Paloma Solar Plant	Arizona Public Service	Gila Bend	AZ	PV	Thin-film	Operating	Private	Feb-11	Oct-11	17
First Solar	Albuquerque Solar Center	PNM	Albuquerque	NM	PV	Thin-film	Operating	Private		Apr-11	2
First Solar	Las Vegas Solar Center	PNM	Las Vegas	NM	PV	Thin-film	Operating	Private		Nov-11	5
First Solar	Mount St. Mary's University Solar Farm	University System of Maryland	Emmitsburg	MD	PV	Thin-film	Operating	Private		Aug-12	14
First Solar	AV Solar Ranch One	Pacific Gas & Electric	Antelope Valley	CA	PV	Thin-film	Operating	Private	Mar-09	Jan-13	115
First Solar	Silver State North Solar Project	NV Energy	Primm	NV	PV	Thin-film	Operating	Public		May-12	50
First Solar	Avra Valley	Tucson Electric Power	Pima	AZ	PV	Thin-film	Operating	Private		Dec-12	25
First Solar	Maryland Solar Farm	FirstEnergy Solutions	Hagerstown	MD	PV	Thin-film	Operating	Private	Jun-11	Dec-12	20
First Solar	Alpine Solar Project	Pacific Gas & Electric	Lancaster	CA	PV	Thin-film	Operating	Private	2010	Feb-13	66
First Solar	Copper Mountain 2	Pacific Gas & Electric	Boulder City	NV	PV	Thin-film	Operating	Private	Mar-11	Dec-12	92
First Solar	Agua Caliente	Pacific Gas & Electric	Yuma County	AZ	PV	Thin-film	Operating	Private		Jul-12	100
First Solar	Agua Caliente	Pacific Gas & Electric	Yuma County	AZ	PV	Thin-film	Operating	Private		Apr-12	70
First Solar	Agua Caliente	Pacific Gas & Electric	Yuma County	AZ	PV	Thin-film	Operating	Private		Sep-12	50
First Solar	Agua Caliente	Pacific Gas & Electric	Yuma County	AZ	PV	Thin-film	Operating	Private		Jan-12	30
First Solar	Los Morros	PNM	Los Lunas	NM	PV	Thin-film	Operating	Private		May-11	5
First Solar	NRG Blythe	Southern California Edison	Blythe	CA	PV	Thin-film	Operating	Private		Dec-09	21
First Solar/Sempra Generation	Copper Mountain Solar Project	Pacific Gas & Electric	Boulder City	NV	PV	Thin-film	Operating	Private		2010	48
First Solar/Sempra Generation	El Dorado Energy Solar Project	Pacific Gas & Electric	Boulder City	NV	PV	Thin-film	Operating	Private		Dec-08	10
Florida Power & Light Co.	Martin Next Generation Solar Energy Center	Florida Power & Light Co.	Martin County	FL	CSP	Parabolic Trough	Operating	Private	2008	Dec-10	75

SEIA

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Forest City Hawaii	Kapolei Sustainable Energy Park	Hawaiian Electric Co.	Oahu	HI	PV	c-Si	Operating	Private		Dec-12	1
GCL Poly- Solar Project Solutions	White River	Pacific Gas & Electric	Tulare County	CA	PV	c-Si	Operating	Private		Nov-12	20
GCL-Poly Solar Project Solutions	Alpaugh	Pacific Gas & Electric	Tulare County	CA	PV	c-Si	Operating	Public		Dec-12	50
GCL-Poly Solar Project Solutions	Alpaugh North	Pacific Gas & Electric	Tulare County	CA	PV	c-Si	Operating	Public		Dec-12	20
GDF Suez	Northfield Mountain Solar Farm		Northfield	MA	PV	Thin-film	Operating	Private		2011	2
Gehrlicher Solar America Corp.	Rio Rico Phase 1	UniSource Energy Services	Rio Rico	AZ	PV	c-Si	Operating	Private		Aug-13	4
Global Solar Energy	Springerville Generating Station Solar System	Tucson Electric Power	Springerville	AZ	PV	Thin-film	Operating	Private		2003	5
Global Solar Energy	Springerville Generating Station Solar System (expansion)	Tucson Electric Power	Springerville	AZ	PV	Thin-film	Operating	Private		2010	2
Green Energy Capital Partners	Pennsylvania Solar Park	PPL	Nesquehoning	PA	PV	c-Si	Operating	Private	2010	Oct-12	10
Iberdrola	San Luis Valley Solar Ranch	Xcel Energy	Alamosa County	CO	PV	c-Si	Operating	Private		Nov-11	30
Inman Solar Phase 1	Chattanooga Metropolitan Airport Solar Farm	EPB/Tennessee Valley Authority	Chattanooga	TN	PV	c-Si	Operating	Private		Feb-12	1
Invenergy	Grand Ridge Solar Plant	ComEd	LaSalle County	IL	PV	c-Si	Operating	Private		2012	20
J. Fletcher Creamer & Son	Silver Lake Solar Farm	PSE&G	Edison	NJ	PV	c-Si	Operating	Private			2
Johnson Controls	Back River Wastewater Solar Farm	Back River Wastewater Treatment	Essex	MD	PV	c-Si	Operating	Private		Apr-12	1
Juwi solar Inc.	Milford Solar Farm	Delaware Municipal Electric Corp.	Kent	DE	PV	c-Si	Operating	Private		Nov-12	12
Juwi solar Inc.	Jacksonville Solar	Jacksonville Electric Authority	Jacksonville	FL	PV	c-Si	Operating	Private	2009	Sep-10	12
Juwi solar Inc.	Wyandot Solar Facility	American Electric Power Co. Inc.	Upper Sandusky	OH	PV	Thin-film	Operating	Private		2010	10
Juwi solar Inc.	Blue Wing Solar Project	CPS Energy	San Antonio	TX	PV	c-Si	Operating	Private		Nov-10	14
Juwi Solar Inc.	Queen Creek Solar Farm	Salt River Project	Queen Creek	AZ	PV	c-Si	Operating	Private		Oct-12	19
Juwi solar Inc.	Mill Creek Solar Farm	PSE&G	Burlington Townsh	NJ	PV	c-Si	Operating	Private		Mar-12	4
Juwi solar Inc.	Mars Chocolate Solar Farm	Mars Inc.	Henderson	NV	PV	c-Si	Operating	Private		Feb-12	1
Juwi Solar Inc.	Mars Solar Garden	Mars Inc.	Hackettstown	NJ	PV	Thin-film	Operating	Private			2
KDC Solar	Lawrenceville School Solar Farm	Lawrenceville School	Lawrence	NJ	PV	c-Si	Operating	Private		May-12	6
KDC Solar	Atlantic Coast Freezers Solar Farm	Atlantic Coast Freezers	Vineland	NJ	PV	c-Si	Operating	Private		May-12	2
Kyocera Solar	Camp Pendleton Solar Facility	US Marine Corps Base Camp Pendl	San Diego	CA	PV	c-Si	Operating			Mar-11	1
LADWP	Pine Tree Solar Project	Los Angeles Department of Water	Lone Pine	CA	PV	c-Si	Operating	Private		Mar-13	9
Lanai Sustainability Research LLC	Lanai Solar Electric Plant	Maui Electric Company	Lanai	HI	PV	c-Si	Operating	Private		2009	1
LightBeam Energy, Inc.	Gridley Solar Farm	Northern California Power Agency	Gridley	CA	PV	c-Si	Operating	Public		Apr-13	4
Lincoln Renewable Energy	NJ Oak Solar Farm	Atlantic City Electric	Fairfield Township	NJ	PV	c-Si	Operating	Private		Dec-11	10
LS Power	Arlington Valley Solar Project II	San Diego Gas & Electric	Arlington	AZ	PV	c-Si	Operating	Private	2008		19
Luz	Solar Energy Generating Systems (SEGS) II	Southern California Edison	Daggett	CA	CSP	Parabolic Trough	Operating	Private		1986	30
Luz	Solar Energy Generating Systems (SEGS) I	Southern California Edison	Daggett	CA	CSP	Parabolic Trough	Operating	Private		1985	14
Luz	Solar Energy Generating Systems (SEGS) IX	Southern California Edison	Kramer Junction	CA	CSP	Parabolic Trough	Operating	Private		1991	80
Luz	Solar Energy Generating Systems (SEGS) VIII	Southern California Edison	Kramer Junction	CA	CSP	Parabolic Trough	Operating	Private		1990	80
Luz	Solar Energy Generating Systems (SEGS) III	Southern California Edison	Kramer Junction	CA	CSP	Parabolic Trough	Operating	Private		1987	30
Luz	Solar Energy Generating Systems (SEGS) IV	Southern California Edison	Kramer Junction	CA	CSP	Parabolic Trough	Operating	Private		1987	30
Luz	Solar Energy Generating Systems (SEGS) V	Southern California Edison	Kramer Junction	CA	CSP	Parabolic Trough	Operating	Private		1988	30
Luz	Solar Energy Generating Systems (SEGS) VI	Southern California Edison	Kramer Junction	CA	CSP	Parabolic Trough	Operating	Private		1989	30
Luz	Solar Energy Generating Systems (SEGS) VII	Southern California Edison	Kramer Junction	CA	CSP	Parabolic Trough	Operating	Private		1989	30
Main Street Power	Arizona Western College	Arizona Public Service	Yuma	AZ	PV		Operating			2011	5
Marina Energy	Berry Plastics Corp Solar Farm	Berry Plastics Corp	Phillipsburg	NJ	PV	c-Si	Operating	Private		Aug-13	14
Nanosolar	Camp Roberts Solar Farm	California National Guard at Camp	San Miguel	CA	PV	c-Si	Operating	Private		May-12	2
NextEra Energy Resources	Paradise Solar Energy Center	PSE&G	Gloucester County	NJ	PV	c-Si	Operating	Private		Apr-11	5
NextEra Energy Resources	Hatch Solar Center	El Paso Electric	Hatch	NM	PV	CPV	Operating	Private		Jun-11	5
NJR Clean Energy Ventures	McGraw-Hill Solar Farm	McGraw-Hill	East Windsor	NJ	PV	c-Si	Operating	Private		Dec-11	14
NJR Clean Energy Ventures	Vineland Solar Farm		Vineland	NJ	PV	c-Si	Operating	Private		Sep-11	5
NJR Clean Energy Ventures	Manalapan Solar Farm	Village of Manalapan	Manalapan	NJ	PV	c-Si	Operating	Private	May-11	Dec-11	4
NRG Energy/SunPower	Borrego Solar Project	SDG&E	Borrego Springs	CA	PV	c-Si	Operating	Private		Mar-13	26
NxGen Power LLC	Neuse River Wastewater Treatment Plant Solar Array	Progress Energy Carolinas	Raleigh	NC	PV	c-Si	Operating	Private		2012	1
o2 Energies	Sandy Cross Solar Farm	Progress Energy	Elm City	NC	PV	c-Si	Operating	Private	Sep-11	2012	2
o2 energies	Ararat Rock Solar	Duke Energy	Mt.Airy/Surry	NC	PV	c-Si	Operating	Private		Sep-11	4
o2 energies	Progress Solar 1	Progress Energy Carolinas	Bunn	NC	PV	c-Si	Operating	Private		Oct-12	4
o2 energies	Progress Solar 2	Progress Energy Carolinas	Fairmont	NC	PV	c-Si	Operating	Private		Oct-12	4
o2 energies	Progress Solar 3	Progress Energy Carolinas	Maxton	NC	PV	c-Si	Operating	Private		Oct-12	4
o2 Energies/Strata Solar	Mayberry Solar Farm	Duke Energy	Mount Airy	NC	PV	c-Si	Operating	Private		Oct-11	1
Oak Leaf Partners	DIA 3	Denver International Airport	Denver	CO	PV	c-Si	Operating	Private		2011	4
Oak Leaf Partners	DIA 1	Denver International Airport	Denver	CO	PV	c-Si	Operating	Private		2008	2
Oak Leaf Partners	DIA 2	Denver International Airport	Denver	CO	PV	c-Si	Operating	Private		2009	2
Obsidian Finance Group	Outback Solar	Portland General Electric	Lake County	OR	PV	c-Si	Operating	Private		Oct-12	5
Obsidian Finance Group/PacifiCorp	Black Cap Solar Project	Pacific Power	Lake County	OR	PV	c-Si	Operating	Private	Mar-12	11/8/2012	2
OCI	Delsea Road	Vineland Municipal Electric Utility	Vineland	NJ	PV	c-Si	Operating	Private		Mar-12	3
Phoenix Solar	VW Solar	VW	Chattanooga	TN	PV	c-Si	Operating	Private		Jan-13	8
PowerPlay Solar	Berkshire School Solar Farm	Berkshire School	Sheffield	MA	PV	c-Si	Operating	Private		2011	2
PPL Renewable Energy	Crayola Solar Farm	Crayola	Easton	PA	PV	c-Si	Operating	Private		Aug-10	2
Q Cells	Cantua	Pacific Gas & Electric	Fresno	CA	PV	c-Si	Operating	Private		Jun-12	20
Q Cells	Giffen	Pacific Gas & Electric	Fresno	CA	PV	c-Si	Operating	Private		Jun-12	10
REC Solar	Hayward Wastewater Solar Facility	City of Hayward	Hayward	CA	PV	c-Si	Operating	Private		2011	1
REC Solar	Kapaa Solar Farm	Kaua'i Island Utility Cooperative	Kapaa	HI	PV	c-Si	Operating	Private		Feb-11	1
Recurrent Energy	Sunset Reservoir Solar Power System	Sunset Reservoir	San Francisco	CA	PV	c-Si	Operating	Private		Dec-10	4
Recurrent Energy	Bruceville	Sacramento Municipal Utility Distri	Elk Grove	CA	PV	c-Si	Operating	Private		Dec-11	18
Recurrent Energy	Kammerer	Sacramento Municipal Utility Distri	Elk Grove	CA	PV	c-Si	Operating	Private		Jan-12	19
Recurrent Energy	Dillard	Sacramento Municipal Utility Distri	Sacramento	CA	PV	c-Si	Operating	Private		Jan-12	12
Recurrent Energy	Ajo	Arizona Public Service	Ajo	AZ	PV	c-Si	Operating	Private		Sep-11	5
Recurrent Energy	Bagdad Solar Project	Arizona Public Service	Yavapai	AZ	PV	c-Si	Operating	Private		Dec-11	15
Recurrent Energy	McKenzie Road Solar Farm	Sacramento Municipal Utility Distri	Galt	CA	PV	c-Si	Operating	Private		Jan-13	30
Recurrent Energy	Kansas South	Southern California Edison	Lancaster	CA	PV	c-Si	Operating	Private		Mar-13	20
Recurrent Energy	TA-High Desert	Pacific Gas & Electric	Kings County	CA	PV	c-Si	Operating	Private		Jun-13	20
Regenesis Power LLC	Stanton Solar Farm	Orlando Utilities Commission	Orange	FL	PV	c-Si	Operating	Private		2011	6
Rivermoor Energy	Haverhill Solar Farm	National Grid	Haverhill	MA	PV	c-Si	Operating	Private		2011	1
Rudolph	Bryan Solar Array	Bryan Municipal Electric	Bryan	OH	PV	Thin-film	Operating	Private		Feb-12	3
Sempra Generation	Mesquite Solar	Pacific Gas & Electric	Arlington	AZ	PV	c-Si	Operating	Private		Jun-12	46
Sempra Generation	Mesquite Solar	Pacific Gas & Electric	Arlington	AZ	PV	c-Si	Operating	Private		Dec-11	38
Sempra Generation	Mesquite Solar	Pacific Gas & Electric	Arlington	AZ	PV	c-Si	Operating	Private		Jan-13	66
S-Energy America		Sacramento Municipal Utility Distri	Twin Cities	CA	PV	c-Si	Operating	Private		Q3 2012	4
Siemens	White Sands Missile Range Solar Project	U.S. Army		NM	PV	CPV	Operating	Private		Jan-13	4
Signal Energy	West Tennessee Solar Farm	Chickasaw Electric Coop./TVA	Haywood County	TN	PV	c-Si	Operating	Private		Mar-12	4
Silicon Ranch	Pulaski Energy Park Solar Farm	Tennessee Valley Authority	Pulaski	TN	PV	c-Si	Operating	Private		Feb-12	1
Smart Energy Capital	Prescott Valley Tank Farm	Prescott Valley	Prescott Valley	AZ	PV	c-Si	Operating	Private	Dec-11	May-12	2
Soitec	Newberry Solar 1	Southern California Edison	San Bernardino Co	CA	CSP	CPV	Operating	Private		Jul-13	2
Sol Orchard LLC	Nichols Farm	Nichols Farm	Hanford	CA	PV	CPV	Operating	Private		Apr-11	1
Solar Design & Development	Upson County Solar Farm	Georgia Power	Upson County	GA	PV	c-Si	Operating	Private		Jul-12	1
Solar Power Inc.	Aerojet Solar Facility	Sacramento Municipal Utility Distri	Sacramento	CA	PV	c-Si	Operating	Private		Jun-10	5
Solar Power Inc.	Palm Springs Solar PV Project II	Southern California Edison	Palm Springs	CA	PV	c-Si	Operating	Private		Jun-12	8
Solar Power Partners	West County Wastewater District Solar	West County Wastewater District	Richmond	CA	PV	c-Si	Operating	Private		2008	1

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Developer	Project Name	Electricity Purchaser	City/County	State	PV/CSP	Technology	Status	Land Type	Date Announced	Online Date	Capacity
Solar Project Solutions	Atwell Island	Pacific Gas & Electric	Tulare County	CA	PV	c-Si	Operating	Private		Mar-13	20
Solargenix	Saguaro Solar Power Plant	Arizona Public Service	Red Rock	AZ	CSP	Parabolic Trough	Operating	Private	2004	2005	1
SolarVision	Celina Solar Farm	City of Celina	Celina	OH	PV	c-Si	Operating	Private		Apr-13	5
SolarWorld	Adelanto	Los Angeles Department of Water	Adelanto	CA	PV	c-Si	Operating	Private		Jul-12	10
SolarWorld	Highlander 2	Southern California Edison	Twentynine Palms	CA	PV	c-Si	Operating	Private		Apr-13	10
SolarWorld	Highlander 1	Southern California Edison	Twentynine Palms	CA	PV	c-Si	Operating	Private		Apr-13	11
Solon	Five Points Solar Station	Pacific Gas & Electric	Fresno	CA	PV	c-Si	Operating	Private	Feb-11	Sep-11	15
Solon	Vaca-Dixon Solar Station	Pacific Gas & Electric	Vacaville	CA	PV	c-Si	Operating	Private		2010	2
Solon	Cotton Center	Arizona Public Service	Gila Bend	AZ	PV	c-Si	Operating	Private		Oct-11	17
Solon	Prairie Fire	Tucson Electric Power	Tucson	AZ	PV	c-Si	Operating	Private		Feb-13	5
Solon	La Senita Solar Farm	Tucson Electric Power	Kingman	AZ	PV	c-Si	Operating	Private		Nov-11	1
Solon/Duke Energy	Black Mountain Solar Project	UniSource Energy Services	Kingman	AZ	PV	c-Si	Operating	Private	11-Oct	Jan-13	8
Sopogy	Holanilku at Keahole Point	HELCO	Kona	HI	CSP	Other	Operating	Private	2008	2009	2
Sopogy	Kalaeloa Solar One	Hawaiian Electric	Oahu	HI	CSP	Parabolic Trough	Operating	Private		Mar-13	5
Southern Energy Management	Marlboro Mushrooms Solar Farm	Marlboro Mushrooms	West Grove	PA	PV	c-Si	Operating	Private		Feb-12	1
Southern Sky Renewable Energy	Canton Landfill Solar Facility	NSTAR	Canton	MA	PV	c-Si	Operating	Private	Feb-11	Sep-12	5.6
SPG Solar	Oberlin College Solar Farm	Spear Point Energy	Oberlin	OH	PV	c-Si	Operating	Private		Oct-12	2
Standard Solar/PPC Solar	RCCLA Amalia Solar Array 1	Xit Carson Electric Cooperative	Amalia	NM	PV	c-Si	Operating	Private		Jun-12	2
Star Harvest Solar	Bowling Green Solar Farm	Tennessee Valley Authority	Bowling Green	KY	PV	c-Si	Operating	Private		Sep-11	2
Strata Solar	Kings Mountain Solar Farm	Duke Energy	Kings Mountain	NC	PV	c-Si	Operating	Private		Jan-12	5
Strata Solar	Watts Farm	Progress Energy Carolinas	Maxton	NC	PV	c-Si	Operating	Private		Jun-12	5
Strata Solar	South Robeson Farm	Duke Energy	Rowland	NC	PV	c-Si	Operating	Private		Jun-12	5
Strata Solar	Shannon Farm Project	Progress Energy Carolinas	Shannon	NC	PV	c-Si	Operating	Private		Sep-12	5
Strata Solar	Railroad Farm Project	Progress Energy Carolinas	St. Pauls	NC	PV	c-Si	Operating	Private		Oct-12	5
Strata Solar	Arndt Farm Project	Duke Energy	Clines	NC	PV	c-Si	Operating	Private		Nov-12	5
Strata Solar	Bellwood Solar Farm	Progress Energy Carolinas	Lawdale	NC	PV	c-Si	Operating	Private		Dec-12	5
Strata Solar	Rock Farm	Progress Energy Carolinas		NC	PV	c-Si	Operating	Private		May-13	6
Strata Solar	Lenoir 2 Solar Fam	Progress Energy Carolinas	Lenoir	NC	PV	c-Si	Operating	Private		Jun-13	6
Strata Solar	Warrenton Solar Farm	Progress Energy Carolinas	Warrenton	NC	PV	c-Si	Operating	Private		Dec-12	6
Strata Solar	Mocksville Solar Farm	Progress Energy Carolinas	Mocksville	NC	PV	c-Si	Operating	Private		Nov-12	6
Strata Solar	Whiteville-Bowman	Progress Energy Carolinas	Whiteville	NC	PV	c-Si	Operating	Private		Nov-12	7
Strata Solar	Raeford Solar Farm	Progress Energy Carolinas	Raeford	NC	PV	c-Si	Operating	Private		Nov-12	6
Strata Solar	Fuquay Solar Farm	Progress Energy Carolinas	Middle Creek	NC	PV	c-Si	Operating	Private		Feb-13	6
Strata Solar	Two Lines Solar Farm	Progress Energy Carolinas	Catawba	NC	PV	c-Si	Operating	Private			6
Strata Solar	Dibrell Solar Farm	Progress Energy Carolinas		NC	PV	c-Si	Operating	Private		Apr-13	6
Strata Solar	Lenoir 1	Progress Energy Carolinas	Lenoir	NC	PV	c-Si	Operating	Private		Jun-13	6
Strata Solar	Wilson Solar Farm	Progress Energy Carolinas		NC	PV	c-Si	Operating	Private		Jun-13	6
Strata Solar	AM Best	Progress Energy Carolinas	Wayne	NC	PV	c-Si	Operating	Private		Jun-13	7
Strata Solar	Mount Olive 2 Solar Farm	Progress Energy Carolinas	Wayne	NC	PV	c-Si	Operating	Private		May-13	7
SunDurance Energy	Kearny Landfill Solar Farm	PSE&G	Kearny	NJ	PV	c-Si	Operating	Private		May-12	3
SunDurance Energy	Global Pharma Co Solar Farm	Global Pharma Co	Raritan	NJ	PV	c-Si	Operating	Private			2
SunDurance Energy	Rutgers University Solar Farm	Rutgers University	Piscataway	NJ	PV	c-Si	Operating	Private			1
SunEdison	Alamosa Photovoltaic Solar Plant	Xcel Energy	Alamosa	CO	PV	c-Si	Operating	Private		Dec-07	7
SunEdison	Davidson County Solar Farm	Duke Energy	Davidson County	NC	PV	c-Si	Operating	Private		Jan-11	16
SunEdison	Colorado State University, Fort Collins Solar Farm	Colorado State University, Fort Coll	Fort Collins	CO	PV	c-Si	Operating			2010	5
SunEdison	SPS - Hope	Southwestern Public Service Co.	Lea & Eddy Countl	NM	PV	c-Si	Operating	Private		Sep-11	10
SunEdison	SPS- Dollarhide	Southwestern Public Service Co.	Lea & Eddy Countl	NM	PV	c-Si	Operating	Private		Sep-11	10
SunEdison	SPS- Jal	Southwestern Public Service Co.	Lea & Eddy Countl	NM	PV	c-Si	Operating	Private		Dec-11	10
SunEdison	City of Madera Wastewater Solar Farm	City of Madera	Madera	NM	PV	c-Si	Operating	Private		2010	1
SunEdison	Santa Fe Wastewater Treatment Solar Farm	City of Santa Fe	Santa Fe	NM	PV	c-Si	Operating	Private		2011	1
SunEdison	Rifle Energy Innovation	City of Rifle	Rifle	CO	PV	c-Si	Operating			2009	2
SunEdison	Pima County Wastewater Reclamation Solar Farm	Pima County	Tucson	AZ	PV	c-Si	Operating	Private		2011	1
SunEdison	SPS- Lea	Southwestern Public Service Co.	Lea & Eddy Countl	NM	PV	c-Si	Operating	Private		Dec-11	10
SunEdison	Georgetown Solar Farm	Delaware Electric	Georgetown	DE	PV	c-Si	Operating	Private	Mar-12	Aug-13	4
SunEdison	Hyder Solar Plant	Arizona Public Service	Hyder	AZ	PV	c-Si	Operating	Private		Oct-11	17
SunEdison	Prescott	Arizona Public Service	Prescott	AZ	PV	c-Si	Operating	Private		Nov-11	10
SunEdison	Apex	NV Energy	Las Vegas	NV	PV	c-Si	Operating	Private		Q3 2012	20
SunEdison	Tucson Solar Project	Tucson Electric Power	Tucson	AZ	PV	c-Si	Operating	Private		Dec-12	20
SunEdison	Lakeland Linder Regional Airport Solar Farm	Lakeland Electric	Lakeland	FL	PV	c-Si	Operating	Private	Mar-11	Oct-12	6
SunEdison	Centennial Solar Farms	CPS Energy	San Antonio	TX	PV	c-Si	Operating	Private		Apr-12	20
SunEdison	SPS - Monument	Southwestern Public Service Co.	Lea & Eddy Countl	NM	PV	c-Si	Operating	Private		Dec-11	10
SunEdison	Taylorsville Solar Farm	Energy United	Taylorsville	NC	PV	c-Si	Operating	Private		Oct-10	1
SunEdison	Sutton Solar Farm	Progress Energy	Wilmington	NC	PV	c-Si	Operating	Private		Apr-09	1
SunEdison	Las Cruces Centennial Solar Farm	El Paso Electric	El Paso	NM	PV	c-Si	Operating	Private		May-12	12
SunEdison	Somerset Solar Farm	CPS Energy	Somerset	TX	PV	c-Si	Operating	Private		Aug-12	11
SunEdison	Austin Energy PV Project	Austin Energy	Webberville	TX	PV	c-Si	Operating	Public (City Owned)		Dec-11	30
SunEdison	El Chaparral Solar Farm	El Paso Electric	El Paso	NM	PV	c-Si	Operating	Private	Oct-12	Jun-12	11
SunEdison	Trenton Solar Farm	PSE&G	Trenton	NJ	PV	c-Si	Operating	Private			1
SunEnergy1	Plymouth Solar Center Phase 1	PJM	Plymouth	NC	PV	c-Si	Operating	Private		Jan-12	2
SunPeak Power	Imperial Valley Solar Company 1	Imperial Irrigation District	Niland	CA	PV	c-Si	Operating	Private	Jul-11	May-12	23
SunPower	Greater Sandhill Solar Plant	Xcel Energy	Alamosa	CO	PV	c-Si	Operating	Private		Dec-10	19
SunPower	DeSoto Next Generation Solar Energy Center	Florida Power & Light Co.	Arcadia	FL	PV	c-Si	Operating	Private		Oct-09	25
SunPower	SAS Solar Farm 1	Progress Energy	Cary	NC	PV	c-Si	Operating	Private		2008	1
SunPower	West Pullman Industrial Redevelopment Area	Exelon Generation LLC	Chicago	IL	PV	c-Si	Operating	Private		Jul-10	8
SunPower	Inland Empire Utilities Agency Solar Farm	Inland Empire Utilities Agency	Chino	CA	PV	c-Si	Operating	Private		2009	3
SunPower	Air Force Academy	Colorado Springs Utilities	Colorado springs	CO	PV	c-Si	Operating	Private		Jun-11	5
SunPower	Western Riverside County Regional Wastewater Authority Solar Farm	WRCRWA	Corona	CA	PV	c-Si	Operating	Private		2009	1
SunPower	Space Coast Next Generation Solar Energy Center	Florida Power & Light Co.	Kennedy Space Cer	FL	PV	c-Si	Operating	Private	Jun-09	Apr-10	10
SunPower	Lake County Sanitation District Solar Farm	Lake County Sanitation District	Lakeport	CA	PV	c-Si	Operating	Private		2009	2
SunPower	Rancho California Water District Solar Farm	Rancho California Water District	Murrieta	CA	PV	c-Si	Operating	Private		2008	1
SunPower	Senge Doherty Pump Station	Rancho California Water District	Riverside	CA	PV	c-Si	Operating	Private		2011	1
SunPower	Rio Vista Water Treatment	Castaic Lake Water Agency	Santa Clarita	CA	PV	c-Si	Operating	Private		2011	1
SunPower	Princeton University Solar Farm	Princeton University	Princeton	NJ	PV	c-Si	Operating	Private		Sep-12	5
SunPower	McHenry Solar Farm	Modesto Irrigation District	Modesto	CA	PV	c-Si	Operating	Private		2012	25
SunPower	Kalaeloa Solar Plant	Hawaiian Electric	Oahu	HI	PV	c-Si	Operating	Private	Mar-11	Mar-13	5
SunPower	California Valley Solar Ranch	Pacific Gas & Electric	San Luis Obispo	CA	PV	c-Si	Operating	Private	1/1/2009	12-Dec	130
SunPower	China Lake	Naval Air Weapons Station	China Lake	CA	PV	c-Si	Operating	Private		Oct-12	14
SunPower	ASU Solar Array	Salt River Project	Mesa	AZ	PV	CPV	Operating	Private	Jan-12		1
SunPower	Tucson Water Department	City of Tucson	Tucson	AZ	PV	c-Si	Operating	Private		2011	1
SunPower	Bakersfield College Solar Farm	Kern Community College District	Bakersfield	CA	PV	c-Si	Operating	Private		2009	1
SunPower	Grundfos Pumps Solar Farm	Grundfos Pumps	Fresno	CA	PV	c-Si	Operating	Private		2008	1
SunPower	Gap Inc. West Coast Distribution Center	Gap, Inc.	Fresno	CA	PV	c-Si	Operating	Private		2008	1
SunPower	La Ola Solar Farm	MECO	Lanai	HI	PV	c-Si	Operating	Private		2008	1
SunPower	Apple Data Center Solar Farm	Apple	Maiden	NC	PV	c-Si	Operating	Private	Oct-11	Dec-12	20
SunPower	University of California, Merced, Solar Farm	UC Merced	Merced	CA	PV	c-Si	Operating	Private		2009	1
SunPower	Bell Labs Global HQ Solar Farm	Alcatel-Lucent	Murray Hill	CA	PV	c-Si	Operating	Private		2011	1
SunPower	Liberty Media QVC Distribution Center	QVC	Rocky Mount	NC	PV	c-Si	Operating	Private		2008	1
SunPower	Sonoma Valley County Sanitation District Solar Farm	Sonoma County Water Agency	Sonoma	CA	PV	c-Si	Operating	Private		2007	1
SunPower	Yolo County Justice Campus Solar Farm	Yolo County	Woodland	CA	PV	c-Si	Operating	Private		2010	1
SunPower	Apple Data Center-Conover	Apple	Conover	NC	PV	c-Si	Operating	Private			20
SunPower	Bloomberg Solar Farm	Bloomberg	Skillman	NJ	PV	c-Si	Operating	Private		2012	2
SunPower	Merck & Co. Headquarters Solar Farm	Merck	Whitehouse Statio	NJ	PV	c-Si	Operating	Private		2008	2
SunPower	Phoenix Water Treatment Solar Farm	City of Phoenix	Phoenix	CA	PV	c-Si	Operating			Jan-13	8
SunPower/Conectiv Energy	Vineland Solar One	Vineland Municipal Electric Utility	Vineland	NJ	PV	c-Si	Operating	Private		2009	4

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SunPower/Duke Energy	Shelby Solar Project	NCMPA1	Shelby	NC	PV	c-Si	Operating	Private		May-10	1
SunPower/Duke Energy	Murfreesboro Solar Project	NCEMC	Murfreesboro	NC	PV	c-Si	Operating	Private	Jun-11	Dec-11	5
SunPower/Iberdrola Renewables	Copper Crossing	Salt River Project	Pinal County	AZ	PV	c-Si	Operating	Private		Sep-11	20
SunPower/LS Power	Dover SUN Park	Delmarva Power	Dover	DE	PV	c-Si	Operating	Private		2011	10
SunPower/MMA Renewable Ventures	Nellis Air Force Base	Nellis Air Force Base	Clark County	NV	PV	c-Si	Operating	Private		Dec-07	12
SunTechnics	Robert O Schulz Solar Farm	South San Joaquin Water Treatmer	Stanislaus County	CA	PV	c-Si	Operating	Private		2008	1
Sybac Solar		Gainesville Regional Utilities	Gainesville	FL	PV	c-Si	Operating	Private	Feb-11	2011	2
Three Phases and Green Rock Capital	Fort Carson Army Base	Fort Carson Army Base	Colorado Springs	CO	PV	c-Si	Operating	Private		2008	2
Wanxiang America/New Generation Power	Rockford Solar Project	Ameren Illinois	Rockford	IL	PV	c-Si	Operating	Private		Q3 2012	2
Western Massachusetts Electric Co.	Indian Orchard PV Facility	Western Massachusetts Electric Co	Springfield	MA	PV	c-Si	Operating	Private	May-11		2
Zongyi Solar America	Tinton Falls Solar Farm	Wholesale	Tinton Falls	NJ	PV	c-Si	Operating	Private		Oct-12	16
	Washington Township Solar Array	Dayton Power and Light	Washington	OH	PV	c-Si	Operating	Private		2010	1
	Janssen Pharmaceutica Solar Farm	Johnson & Johnson	Titusville	NJ	PV	c-Si	Operating	Private		2010	5
	SunGen1	Central Vermont Public Service	Sharon	VT	PV	c-Si	Operating	Private		Jul-12	3
	Agua Pennsylvania Pickering Solar Farm	Agua Pennsylvania	Phoenixville	PA	PV	c-Si	Operating	Private		Apr-12	2
	Las Vegas Water Treatment Solar Farm	Las Vegas Water	Las Vegas	NV	PV	c-Si	Operating	Private		Apr-13	3
	Dorchester Solar Site	National Grid	Suffolk	MA	PV	c-Si	Operating	Private			1
8minuteenergy	Mount Signal Solar Farm	SDG&E	Imperial Valley	CA	PV	c-Si	Under Construction	Private			200
Abengoa	Mojave Solar	Pacific Gas & Electric	San Bernardino Co	CA	CSP	Parabolic Trough	Under Construction	Public	2008		280
Abengoa	Solana	Arizona Public Service	Gila Bend	AZ	CSP	Parabolic Trough	Under Construction	Private	Sep-07		280
American Capital Energy	Searchlight Solar	NV Energy	Searchlight	NV	PV	c-Si	Under Construction	Private	2009		20
American Capital Energy		National Grid	Boston	MA	PV	c-Si	Under Construction	Private			2
Argand Energy	Airport Ground Solar 1	Progress Energy	Johnston County	NC	PV	c-Si	Under Construction	Private	Mar-12		2
Arizona Public Service	Foothills Solar Plant	Arizona Public Service	Yuma County	AZ	PV	c-Si	Under Construction	Public	Apr-12		18
Beautiful Earth Group	Beautiful Energy	Southern California Edison	Lancaster	CA	PV	c-Si	Under Construction	Private			34
Beautiful Earth Group	Beautiful Energy	Southern California Edison	Lancaster	CA	PV	c-Si	Under Construction	Private			16
Blue Green Energy		Progress Energy	Lilesville	NC	PV	c-Si	Under Construction	Private			3
BlueChip Energy	Sorrento Eagle Dunes Solar Farm	Progress Energy Florida/SECO	Sorrento	FL	PV	c-Si	Under Construction	Private	Mar-11		40
Borrego Solar	Easthampton Landfill Solar Project	City of Easthampton	Easthampton	MA	PV	c-Si	Under Construction	Private			2
Brightfields Development	Scituate Landfill Solar	Town of Scituate	Scituate	MA	PV	PV	Under Construction	Private			3
BrightSource Energy	Ivanpah Solar Electric Generating System (SEGS) I	Pacific Gas & Electric	Barstow	CA	CSP	Power Tower	Under Construction	Public	2006		126
BrightSource Energy	Ivanpah Solar Electric Generating System (SEGS) II	Southern California Edison	Barstow	CA	CSP	Power Tower	Under Construction	Public	2006		133
BrightSource Energy	Ivanpah Solar Electric Generating System (SEGS) III	Pacific Gas & Electric	Barstow	CA	CSP	Power Tower	Under Construction	Public	2006		133
CME Energy	East Providence Landfill Solar Array	National Grid	East Providence	RI	PV	c-Si	Under Construction	Private			4
Conectiv Energy	Vineland Solar One Expansion	Vineland Municipal Electric Utility	Vineland	NJ	PV	c-Si	Under Construction	Private			12
Conergy	Ingram's Mill Farm	PJM wholesale market	Chester County	PA	PV	c-Si	Under Construction	Private	2009		1
ET Energy Solutions LLC	Indianapolis Airport Solar Farm Phase 1	Indianapolis Power and Light	Indianapolis	IN	PV	c-Si	Under Construction	Private			10
First Solar	AV Solar Ranch One	Pacific Gas & Electric	Antelope Valley	CA	PV	Thin-film	Under Construction	Private	Mar-09		115
First Solar	Topaz Solar Farm	Pacific Gas & Electric	Carrizo Plains	CA	PV	Thin-film	Under Construction	Private	Apr-08		550
First Solar	Desert Sunlight	Southern California Edison	Desert Center	CA	PV	Thin-film	Under Construction	Public	2006		550
First Solar	Copper Mountain 2	Pacific Gas & Electric	Boulder City	NV	PV	Thin-film	Under Construction	Private	11-Mar		58
First Solar	Imperial Solar Energy Center South	San Diego Gas & Electric	Imperial County	CA	PV	Thin-film	Under Construction	Private			130
First Solar	Campo Verde	SDG&E	Imperial County	CA	PV	Thin-film	Under Construction	Public/Private			139
First Solar	Agua Caliente	Pacific Gas & Electric	Yuma County	AZ	PV	Thin-film	Under Construction	Private	2008		40
First Solar	Macho Springs Solar Project	El Paso Electric	Deming	NM	PV	Thin-film	Under Construction	Public	Nov-12		50
First Solar	Otero County Solar Energy Center	PNM	Otero County	NM	PV	Thin-film	Under Construction	Private			8
Gehrlicher Solar America Corp.	Rio Rico Phase 2	UniSource Energy Services	Rio Rico	AZ	PV	c-Si	Under Construction	Private			3
GrandView Solar PV One LLC	GrandView Solar PV One	Idaho Power Co.	Mountain Home	ID	PV	c-Si	Under Construction	Private			20
GreenVolts Inc.	GV1	Pacific Gas & Electric	Byron	CA	PV	CPV	Under Construction	Private	2007		2
Greenwood Biosar		Vermont Electric Cooperative	Burlington	VT	PV	c-Si	Under Construction	Private			2
Hoku Solar	Oahu Military Housing Solar Farm	Forest City Military Communities	Oahu	HI	PV	c-Si	Under Construction	Private			1
Inman Solar	Chattanooga Metropolitan Airport Solar Farm	EPB/Tennessee Valley Authority	Chattanooga	TN	PV	c-Si	Under Construction	Private		Feb-12	3
K Road Solar	Moapa Solar Project	Los Angeles Department of Water	Clark County	NV	PV	c-Si	Under Construction	Public			350
LS Power	Centinela Solar Energy	San Diego Gas & Electric	Imperial Valley	CA	PV	c-Si	Under Construction	Public	2010		170
LS Power	Arlington Valley Solar Project II	San Diego Gas & Electric	Arlington	AZ	PV	c-Si	Under Construction	Private	2008		106
mmun	Agricenter International	Tennessee Valley Authority	Memphis	TN	PV	c-Si	Under Construction	Private			1
New Energy and Industrial Technology Development Organization	Los Alamos County Landfill Solar Facility		Los Alamos	NM	PV	c-Si	Under Construction	Private			2
NextEra Energy Resources	Genesis Solar Energy Project	Pacific Gas & Electric	Riverside County	CA	CSP	Parabolic Trough	Under Construction	Public	Jan-07		125
OCI Solar Power	Alamo 1 Solar Farm	CPS Energy	San Antonio	TX	PV	c-Si	Under Construction	Private			41
RRE Austin Solar/Panasonic Enterprise Solutions	Pflugerville Solar Power Plant		Pflugerville	TX	PV	c-Si	Under Construction	Private			48
Sempra Generation	Copper Mountain 3	Los Angeles Department of Water	Boulder City	NV	PV	c-Si	Under Construction	Private			250
Silicon Ranch	Simon Solar Farm	Georgia Power	Social Circle	GA	PV	c-Si	Under Construction	Private	Jan-12		30
SolarPlanet	Wapakoneta Solar Farm		Wapakoneta	OH	PV	c-Si	Under Construction	Private			3
SolarReserve	Crescent Dunes Solar Energy Project	NV Energy	Nye County	NV	CSP	Power Tower	Under Construction	Public	Nov-08		110
Solon		UniSource Energy Services	Kingman	AZ	PV	c-Si	Under Construction	Private			1
Strata Solar	Mount Olive Solar Farm		Mount Olive	NC	PV	c-Si	Under Construction	Private	Nov-12		6
Strata Solar	Bolton Solar Farm	Progress Energy Carolinas		NC	PV	c-Si	Under Construction	Private			7
Strata Solar	White Cross	Duke Energy	Orange	NC	PV	PV	Under Construction	Private			6
Strata Solar	Moorings Solar	Duke Energy		NC	PV	PV	Under Construction	Private			6
Strata Solar	Bolton Solar Farm	Duke Energy		NC	PV	PV	Under Construction	Private			7
Strata Solar	McCallum	Duke Energy		NC	PV	PV	Under Construction	Private			6
Strata Solar	Dement	Duke Energy		NC	PV	PV	Under Construction	Private			7
SunEdison	Spectrum Solar	NV Energy	Clark County	NV	PV	c-Si	Under Construction	Private			30
SunEdison	Chino Valley Solar Plant	Arizona Public Service	Chino Valley	AZ	PV	c-Si	Under Construction	Private			20
SunEdison	Granville Solar Facility	Progress Energy Carolinas	Granville	NC	PV	c-Si	Under Construction	Private			3
SunEnergy1	Plymouth Solar Center	PJM	Plymouth	NC	PV	c-Si	Under Construction	Private			8
SunPower	California Valley Solar Ranch	Pacific Gas & Electric	San Luis Obispo	CA	PV	c-Si	Under Construction	Private	Jan-09		120
SunPower	AVSP	Southern California Edison	Rosamond	CA	PV	c-Si	Under Construction	Private			579
SunPower	Yolo County Solar Farm	Yolo County	Woodland	CA	PV	c-Si	Under Construction	Public			3
SunPower	Yolo County Solar Farm	Yolo County	Davis	CA	PV	c-Si	Under Construction	Public			3
Tangent Energy Solutions	Peninsula Solar Project	Delmarva Power	Wilmington	DE	PV	c-Si	Under Construction	Private			2
	Mantano Solar Energy Center	PNM	Los Lunas	NM	PV		Under Construction	Private			20
510nano, Inc.		Dominion North Carolina Power	Northampton Cou	NC	PV	c-Si	Under Development	Private			1
8minuteenergy	Calexico Solar Farm 1		Imperial Valley	CA	PV	c-Si	Under Development	Private			200
8minuteenergy	Calexico Solar Farm 2		Imperial Valley	CA	PV	c-Si	Under Development	Private			200
8minuteenergy	Calipatria Solar Farm 1		Imperial Valley	CA	PV	c-Si	Under Development	Private			27
8minuteenergy	Chocolate Mountains Solar Farm		Imperial Valley	CA	PV	c-Si	Under Development				50
8minuteenergy	Midway Solar Farm 1		Imperial Valley	CA	PV	c-Si	Under Development	Private			50
8minuteenergy	Midway Solar Farm 2		Imperial Valley	CA	PV	c-Si	Under Development	Private			155
8minuteenergy	Midway Solar Farm 3		Imperial Valley	CA	PV	c-Si	Under Development	Private			200
8minuteenergy	Midway Solar Farm 4		Imperial Valley	CA	PV	c-Si	Under Development	Private			50
8minuteenergy	Salton Sea Solar Farm 1		Imperial Valley	CA	PV	c-Si	Under Development	Private			50
8minuteenergy	Salton Sea Solar Farm 2		Imperial Valley	CA	PV	c-Si	Under Development	Private			100
8minuteenergy	Lotus Solar Farm		Madera County	CA	PV	c-Si	Under Development	Private	2012		67
8minuteenergy	Redcrest Solar Farm	Southern California Edison	Kern County	CA	PV	c-Si	Under Development	Private	2013		20
Abengoa			Imperial Valley	CA	PV	c-Si	Under Development	Private	Jun-12		200
AES Solar			Palm Springs	CA	PV	c-Si	Under Development	Private			13
AES Solar	Imperial Valley Solar Project	San Diego Gas & Electric	Imperial Valley	CA	PV	c-Si	Under Development	Public	2011		709
AES Solar	Kalaeloa Home Lands Solar		West Oahu	HI	PV	c-Si	Under Development	Private			5
Alblasa	Kingman Project		Kingman	AZ	CSP	Parabolic Trough	Under Development	Private	2009		200
Alternate Power Development Northwest	GrandView Solar PV Four		Mountain Home A	ID	PV	c-Si	Under Development	Private			20

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Developer	Project Name	Electricity Purchaser	City/County	State	PV/CSP	Technology	Status	Land Type	Date Announced	Online Date	Capacity
Alternate Power Development Northwest	Grandview Solar PV Three		Mountain Home A	ID	PV	c-Si	Under Development	Private			20
Alternate Power Development Northwest	Grandview Solar PV Two		Mountain Home A	ID	PV	c-Si	Under Development	Private			20
American Capital Energy	Campbell Soup Solar Array	Cape & Vineyard Electric Cooperati	Cape Cod	MA	PV	c-Si	Under Development	Private			18
American Capital Energy		Campbell Soup Company	Sacramento	CA	PV	c-Si	Under Development	Private	Apr-11		2
Amnergy	Ridgecrest Center Solar Project	Florida Power & Light Co.			PV	c-Si	Under Development	Private			5
Amonix	Blythe	Progress Energy Carolinas	Ridgecrest	NC	PV	c-Si	Under Development	Private			22
Amonix	Garnet	Southern California Edison			PV	CPV	Under Development	Private	Nov-10		5
Amonix	Littlerock	Southern California Edison			PV	CPV	Under Development	Private	Nov-10		5
Amonix	Lucerne	Southern California Edison	Torrance	CA	PV	CPV	Under Development	Private	Nov-10		5
Arizona Public Service	Hyder Solar Plant II	Arizona Public Service	Lucerne Valley	CA	PV	CPV	Under Development	Private	Nov-10		14
Arizona Public Service	Gila Bend Solar	Arizona Public Service	Hyder	AZ	PV	c-Si	Under Development		Sep-12		14
Arreva	TEP's Sundt Boost Project	Tucson Electric Power	Gila Bend	AZ	PV	c-Si	Under Development	Private			32
Atlantic Green Power	Upper Pittsgrove Township Solar Farm		Tucson	AZ	CSP	CLFR	Under Development	Private	31-Jan-12		5
Axio Power	The Greenfield Solar Farm	Town of Greenfield	Salem County	NJ	PV	c-Si	Under Development	Private			80
BlueChip Energy	Sorrento Eagle Dunes Solar Farm Expansion	Progress Energy Florida	Greenfield	MA	PV	c-Si	Under Development	Public			2
BlueChip Energy	Rinehart Solar Farm Phase 2	Progress Energy Florida	Sorrento	FL	PV	c-Si	Under Development	Private	Jan-12		60
Boulder Solar Power, LLC	Midland Solar Energy Project		Lake County	FL	PV	c-Si	Under Development	Private			8
BrightSource Energy	Coyote Springs 1	Pacific Gas & Electric	Boulder City	NV	PV	c-Si	Under Development	Public	2013		
BrightSource Energy	Coyote Springs 2	Pacific Gas & Electric	Coyote Springs	NV	CSP	Power Tower	Under Development	Private			200
BrightSource Energy	Apex-BSE		Coyote Springs	NV	CSP	Power Tower	Under Development	Private			200
BrightSource Energy	Sonoran West		Clark County	NV	CSP	Power Tower	Under Development	Public	2012		750
BrightSource Energy/Abengoa	Palen Solar Power Project	Southern California Edison	Riverside	CA	CSP	Power Tower	Under Development	Private			540
C.F. Properties		Southern California Edison	Desert Center	CA	CSP	Power Tower	Under Development	Public	2009		500
Calithness	Soda Mountain Solar Project		Barstow	CA	PV	c-Si	Under Development	Private	2010		19
Cascade Solar, LLC			Baker	CA	PV		Under Development	Public	Oct-12		350
Chevron Energy Solutions	Lucerne Valley Solar Project	Southern California Edison	Joshua Tree	CA	PV	c-Si	Under Development	Private			10
Corporación Gestamp/ GA-Solar		Southern California Edison	San Bernardino Co	CA	PV	Thin-film	Under Development	Public	Filed 2008/NOI 2009		45
CPV Renewable Energy Company	CPV Piney Reach Solar Farm		Guadalupe County	NM	PV	c-Si	Under Development		2010		300
CTC Electric	Ponterril Solar Project		Charles County	MD	PV	c-Si	Under Development	Private	2009		10
Dominion Resources		Western Massachusetts Electric Co	Pittsfield	MA	PV	c-Si	Under Development	Private			3
Dominion Resources		Indianapolis Power and Light		IN	PV	Thin-film	Under Development	Private	Jul-12		10
Dominion Resources		Indianapolis Power and Light		IN	PV	Thin-film	Under Development	Private	Aug-12		10
EDF Renewables	Marin Solar Facility	Indianapolis Power and Light		IN	PV	Thin-film	Under Development	Private	Sep-12		10
EDF Renewables	Corcoran	Marin Clean Energy	Kern/Kings/Tulare	CA	PV	c-Si	Under Development				31
EDF Renewables	Desert Harvest	Pacific Gas & Electric	Kings County	CA	PV	c-Si	Under Development	Private			20
Element Power	Carlis Corner Solar Farm		Riverside County	CA	PV	c-Si	Under Development	Public			150
Element Power	Copper Rays Solar Farm		Cumberland	NJ	PV	c-Si	Under Development	Private			20
Element Power	Alpine Solar Farm		Nye County	NV	PV	c-Si	Under Development	Public			200
Element Power	Armadillo Flats Solar Farm		Presidio	TX	PV	c-Si	Under Development	Private			50
Element Power	Great Valley Solar Farm		Pueblo	CO	PV	c-Si	Under Development	Private			30
Element Power	High Desert Solar Farm		Tulare	CA	PV	c-Si	Under Development	Public			120
Element Power	Little Mountain solar project		Kern	CA	PV	c-Si	Under Development	Private			16
Element Power	Marion Country Solar Farm		Weber County	UT	PV	c-Si	Under Development	Private	5/15/2010		55
Element Power	Mojave View Solar Farm		Marion	OH	PV	c-Si	Under Development	Private			15
Element Power	New Market Solar Farm		Kern	CA	PV	c-Si	Under Development	Private			200
Element Power	Wild Sands Solar Farm		Dorchester	MO	PV	c-Si	Under Development	Private			15
Element Power	Wildflower Green Energy Farm		Riverside	CA	PV	c-Si	Under Development	Private			20
Element Power	Sun Streams Solar Farm		Los Angeles	CA	PV	c-Si	Under Development	Private			100
Energy S.O	Florida Solar 1	Tampa Electric	Maricopa	AZ	PV	c-Si	Under Development	Private			150
Energy Farm Inc.			Polk County	FL	PV	c-Si	Under Development	Private	2009		25
ENN Mojave Energy	Mojave Green Center Phase I		Freeport	FL	PV	c-Si	Under Development	Private			24
ENN Mojave Energy	Mojave Green Center Phase II			NV	PV	Thin-film	Under Development	Private	Jul-11		360
ESA Renewables	Claysville Solar Farm			NV	PV	Thin-film	Under Development	Private	Jul-11		360
ET Energy Solutions LLC	Indianapolis Airport Solar Farm Phase 2		Washington	PA	PV	c-Si	Under Development	Private			20
First Solar	Silver State South Solar Project	Indianapolis Power and Light	Indianapolis	IN	PV	c-Si	Under Development	Private			10
First Solar	Stateline Solar Farm	Southern California Edison	Primm	NV	PV	Thin-film	Under Development	Public			250
First Solar	Cuyama	Southern California Edison	San Bernardino Co	CA	PV	Thin-film	Under Development	Private			300
First Solar	Lost Hills	Pacific Gas & Electric	Santa Barbara	CA	PV	Thin-film	Under Development	Private			40
First Solar		Pacific Gas & Electric	Kern County	CA	PV	Thin-film	Under Development	Private			32
First Solar	Solar Gen 2	PNM			PV	Thin-film	Under Development	Private	Sep-12		20
First Solar		SDG&E	El Centro	CA	PV	Thin-film	Under Development	Private			150
First Solar		PNM		NM	PV	Thin-film	Under Development	Private	Jul-13		7
Florida Power & Light Co.		PNM		NM	PV	Thin-film	Under Development	Private	Jul-13		7
GDT Tek	Babcock Ranch	PNM		NM	PV	Thin-film	Under Development	Private	Jul-13		7
Gestamp	Desert Hot Springs Solar Farm	Florida Power & Light Co.	Babcock Ranch	FL	PV	c-Si	Under Development	Private			75
Gestamp		Wholesale	Desert Springs	CA	PV	c-Si	Under Development	Private	Mar-12		20
GRE 214 East Lyme LLC	East Lyme Solar Park		Williamstown	VT	PV	c-Si	Under Development	Private	Jul-12		3
Green Energy Capital Partners	Pennsylvania Solar Park	Connecticut Light & Power	Pownal	VT	PV	c-Si	Under Development	Private	Jul-12		2
GWS Technologies Inc.	Florence Solar Farm			CT	PV	c-Si	Under Development	Private			5
Hanwha SolarEnergy America	Garnet Solar Project		Nesquehoning	PA	PV	c-Si	Under Development	Private	2010		10
Harper Lake LLC	Harper Lake Solar Plant	Southern California Edison	Florence	AZ	PV	c-Si	Under Development				6
HelioSage Energy LLC	Somers Solar Center		Palm Springs	CA	PV	c-Si	Under Development	Private			5
HERO Solar	Hamilton County Solar Farm	Connecticut Light & Power		CA	CSP	Parabolic Trough	Under Development		2013		250
Horizon Energy Group	Solar Forest	Progress Energy		CT	PV	c-Si	Under Development		2008		5
Infigen Energy	Pumpjack Solar 1		Hamilton County	FL	PV	c-Si	Under Development	Private			70
Infigen Energy	Wildwood Solar 1	Southern California Edison		NC	PV	c-Si	Under Development	Private	Jan-13		35
Inland Energy Inc.	Palmdale Hybrid Gas-Solar plant	Southern California Edison	Kern	CA	PV		Under Development	Private			20
Jemez Pueblo			Kern	CA	PV		Under Development	Private	Apr-13		20
Juwi Solar Inc.	Badger 1		Palmdale	CA	CSP	Parabolic Trough	Under Development	Private	Apr-13		50
KDC Solar			Jemez Pueblo	NM	PV	c-Si	Under Development	Public	2008		4
Lincoln Renewable Energy	NJ Cedar Solar Plant	Middlesex County	Maricopa	AZ	PV	c-Si	Under Development	Private			15
Lincoln Renewable Energy			Middlesex	NJ	PV	c-Si	Under Development	Private			7
Lincoln Renewable Energy	Marathon Solar Project		Manning Township	NJ	PV	c-Si	Under Development	Private			10
Lincoln Renewable Energy	Agincourt Solar Project	Southern California Edison	Alamosa County	CO	PV	c-Si	Under Development				37
LS Power	Arlington Valley Solar Project	Southern California Edison	San Bernardino Co	CA	PV	c-Si	Under Development	Private	Nov-12		25
MasTec Renewables	Mercer County Community College Solar Farm		San Bernardino Co	CA	PV	c-Si	Under Development	Private	Nov-12		13
Matinee Energy		MCCC	Arlington	AZ	PV	c-Si	Under Development	Private	2008		125
Matinee Energy			West Windsor	NJ	PV	PV	Under Development	Private	Jul-13		8
MMR Power Solutions	Mt. Signal Solar		Dragoon	AZ	PV	c-Si	Under Development	Private			150
Mojave Sun Power	Hualapai Valley Solar Project	SDG&E	Cochise	AZ	PV	c-Si	Under Development	Private			25
National Solar Power	Gadsden Solar Farm		Imperial Valley	CA	CSP	Parabolic Trough	Under Development				49
National Solar Power	Hardee Solar Farm	Progress Energy Florida	Mojave County	AZ	CSP	Parabolic Trough	Under Development				340
National Solar Power	Liberty County Solar Farm	Progress Energy Florida	Gadsden County	FL	PV	c-Si	Under Development	Private	Sep-11		400
Needle Mountain Power LLC	Sterling Project	Progress Energy Florida	Hardee	FL	PV	c-Si	Under Development	Private	Nov-11		200
New Harvest Ventures/Agile Energy	Turning Point Solar		Liberty	FL	PV	c-Si	Under Development	Private	Jan-12		100
		American Electric Power	Lake Havasu City	CA	PV	c-Si	Under Development	Private			1,200
			Cumberland	OH	PV	c-Si	Under Development	Private			50

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Developer	Project Name	Electricity Purchaser	City/County	State	PV/CSP	Technology	Status	Land Type	Date Announced	Online Date	Capacity
Newbury Solar 1		Southern California Edison	Newberry	CA	PV	c-Si	Under Development				8
NextEra Energy Resources	McCoy Solar Energy Center		Riverside County	CA	PV	c-Si	Under Development	Public			750
NextEra Energy Resources	Mountain View Solar	NV Energy	Clark County	NV	PV	c-Si	Under Development	Private			8
NextEra Energy Resources	Blythe Solar Power Project: Phase I	Southern California Edison	Blythe	CA	PV	c-Si	Under Development	Public	2009		486
NextEra Energy Resources	Sonoran Solar Energy Project		Maricopa County	AZ	PV	c-Si	Under Development	Private	2007		300
NextSun Energy	Beacon Solar Energy Project			CA	PV	c-Si	Under Development	Private			250
North Star Solar			Bellingham	MA	PV	c-Si	Under Development	Private			4
Northlight Power	North Star Power 1	Pacific Gas & Electric	Mendota	CA	PV	c-Si	Under Development	Private			60
NRG Energy		San Diego Gas & Electric	San Diego County	CA	PV		Under Development			Apr-13	7
NRG Solar	Wharton Generating Station	City of Houston	Houston	TX	PV	c-Si	Under Development	Private			10
NxGen Power LLC	Imperial Valley Campus Solar	Imperial Irrigation District	Brawley	CA	PV	c-Si	Under Development	Private		Apr-13	5
o2 Energies	Neuse River Wastewater Treatment Plant Solar Array II	Progress Energy Carolinas	Raleigh	NC	PV	c-Si	Under Development	Private		Mar-12	5
o2 Energies	Biscoe Solar	Progress Energy	Montgomery	NC	PV	c-Si	Under Development	Private			
o2 Energies	Turkey Branch solar	Progress Energy	Robeson	NC	PV	c-Si	Under Development	Private			
o2 Energies	Rockwell Solar	Duke Energy	Rowan	NC	PV	c-Si	Under Development	Private			
o2 Energies	Montgomery Solar	Progress Energy	Montgomery	NC	PV	c-Si	Under Development	Private			
o2 Energies	Wake Solar	Progress Energy	Wake	NC	PV	c-Si	Under Development	Private			
o2 Energies	Selma Solar	Progress Energy	Johnston County	NC	PV	c-Si	Under Development	Private			
OCI Solar Power	Alamo Solar Farm	CPS Energy	San Antonio	TX	PV	c-Si	Under Development	Private			
OHL Industrial	Picture Rocks Solar Farm		Picture Rocks	AZ	PV	c-Si	Under Development	Private	Jan-12		359
OPDE U.S. Corporation			West Sacramento	CA	PV	c-Si	Under Development	Private	Nov-12		200
Ormat		Imperial Irrigation District	Imperial Valley	CA	PV	c-Si	Under Development		2010		20
Pacific Blue Energy Corporation	Sunshine Solar Farm		Coconino County	AZ	PV	c-Si	Under Development	Private			10
Pacific Solar Investments Inc.	Amargosa North Solar Project		Nye County	NV	PV	Thin-film	Under Development	Private			20
Pegasus Energy Partners	Mountain House Solar Farm		Alameda County	CA	PV	c-Si	Under Development	Public			150
Power Partners Mastec	True North Solar Farm		Salisbury	MA	PV	c-Si	Under Development	Private	Apr-11		400
PowerWorks	Kauai Solar Project	Kaua'i Island Utility Cooperative	Kauai	HI	PV	c-Si	Under Development	Private			5
PPL Renewable Energy	Warren County Project	PPL Renewable Energy	Warren County	NJ	PV	c-Si	Under Development	Private			12
REC Solar	Anahola Solar Energy Project	Kaua'i Island Utility Cooperative	Kauai	HI	PV	c-Si	Under Development				5
Recurrent Energy		Southern California Edison	Kern County	CA	PV	c-Si	Under Development	Private	Feb-12		12
Recurrent Energy		Southern California Edison	San Bernardino Co	CA	PV	c-Si	Under Development	Private			22
Recurrent Energy		Southern California Edison	Kern County	CA	PV	c-Si	Under Development	Private			22
Recurrent Energy	RE Hassayampa I		Maricopa	AZ	PV	c-Si	Under Development	Private			6
Ridgeline Energy	RE Gillespie I		Maricopa	AZ	PV	c-Si	Under Development	Private			20
Scatec Solar	Frontier Solar	City of Palo Alto	Stanislaus County	CA	PV	c-Si	Under Development	Private			20
Scatec Solar	Redhills Renewable Energy Park		Iron County	UT	PV	c-Si	Under Development	Private	Jun-13		20
Scatec Solar	Westside Solar Ranch		Stanislaus County	CA	PV	c-Si	Under Development	Private	2013		100
SDG&E			Oahu	HI	PV	c-Si	Under Development	Private	2011		50
Seashore Solar	Ocotillo Sol	San Diego Gas & Electric	Imperial Valley	CA	PV	c-Si	Under Development	Public	2011		6
SECP/POSCO Power			Egg Harbor	NJ	PV	c-Si	Under Development	Public			14
Sempra Generation	Rosamond Solar		Boulder City	NV	PV	c-Si	Under Development	Private	Jan-12		13
SEPV 1, LLC			Rosamond	CA	PV	c-Si	Under Development	Private	2011		300
SEPV 2, LLC		Southern California Edison	Palmdale	CA	PV	c-Si	Under Development	Private	2010		300
Silverado Power		Southern California Edison	Twentynine Palms	CA	PV	c-Si	Under Development	Private			2
Silverado Power	Estancia Solar Farm	PNM	Estancia	NM	PV	c-Si	Under Development	Private			2
Silverado Power	Western Antelope Dry Ranch	San Diego Gas & Electric	Lancaster	CA	PV	c-Si	Under Development			11-Oct	50
Silverado Power	Victor Mesa Linda B Solar Project	San Diego Gas & Electric	Victorville	CA	PV	c-Si	Under Development	Private		Apr-12	10
Silverado Power	Expressway B	Southern California Edison	Victorville	CA	PV	c-Si	Under Development	Private		Apr-12	5
Silverado Power	Expressway A	Southern California Edison	Victorville	CA	PV	c-Si	Under Development	Private		Apr-12	2
Silverado Power	Victor Mesa Linda A Solar Project	Southern California Edison	Victorville	CA	PV	c-Si	Under Development	Private		Apr-12	2
Silverado Power	Western Antelope Blue Sky A	Pacific Gas & Electric	Lancaster	CA	PV	c-Si	Under Development	Private		Apr-12	2
Silverado Power		San Diego Gas & Electric	San Diego County	CA	PV		Under Development	Private		Apr-12	20
Silverado Power	Central Antelope Dry Ranch		Lancaster	CA	PV	c-Si	Under Development			Apr-13	20
Silverado Power	Elevation Solar	City of Palo Alto	Fresno	CA	PV	c-Si	Under Development	Private			52
Silverado Power	Western Antelope Blue Sky B	City of Palo Alto	Los Angeles Count	CA	PV	c-Si	Under Development	Private	Jun-13		40
Smart Energy Capital/Jacoby Development	Azalea Solar Facility	Cobb EMC	Washington	GA	PV	c-Si	Under Development	Private	Jun-13		20
Soltec	Desert Green Solar Farm		Borrego Springs	CA	PV	CPV	Under Development	Private	Apr-12		10
Soltec	LanEast Solar Farm	San Diego Gas & Electric	Boulevard	CA	PV	CPV	Under Development	Private	Aug-10		7
Soltec	LanWest Solar Farm	San Diego Gas & Electric	Boulevard	CA	PV	CPV	Under Development	Private	Jun-10		22
Soltec	Rugged Solar Farm	San Diego Gas & Electric	Boulevard	CA	PV	CPV	Under Development	Private	Jul-10		7
Soltec	Tierra Del Sol Solar Farm	San Diego Gas & Electric	Borrego Springs	CA	PV	CPV	Under Development	Private	Sep-10		80
Soltec Solar Development		San Diego Gas & Electric	San Diego County	CA	PV	CPV	Under Development	Private	Oct-10		45
Sol Orchard LLC		San Diego Gas & Electric	San Diego County	CA	PV	CPV	Under Development	Private	Apr-11		30
Solar Electric Solutions	San Luis Solar	Arizona Public Service	San Luis	AZ	PV	c-Si	Under Development	ublic (State Ownec	Apr-11		50
Solar Energy Initiatives Inc.	California Solar Park			CA	PV	c-Si	Under Development	Private	Dec-12		20
Solar Energy Initiatives Inc.	West Texas Solar Park			TX	PV	c-Si	Under Development				100
Solar Land Partners	Charca		Wasco	CA	PV	c-Si	Under Development	Private			300
Solar Land Partners	Wasco		Wasco	CA	PV	c-Si	Under Development	Private			4
Solar Power Inc.			Rio Linda	CA	PV	c-Si	Under Development				4
SolarCity	Grove Farm	Kaua'i Island Utility Cooperative	Kauai	HI	PV	c-Si	Under Development	Private			10
SolarFlair	Charlton Solar Farm	National Grid	Charlton	MA	PV	c-Si	Under Development	Private			14
Solargen Energy	Panoche Valley Solar Farm		San Benito County	CA	PV	c-Si	Under Development	Private			2
Solarhybrid	Amargosa Farm Road Solar Energy Project 1	NV Energy	Nye County	NV	PV	c-Si	Under Development	Public	2007		420
Solarhybrid	Amargosa Farm Road Solar Energy Project 2	NV Energy	Nye County	NV	PV	c-Si	Under Development	Public	2007		242
Solarhybrid	Ridgecrest		Kern County	CA	PV	c-Si	Under Development	Public	2007		242
SolarReserve	Rice Solar Energy Project	Pacific Gas & Electric	Riverside County	CA	CSP	Power Tower	Under Development	Public			250
SolarReserve	Saguache Solar Energy Project		Saguache County	CO	CSP	Power Tower	Under Development	Private	2009		150
SolarReserve	Quartzsite Solar Energy Project		La Paz County	AZ	CSP	Power Tower	Under Development	Private			200
SolarReserve	Crossroads Solar Energy Project		Gila Bend	AZ	CSP	Power Tower	Under Development	Public			100
SolarReserve	Crossroads Solar Energy Project		Gila Bend	AZ	PV	c-Si	Under Development	Private	2011		150
SolarVision	Yellow Springs Solar Array	Yellow Springs Township	Yellow Springs	OH	PV	c-Si	Under Development	Private	2011		65
Southern Sky Renewable Energy	Ravenbrook Landfill Solar Project		Carver	MA	PV	c-Si	Under Development	Private			3
Strata Solar	Duplin Solar Project		Duplin	NC	PV	c-Si	Under Development	Private	Jun-13		6
Strata Solar		Tennessee Valley Authority	McNairy	TN	PV	PV	Under Development	Private	Feb-13		100
Strata Solar		Tennessee Valley Authority	McNairy	TN	PV	PV	Under Development	Private	Aug-13		20
SunEdison	Regulus Solar	Southern California Edison	Kern County	CA	PV	c-Si	Under Development	Private	Aug-13		20
SunEdison		Southern California Edison	Los Angeles	CA	PV	c-Si	Under Development	Private			75
SunEdison	Antelope Solar Farm	Southern California Edison	Lancaster County	CA	PV	c-Si	Under Development	Private			20
SunEdison	Adobe Solar	Southern California Edison	Kern County	CA	PV	c-Si	Under Development	Private			20
SunEdison		California State Universities		CA	PV	Thin-film	Under Development	Public			20
SunEdison	North Lake I	Riverside Public Utilities	Riverside	CA	PV	c-Si	Under Development	Private	Nov-12		8
SunEdison	Orion Solar	Pacific Gas & Electric	Kern County	CA	PV	c-Si	Under Development	Private			20
SunEdison	Mojave Solar	Southern California Edison	Kern County	CA	PV	c-Si	Under Development	Private			20
SunEdison	Charles M. Schulz-Sonoma County Airport Solar Farm	Sonoma County Water Agency	Sonoma	CA	PV	c-Si	Under Development			Jan-13	20
SunEdison	North Lake I	Riverside Public Utilities	Riverside	CA	PV	c-Si	Under Development				20
Sunergy World	Boise Airport Solar		Boise	ID	PV	c-Si	Under Development	Public			10

SEIA Solar Energy Industries Association

Major Solar Projects in the United States
Operating, Under Construction, or Under Development
Updated September 3, 2013

Developer	Project Name	Electricity Purchaser	City/County	State	PV/CSP	Technology	Status	Land Type	Date Announced	Online Date	Capacity
SunPeak Solar	Imperial Valley Solar Company 2	Imperial Irrigation District	Niland	CA	PV	c-Si	Under Development	Private			20
SunPower	Quinto	Southern California Edison	Los Banos	CA	PV	c-Si	Under Development	Private			110
SunPower	Henrietta Solar Project	Pacific Gas & Electric	Kings County	CA	PV	c-Si	Under Development	Private			100
SunPower	Apple Data Center Array- Washoe County	Apple	Washoe	NV	PV	c-Si	Under Development	Private	Jul-13	Apr-13	20
SunWorks Solar Systems			Central Fla.	FL	PV	c-Si	Under Development				2
Sustainable Energy Capital Partners		Southern California Edison	Santa Ana	CA	PV	Thin-film	Under Development				20
Syncarpha Capital			Easthampton	NJ	PV	c-Si	Under Development	Private			3
Teanaway Solar Reserve LLC	Teanaway Solar Reserve		Cle Elum	WA	PV	c-Si	Under Development	Private			75
Tenaska	Imperial Solar Energy Center West	San Diego Gas & Electric	Imperial County	CA	PV	CPV	Under Development	Private	Mar-11		150
Tenaska	Silverleaf		Imperial Valley	CA	PV	c-Si	Under Development	Private			160
TenK Energy		Ashburnham Municipal Light Plant	Ashburnham	MA	PV	c-Si	Under Development	Private			3
Tucson Electric Power	Bright Tucson	Tucson Electric Power	Tucson	AZ	PV	c-Si	Under Development	Private	Sep-09		2
Tuusso Energy	West Antelope Project	Pacific Gas & Electric	Lancaster	CA	PV		Under Development				20
Tuusso Energy	Antelope Project	Southern California Edison	Lancaster	CA	PV		Under Development				20
Vidler Water Co.	Fish Springs Solar Ranch		Washoe County	NV	PV	c-Si	Under Development	Private			750
Wanxiang America/New Generation Power	Rockford Solar Project	Ameren Illinois	Rockford	IL	PV	c-Si	Under Development	Private			60
Western Massachusetts Electric Co.		Western Massachusetts Electric Co	Springfield	MA	PV	c-Si	Under Development	Private			4
Western Wind	Yabucoa Solar Project	Puerto Rico Electric Power Authori	Yabucoa	PR	PV	c-Si	Under Development	Public	Mar-11		30
Westside Holdings	Westlands Solar Park		Kings County	CA	PV	c-Si	Under Development				2,700
Westwood Renewables		Dairyland Power Cooperative	Olmsted County	MN	PV	c-Si	Under Development		2010?		2
		Los Angeles Department of Water	Owens Lake	CA	PV	c-Si	Under Development	Private	2010		10
	Aloha Solar Energy Project		Desert Hot Springs	CA	PV	c-Si	Under Development	Private	2012		3
	Solar 1	Arizona Public Service	Tonopah	AZ	PV	c-Si	Under Development	Private			15

1100
4:45 $3.00 Rev.
29 6.50
mf

STATE OF NORTH CAROLINA REAL ESTATE EXCISE TAX $50.00

STATE OF NORTH CAROLINA REAL ESTATE EXCISE TAX $3.00

Excise Tax

Filed for registration and recorded this the 29 day of June, 1982 at 4:45 P.M. in Book ____, Page ____.

Elizabeth S. Carpenter
Register of Deeds

Recording Time, Book and Page

Tax Lot No. ..... Parcel Identifier No. .....

Verified by ..... County on the ..... day of ....., 19.....

by .....

Mail after recording to Mr. & Mrs. Daniel D. McLean, Jr., P.O. Box 743, Lenoir, NC 28645

This instrument was prepared by K. Dean Black, Kennedy & Black, Attorneys at Law, Denver & Lincolnton, N. C.

Brief description for the Index

NORTH CAROLINA GENERAL WARRANTY DEED

THIS DEED made this 28th day of June, 1982, by and between

GRANTOR	GRANTEE
ROBERT B. QUINN and wife, SHARON S. QUINN	DANIEL D. McLEAN, JR. and wife, MARTHA H. McLEAN

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.g. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that certain lot or parcel of land situated in the City of ....., Catawba Springs Township, Lincoln County, North Carolina and more particularly described as follows:

BEGINNING at a stake in Hugh Sherrill's northern line, said BEGINNING point being located South 87 deg. 30 min. West 152 feet from an old iron in Hugh Sherrill's northern line, running thence from said BEGINNING point two new lines with Everette Eugene Dellinger property as follows: North 37 deg. 03 min. West 210 feet to a stake and North 87 deg. 30 min. East 210 feet to a point in the center of N. C. Paved Road No. 1376; running thence with the center of N. C. Paved Road No. 1376, South 37 deg. 03 min. East 210 feet to a point in the center of said road, the northeast corner of Hugh Sherrill property; running thence leaving the road a line with Hugh Sherrill property, South 87 deg. 30 min. West 210 feet passing an old iron (located 58 feet from the center of said road) to a stake, the point of BEGINNING, containing approximately 1 ACRE, in accordance with a plat prepared by Gene Ross, Registered Surveyor, dated July 24, 1972.

TITLE REFERENCE: See Warranty Deed recorded in Book 535, at Page 204, Lincoln County Public Registry.

As part of the consideration for this conveyance, the Grantees expressly assume and agree to pay that certain obligation represented by that Deed of Trust dated January 14, 1974 from Daniel A.

Lincoln County Property Record Card

Parcel 31546 | **Appraisal Year 2013** | **Pin 4615-20-1665**

Physical Location 4301 BURTON LN | **Map 4615-17**

Owner

Owner	MCLEAN DANIEL D JR MCLEAN MARTHA H ***	**Deed**	589-479
		Deed Year	1982
		Deed Acres	0
Mailing Address	P O BOX 1162 DENVER NC 28037-1162	**Map Acres**	0.651
Account	21534		
Fire District	DENVER	**Land Market Value**	$49,500
Township	CATAWBA SPRINGS	**Improvement Market Value**	$141,149
Neighborhood	0515	**Total Market Value**	$190,649
Description	QUINN HMST RD 1376		
Category	REAL		

Sales History

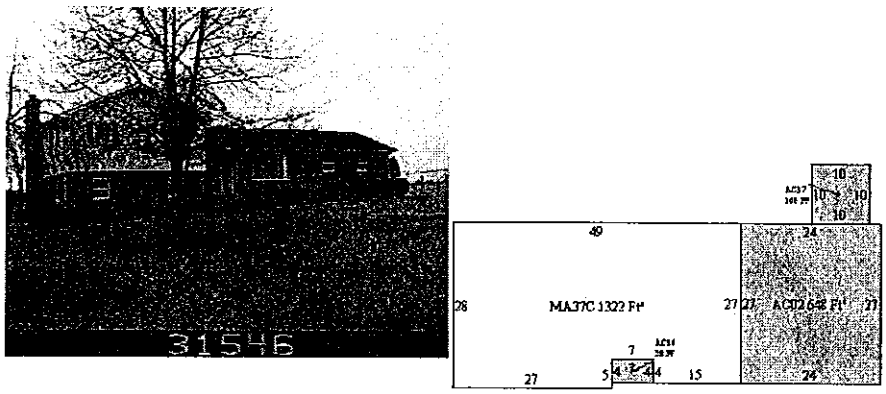
Deed	Sale Date	Type	Qualify	Sale Price	Stamps	Deed Name
0589-0479	6/29/1982	CVT	NO	$0	$0	MCLEAN DANIEL D JR & MARTHA H
0535-0204		CNV	NO	$0	$0	ABERNETHY DANIEL A
0589-0479		CNV	NO	$0	$0	QUINN ROBERT B

Land Segments

Land Segment	Zone Code	Land Type	Land Code	Quantity
1	R-SF	LT	B1	1
2	R-SF	SI	CS	1
		Total Acres		0.651

Improvements

Improvement	1
Description	SPLIT LEVEL
Quality Grade	B-10
Year Built	1973
Effective Year Built	1973
Stories	1
Rooms	8
Bedrooms	4
Bathrooms	3
Half Baths	0
Heat/Air	HEAT PUMP
Fireplace	1
Finished Basement	727
Unfinished Basement	0
Main Finished Area	1322
Market Value	$130,816



Click here to zoom to this record

Miscellaneous Improvements

Improvement	Description	Area	Year Built	Market Value
2	SWIMMING POOL VINYL	512	1980	$9,933
3	CAR SHED	400	2002	$400

Lincoln County Property Record Card

Parcel 31546 | **Appraisal Year 2013** | **Pin 4615-20-1665**

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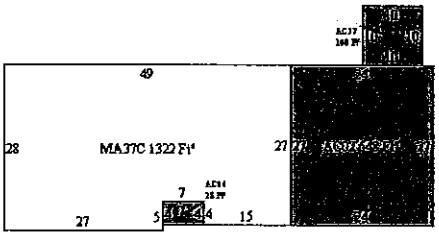

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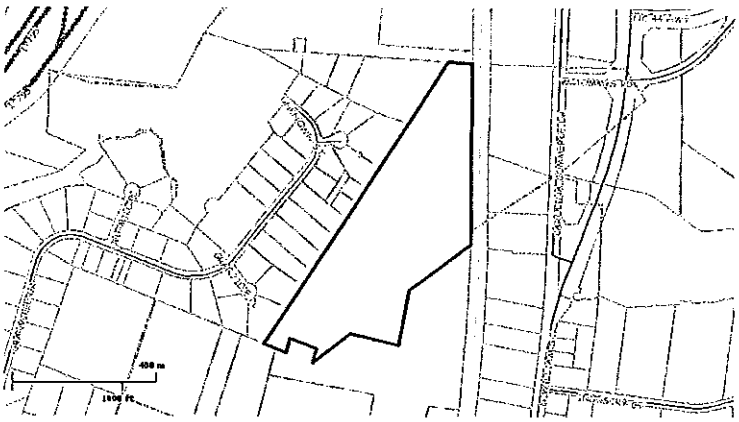


N Number:	3600294455	Owner Name:	NORTH CAROLINA WAREHOUSING LLC
wner/Address 1:	PO BOX 11360	Owner/Address 2:	
ity:	GOLDSBORO	State:	NC
p Code:	27532	Neighborhood:	06903
operty Address:	N WILLIAM ST	Deed Book-Page:	1889-898
creage:	34.090	Sale Year:	01
ale Price:	$165,000.00	Land Value:	$153,410.00
ilding Value:	$0.00	OBXF Value:	$0.00
eferred Value:	$0.00	Total Value:	$153,410.00

Conditional Use Permit Application

Lincoln County Planning and Inspections Department
Zoning Administrator
302 N. Academy St., Suite A, Lincolnton, NC 28092
Phone: (704)736-8440 FAX: (704)732-9010

PART I

Applicant Name Strata Solar, LLC / Haynes Farm, LLC

Applicant Address 1119 US 15-501 South, Chapel Hill, NC 27517

Applicant Phone Number 919-960-6015 ext 125

Property Owner Name Heirs of Paul Haynes

Property Owner Address 3241 Maiden Highway, Lincolnton, NC 28092

Property Owner Phone Number _____

PART II

Property Location Triple H Lane.

Property ID (10 digits) 19916 + 19888 (3635-25-1174 + 3635-23-4836) Property size 459.529

Parcel # (5 digits) 19916 + 19888 Deed Book(s) 1380-581 Page(s) _____

PART III

Existing Zoning District R-T and R-R

Briefly describe how the property is being used and any existing structures.

Pasture land

Briefly explain the proposed use and/or structure which would require a Conditional Use Permit.

PV Solar Farm

$750 APPLICATION FEE MUST BE RECEIVED BEFORE PROCESSING.

I hereby certify that all knowledge of the information provided for this application and attachments is true and correct to the best of my knowledge.

Sara H Williams — 10/11/12

Applicant's Signature — Date

Project Overview

Strata Solar plans to develop an approximately 5.0 (A/C)-megawatt photovoltaic ("PV") solar facility in western Lincoln County. The real property is being leased on a 20-year lease with two, 5-year options (at the lessee's option). The power generated is being sold to Duke Energy through a Power Purchase Agreement ("PPA").

The solar facility is made up of approximately 26,000, 240-watt+- solar panels. The panels are generally rated to degrade at no more than 0.3% per year and have a useful life of at least 30 years. The panels are warranted to produce at 90% output at year 10 and 80% at year 25.

Strata Solar completed a similar projects in Kings Mountain, Cleveland County, in December 2012. In 2013, approximately 9 similar projects have had construction begin. A number of similar projects are planned by Strata Solar in North Carolina for construction in 2013.

APPLICANT'S PROPOSED FINDINGS OF FACT FOR A CONDITIONAL USE PERMIT

Application No. CUP #321

Applicant **Strata Solar, LLC**

Applicant's Address **1119 US 15/501 Hwy. South, Chapel Hill, NC 27577**

Property Location **Tripple H Lane (PID# 19916 and 19888)** Zoning District **R-T, R-R**

Proposed Conditional Use **solar power generation facility (major utility)**

PROPOSED FINDINGS

1. The use will not materially endanger the public health or safety if located where proposed and developed according to plan.

The facility will be designed and built to code. All components will be fenced in with chain link fencing. The facility will not produce any emissions or contain any hazardous materials.

2. The use meets all required conditions and specifications.

A solar power generation facility is a conditional use in the R-T and R-R districts. The plan meets the setback and streamside buffer requirements of the Lincoln County Unified Development Ordinance.

3. The use will not substantially injure the value of adjoining or abutting property unless the use is a public necessity.

The facility will not produce any emissions or odors. It will not contain any hazardous materials. It will not generate significant noise or traffic.

4. The location and character of 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 and will be in general conformity with the Land Use Plan for the area in question.

The site is remotely located away from a main highway. The passive nature of this use fits in with this rural, agricultural and low-density residential area.

Lincoln County, NC

Office of the Tax Administrator, GIS Mapping Division

 The map is based on NC State Plane Coordinate System 1983 NAD.

Date: 10/30/2012 Scale: 1 Inch = 800 Feet

PHOTOS

Photo Not Available

PARCEL INFORMATION FOR 3635-53-1524

Parcel ID	19916	**Owner**	HAYNES PAUL (HEIRS OF)		
Map	3635-04	**Mailing**	C/O ALMA HAYNES		
Account	05954	**Address**	3241 N HWY 321		
			LINCOLNTON NC 28092		
Deed	459-527	**Recorded**	4/6/1968	**Sale Price**	0
Land Value	$174,234	**Total Value**	$174,234	**Previous Parcel**	
		----- All values are for tax year 2012. -----			
Description	R DELLINGER LD 1280			**Deed Acres**	45
Address	TRIPPLE H LN			**Tax Acres**	43.17
Township	LINCOLNTON		**Tax/Fire District**	NORTH 321	
Improvement			No Improvements		

Zoning District	**Calculated Acres**
R-T	37.89
R-S	5.29
Watershed Class	
Not in a watershed	43.17
2000 Census County	
37109	
Flood	**Zone Description**
X	NO FLOOD HAZARD

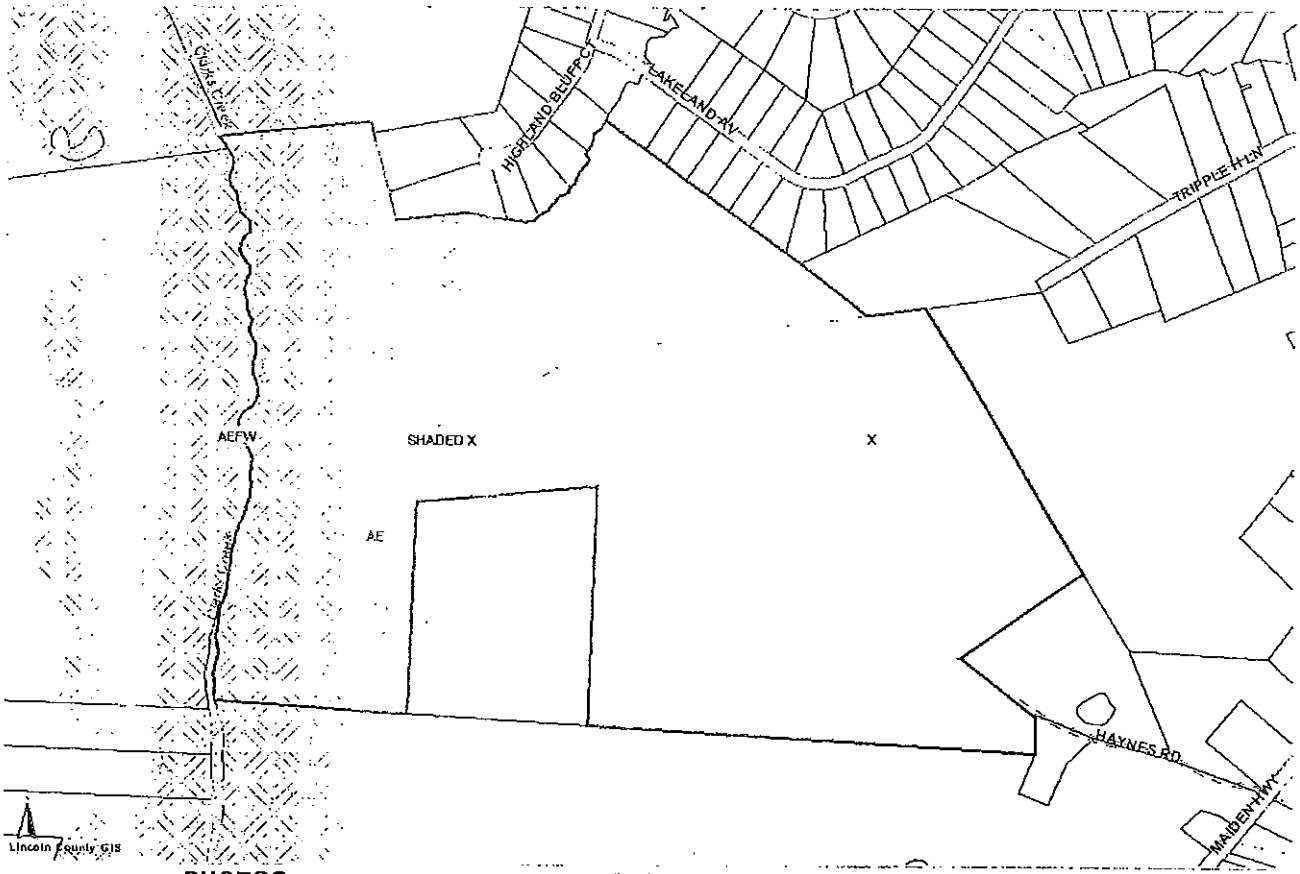
Voting Precinct	**Calculated Acres**
HICKORY GROVE (HG17)	43.17
Sewer District	
Not in the sewer district	43.17
Tract / **Block**	
070800 / 2007	43.17
Panel	
3710363500	43.17

Lincoln County, NC

Office of the Tax Administrator, GIS Mapping Division

Lincoln County and its mapping contractors assume no legal responsibility for the information contained on this map. This map is not to be used for land conveyance. The map is based on NC State Plane Coordinate System 1983 NAD.

Date: 10/30/2012 Scale: 1 Inch = 800 Feet



PHOTOS

Photo Not Available

PARCEL INFORMATION FOR 3635-23-4836

Parcel ID	19888	**Owner**	HAYNES PAUL (HEIRS OF)		
Map	3635-03	**Mailing**	C/O ALMA HAYNES		
Account	05954	**Address**	3241 N HWY 321		
			LINCOLNTON NC 28092		
Deed	390-581	**Recorded**	9/7/1965	**Sale Price**	0
Land Value	$429,432	**Total Value**	$436,253	**Previous Parcel**	

----- All values are for tax year 2012. -----

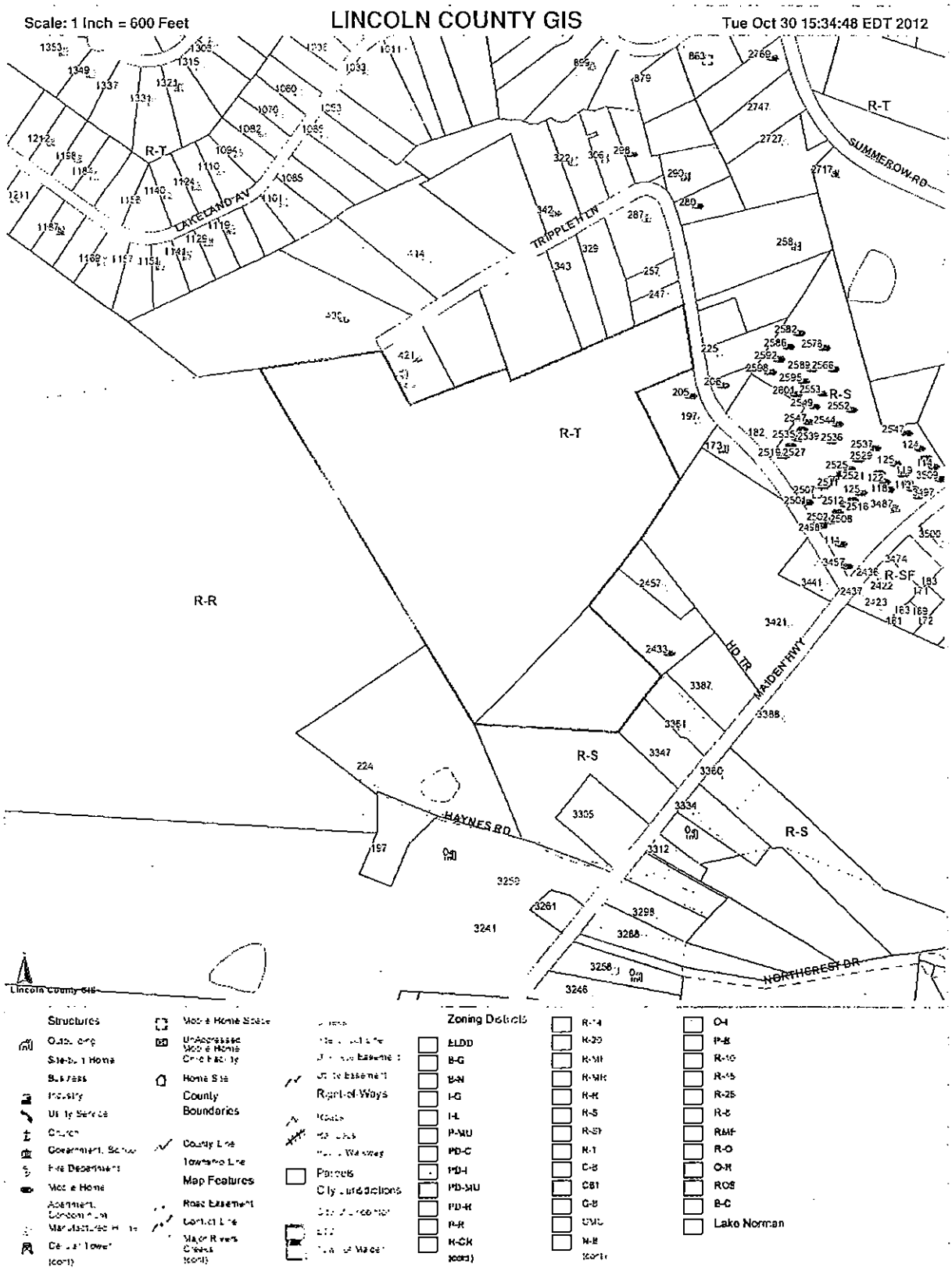
Description	S.H. HAYNES LAND			**Deed Acres**	151
Address	HAYNES RD			**Tax Acres**	162.69
Township	LINCOLNTON		**Tax/Fire District**	NORTH 321	

Main Improvement STORAGE BARN 24 X 24 **Value** $6,821
Main Sq Feet 576 **Stories** 0 **Year Built** 2010

Zoning District	**Calculated Acres**	**Voting Precinct**	**Calculated Acres**
R-R	162.69	HICKORY GROVE (HG17)	118.81
		OAK GROVE (OG10)	43.88
Watershed Class		**Sewer District**	
Not in a watershed	162.69	Not in the sewer district	162.69

2000 Census County	**Tract**	**Block**	
37109	070800	2007	118.4
37109	070800	3010	44.3

Flood	**Zone Description**	**Panel**	
AE	SPECIAL FLOOD HAZARD AREA BASE ELEVATION DETERMINED - 100 YEAR	3710363500	16.57
AEFW	FLOODWAY AREA - 100 YEAR FLOOD HAZARD	3710363500	28.54
SHADED X	OTHER FLOOD AREA - 500 YEAR FLOOD HAZARD	3710363500	3.78
X	NO FLOOD HAZARD	3710363500	113.81



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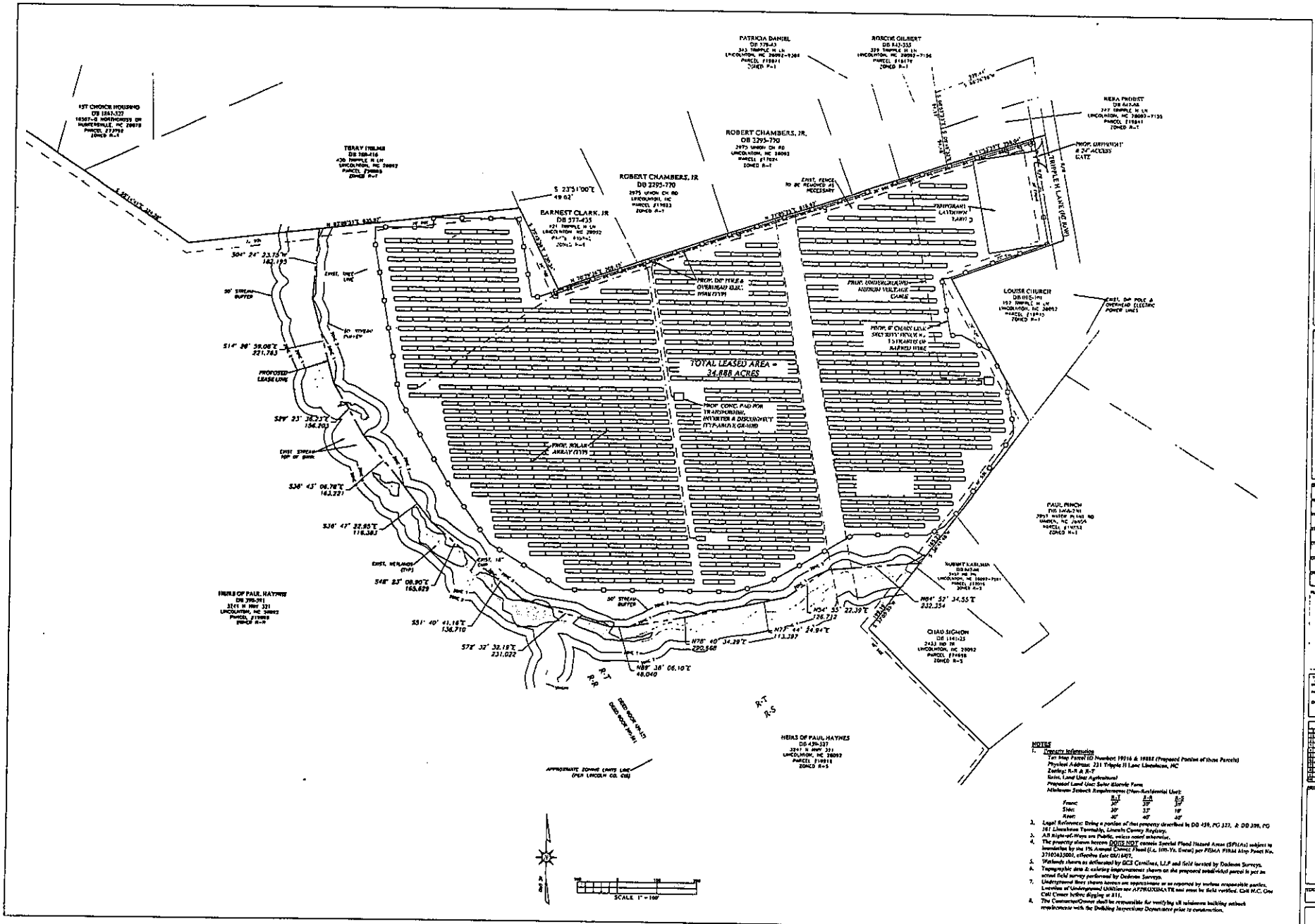


NOTES

1. Property Information
   Tax Map Parcel ID Number: 19916 & 19882 (Proposed Portion of these Parcels)
   Physical Address: 231 Tripple H Lane Lincolnton, NC
   Zoning: R-R & R-T
   Exist. Land Use: Agricultural
   Proposed Land Use: Solar Electric Farm
   Minimum Setback Requirements (Non-Residential Use):

	R-R	R-T	R-S
Front:	30'	35'	35'
Side:	20'	15'	10'
Rear:	30'	40'	40'

2. Legal Reference: Being a portion of that property described in DB 439, PG 337, & DB 398, PG 391 Lincolnton Township, Lincoln County, Registry.
3. All Right-of-Ways are Public, unless noted otherwise.
4. The property shown hereon DOES NOT contain Special Flood Hazard Areas (SFHAs) subject to inundation by the 1% Annual Chance Flood (i.e. 100-Yr. Event) per FEMA FIRM Map Panel No. 3710043500J, effective date 09/14/07.
5. Wetlands shown as delineated by GCS Carolina, LLP and field located by Dickson Surveys.
6. Topographic data & existing improvements shown on the proposed installation parcel is per an actual field survey performed by Dickson Surveys.
7. Underground lines shown hereon are approximate as reported by various responsible parties. Location of Underground Utilities are APPROXIMATE till said areas be field verified. Call N.C. One Call Center before digging at 811.
8. The Contractor/Owner shall be responsible for verifying all minimum building setback requirements with the Building Inspections Department prior to construction.

STRATA SOLAR LLC

HAYNES FARM SOLAR ELECTRIC POWER PLANT
231 TRIPPLE H LANE
LINCOLNTON, NC 28092

10/9/2012
C-035-12-HYNS1
HAYNES
6.25 MWp
BTN
BTN
SRC

PRELIMINARY

REVISIONS

PRELIMINARY SITE LAYOUT

1" = 100'

C | -

From the Charlotte Business Journal :http://www.bizjournals.com/charlotte/blog/power_city/2012/02/solar-developer-plans-large-project-in.html

Feb 7, 2012, 1:27pm EST

Strata Solar plans large project in Lincoln County

John Downey
Senior Staff Writer- Charlotte Business Journal
Email | Twitter | Google+

Strata Solar has filed proposals with N.C. regulators to build two more 5-megawatt solar projects in Duke Energy's service region, including one in Lincoln County.

After completing the 5-megawatt Kings Mountain Solar Farm last month, Strata Chief Executive Markus Wilhelm said the company had financing in place for up to 10 more projects this year, adding 50 to 60 megawatts of solar capacity in the state.

Strata, based in Chapel Hill, has now submitted regulatory filings for six of those projects. The latest two — the H Creek Farm solar project in Howards Creek township in Lincoln County and the White Cross Farm project in Chapel Hill — are expected to be completed in December.

H Creek

Four of the projects are in Duke's service area — including a second in Kings Mountain scheduled to start construction next month. The other two are in Progress Energy's service area in eastern North Carolina.

The H Creek farm will be built on 44 acres at the end of Leonard Road. It will consist of 26,000 ground-mounted panels and will cost about $22.5 million to build, Strata says. It is expected to produce about 9 million kilowatt hours per year — enough to power about 600 average homes.

Strata plans to sell the power to Duke. Under state law, the power from such a project must be sold to the local utility. The utility has to buy the power, but it does not have to buy the renewable-energy credits produced by the project.

White Cross

Strata has not said who will buy the credits, which allow utilities to meet the state's requirements for producing some of the power they sell from renewable resources.

Duke may ultimately buy the credits. But it does not comment on such purchase until a deal has been closed.

The White Cross Farm has essentially the same specs, and will be built on about 120 acres on White Cross Road in Chapel Hill.

John Downey covers the energy industry for the Charlotte Business Journal. Click here to read more recent postings on Power City.

To get an RSS feed for Power City click here.

John Downey covers the energy industry and public companies for the Charlotte Business Journal.

COUNTY OF LINCOLN, NORTH CAROLINA
302 NORTH ACADEMY STREET, SUITE A, LINCOLNTON, NORTH CAROLINA 28092

PLANNING AND INSPECTIONS DEPARTMENT
704-736-8440 OFFICE
704-732-9010 FAX

To: Alex Patton, Board of Commissioners Chairman
George Wood, County Manager
Jeff Frushtick, Planning Board Chairman

From: Randy Hawkins, Zoning Administrator

Date: May 18, 2012

Re: CUP #314
Strata Solar, LLC, applicant
Parcel ID# 10383

The following information is for use by the Lincoln County Board of Commissioners and Planning Board at their joint meeting/public hearing on June 4, 2012.

REQUEST

The applicant is requesting a conditional use permit to establish a solar power generation facility in the R-R (Rural Residential) district. A site plan is included as part of the application. Under the Unified Development Ordinance, an electrical generation facility is classified as a major utility, and a major utility is a conditional use in the R-R district.

SITE AREA AND DESCRIPTION

The proposed 48-acre site is located at 5531 W. NC 27 Hwy., about 2,000 feet south of the intersection of N.C. 27 and Hebron Church Road, in North Brook Township. It is surrounded by property zoned R-R. Land uses in this area are primarily residential and agricultural. The Lincoln County Land Use Plan designates this area as Rural Preservation, suitable for low-density residential uses and limited commercial and/or industrial uses that are suited for and blend in well with rural environments.

LINCOLN COUNTY PLANNING BOARD'S RECOMMENDATIONS ON FINDINGS OF FACT FOR A CONDITIONAL USE PERMIT

Application # CUP #314 Date June 4, 2012

Applicant Name Strata Solar, LLC

Applicant Address 1119 US 15/501 Highway South, Chapel Hill, NC 27577

Property Location 5531 W. NC 27 Hwy. (PID# 10383) Zoning District R-R

Proposed Conditional Use solar power generation facility (major utility)

FINDINGS OF FACT

1. The use will not materially endanger the public health or safety if located where proposed and developed according to plan. YES _____ NO _____

   FACTUAL REASON CITED: _____

2. The use meets all required conditions and specifications. YES _____ NO _____

   FACTUAL REASON CITED: _____

3. The use will not substantially injure the value of adjoining or abutting property unless the use is a public necessity

   YES _____ NO _____

   FACTUAL REASON CITED: _____

4. The location and character of 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 and will be in general conformity with the Land Use Plan for the area in question.

   YES _____ NO _____

   FACTUAL REASON CITED: _____

After having held a Public Hearing on _____ and in light of the Findings of Facts listed herein, the following action was taken by the Lincoln County Planning Board:

In recommending such Conditional Use Permit, the following conditions were recommended by the Lincoln County Planning Board:

Conditional Use Permit Application

Lincoln County Planning and Inspections Department
Zoning Administrator
302 N. Academy St., Suite A, Lincolnton, NC 28092
Phone: (704)736-8440 FAX: (704)732-9010

PART I

Applicant Name Strata Solar, LLC

Applicant Address 1119 US 15/501 Highway South, Chapel Hill, NC 27577

Applicant Phone Number 919-960-6015

Property Owner Name Carroll Dean and Wayne Edward Mitchem

Property Owner Address 5531 West NC Highway 27, North Brook, NC

Property Owner Phone Number _____

PART II

Property Location South Hebron Church Road and NC Highway 27

Property ID (10 digits) 2655-73-1951 Property size 46.1 ac

Parcel # (5 digits) 10383 Deed Book(s) 1690 Page(s) 688

PART III

Existing Zoning District RR

Briefly describe how the property is being used and any existing structures.

The property is currently agricultural land with vacant residential structures on the property.

Briefly explain the proposed use and/or structure which would require a Conditional Use Permit.

The proposed use is a ground mounted solar power generation facility.

$750 APPLICATION FEE MUST BE RECEIVED BEFORE PROCESSING.

I hereby certify that all knowledge of the information provided for this application and attachments is true and correct to the best of my knowledge.

Strata Solar, LLC by James A. Wilson 4/19/2012

Applicant's Signature Date

Project Overview

Strata Solar plans to develop a 6.25-megawatt photovoltaic ("PV") solar facility in western Lincoln County. The real property is being leased on a 20-year lease with two, 5-year options (at the lessee's option). The power generated is being sold to Duke Energy through a Power Purchase Agreement ("PPA").

The solar facility is made up of approximately 26,000, 240-watt+- solar panels. The panels are generally rated to degrade at no more than 0.3% per year and have a useful life of at least 30 years. The panels are warranted to produce at 90% output at year 10 and 80% at year 25.

Strata Solar completed a similar project in Kings Mountain, Cleveland County, in December 2012. A number of similar projects are planned or are being constructed now by Strata Solar in North Carolina.

APPLICANT'S PROPOSED FINDINGS OF FACT FOR A CONDITIONAL USE PERMIT

Application No. CUP #314

Applicant **Strata Solar, LLC**

Applicant's Address **1119 US 15/501 Hwy. South, Chapel Hill, NC 27577**

Property Location **5531 W. NC 27 Hwy. (Parcel ID# 10383)** Zoning District **R-R**

Proposed Conditional Use **solar power generation facility (major utility)**

PROPOSED FINDINGS

1. The use will not materially endanger the public health or safety if located where proposed and developed according to plan.

The site will be remotely located away from public rights of way. The facility will be designed and built to code. All components will be fenced in with chain link fencing. The facility will not produce any emissions or contain any hazardous materials.

2. The use meets all required conditions and specifications.

A solar power generation facility is a conditional use in the R-R district. The plan meets the setback and streamside buffer requirements of the Lincoln County Unified Development Ordinance.

3. The use will not substantially injure the value of adjoining or abutting property unless the use is a public necessity.

The facility will not produce any emissions or odors. It will not contain any hazardous materials. It will not generate significant noise or traffic.

4. The location and character of 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 and will be in general conformity with the Land Use Plan for the area in question.

The site is remotely located away the public highway. The passive nature of this use fits in with this rural, agricultural area. The Land Use Plan designates this area as Rural Preservation and encourages limited commercial uses that are suited for and blend in well with rural environments.

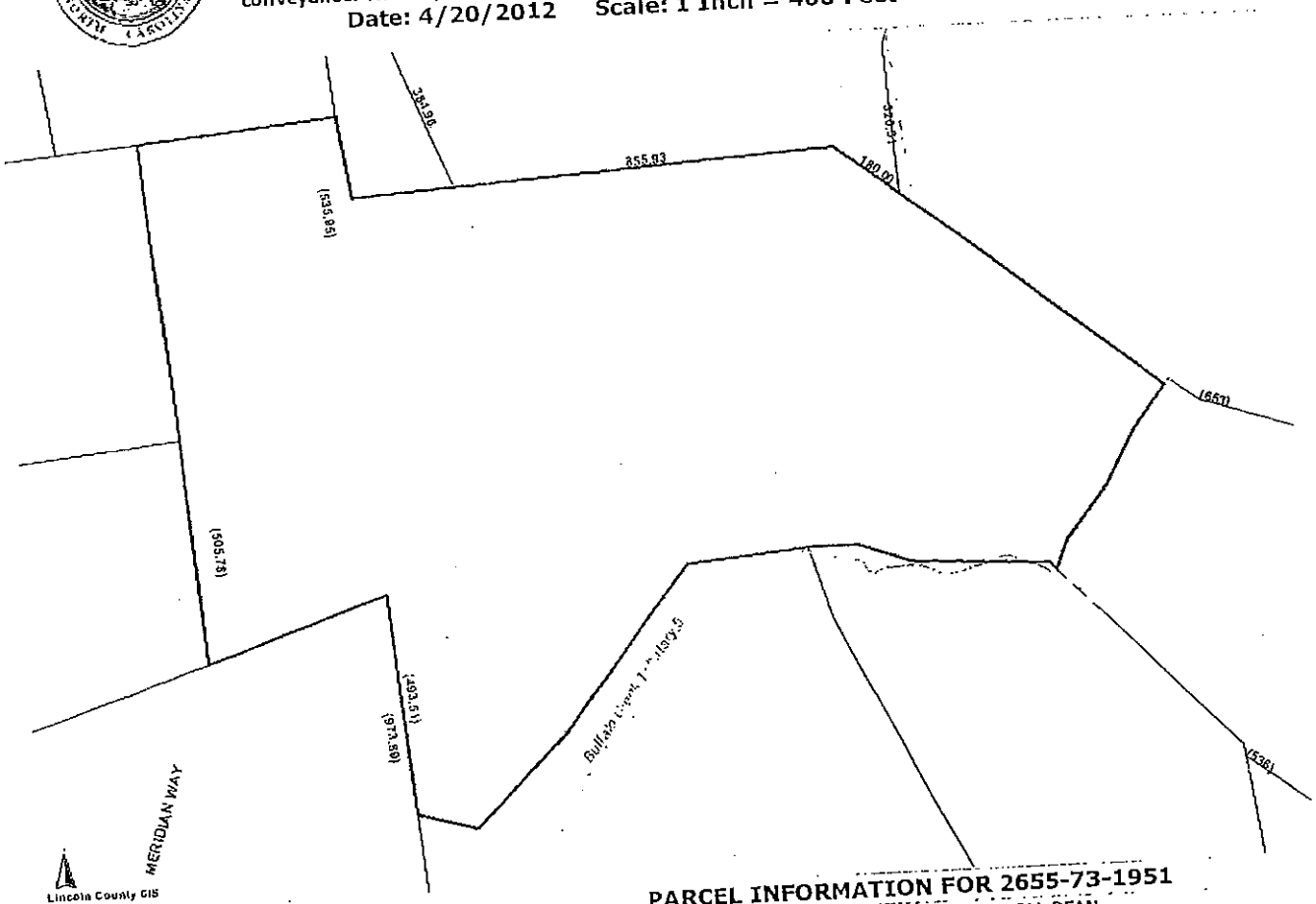
Map with Parcel Information

Lincoln County, NC

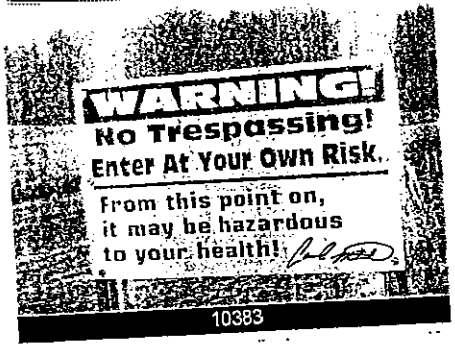
Office of the Tax Administrator, GIS Mapping Division

 The map is based on NC State Plane Coordinate System 1983 NAD.

Date: 4/20/2012 **Scale: 1 Inch = 400 Feet**



PHOTOS



PARCEL INFORMATION FOR 2655-73-1951

Parcel ID	10383	Owner	MITCHEM CARROLL DEAN MITCHEM WAYNE EDWARD
Map	2655-00	Mailing	7868 HALLMAN MILL RD
Account	0143867	Address	VALE NC 28168-9378
Deed	1690-688	Recorded	4/19/2005
Land Value	$135,945	Total Value	$146,335

Sale Price 0
Previous Parcel

----- All values are for tax year 2012. -----

Deed Acres 46.1
Tax Acres 48.99

Description	MITCHEM RD 1134
Address	5531 W NC 27 HWY
Township	NORTH BROOK

Tax/Fire District NORTH BROOK
Value $4,153

Main Improvement		29 X 52			
Main Sq Feet	1508	Stories	0	Year Built	1960

Zoning	Calculated Acres
District	49
R-R	
Watershed Class	49
WS-IIIP	

Voting Precinct: NORTH BROOK (NB01)

Calculated Acres: 49

Sewer District: Not in the sewer district

49

2000 Census County	Tract	Block	
37109	070500	3003	1.42
37109	070500	3004	46.9
37109	070500	3013	0.68

FloodZone	Description	Panel	
AE	SPECIAL FLOOD HAZARD AREA BASE ELEVATION DETERMINED - 100 YEAR	3710264400	0.01
X	NO FLOOD HAZARD	3710264400	48.99

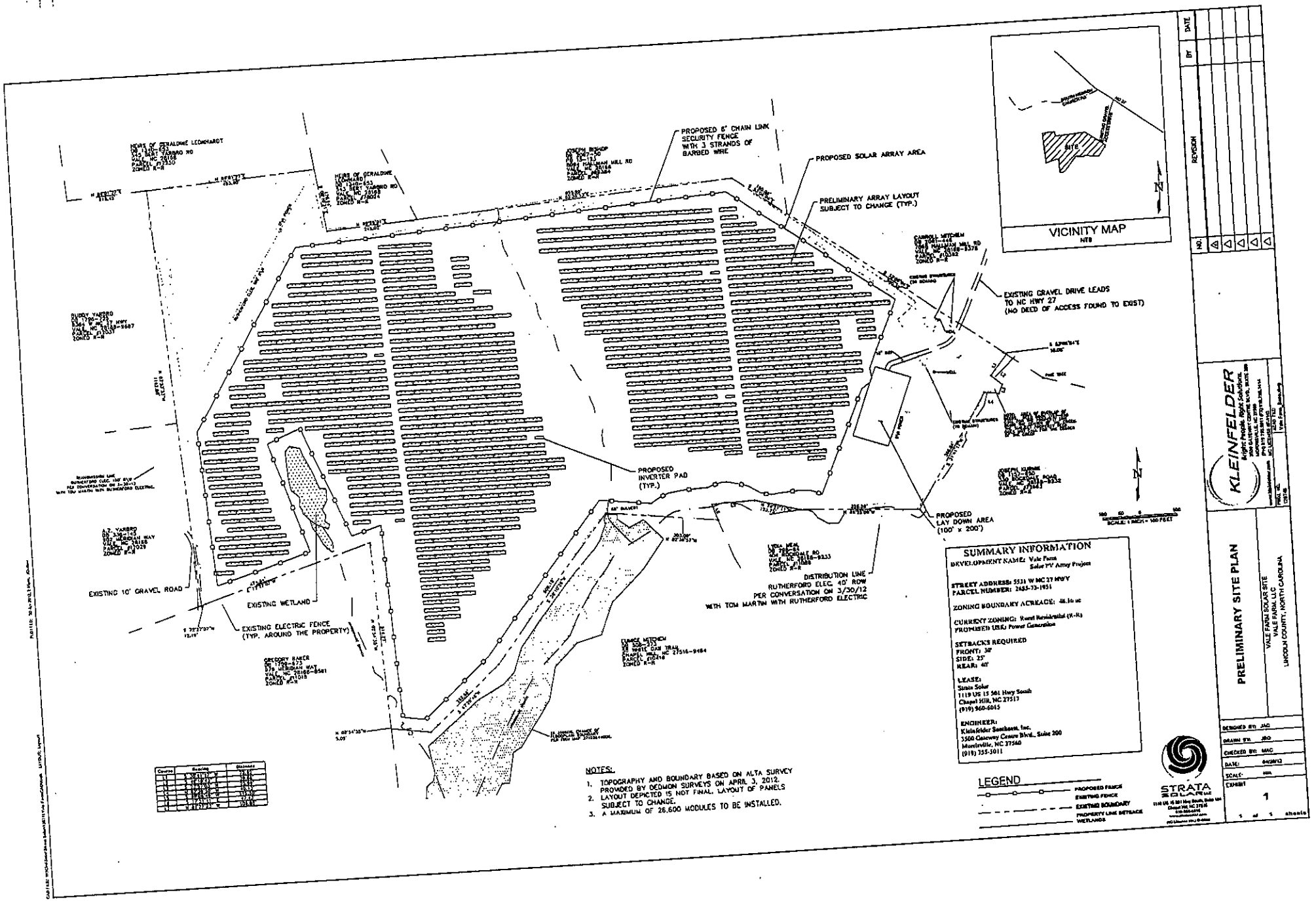
Scale: 1 Inch = 1000 Feet

LINCOLN COUNTY GIS

Fri Apr 20 16:30:17 EDT 2012

Structures
Mobile Home Space
Right of Ways
Zoning Districts
Map Features
Private Roads
City Jurisdictions
Lake Norman

Lincoln County and its mapping contractors assume no legal responsibility for the information contained on this map. This map is not to be used for land conveyance. The map is based on NC State Plane Coordinate System 1983 NAD. Lincoln County, NC Office of the Tax Administrator, GIS Division


PROPOSED 6' CHAIN LINK SECURITY FENCE WITH 3 STRANDS OF BARBED WIRE
PROPOSED SOLAR ARRAY AREA
PRELIMINARY ARRAY LAYOUT SUBJECT TO CHANGE (TYP.)
EXISTING GRAVEL DRIVE LEADS TO NC HWY 27 (NO DEED OF ACCESS FOUND TO EXIST)
PROPOSED INVERTER PAD (TYP.)
PROPOSED LAY DOWN AREA (100' x 200')
DISTRIBUTION LINE RUTHERFORD ELEC. 40' ROW PER CONVERSATION ON 3/30/12 WITH TOM MARTIN WITH RUTHERFORD ELECTRIC
EXISTING 10' GRAVEL ROAD
EXISTING WETLAND
EXISTING ELECTRIC FENCE (TYP. AROUND THE PROPERTY)
VICINITY MAP
NTS
SITE
SUMMARY INFORMATION
DEVELOPMENT NAME: Vale Farm Solar PV Array Project
STREET ADDRESS: 5531 W NC 27 HWY
PARCEL NUMBER: 2653-73-1951
ZONING BOUNDARY ACREAGE: 48.16 ac
CURRENT ZONING: Rural Residential (R-R)
PROPOSED USE: Power Generation
SETBACKS REQUIRED
FRONT: 30'
SIDE: 25'
REAR: 40'
LEASE:
Strata Solar
1119 US 15 501 Hwy South
Chapel Hill, NC 27517
(919) 960-6015
ENGINEER:
KleinFelder Southeast, Inc.
3500 Gateway Centre Blvd., Suite 200
Morrisville, NC 27560
(919) 755-5011
NOTES:
1. TOPOGRAPHY AND BOUNDARY BASED ON ALTA SURVEY PROVIDED BY DEDMON SURVEYS ON APRIL 3, 2012.
2. LAYOUT DEPICTED IS NOT FINAL. LAYOUT OF PANELS SUBJECT TO CHANGE.
3. A MAXIMUM OF 26,600 MODULES TO BE INSTALLED.
LEGEND
PROPOSED FENCE
EXISTING FENCE
EXISTING BOUNDARY
PROPERTY LINE SETBACK
WETLANDS
N
SCALE: 1 INCH = 100 FEET
NO.
BY
DATE
REVISION
KLEINFELDER
STRATA SOLAR PLLC
PRELIMINARY SITE PLAN
VALE FARM SOLAR SITE
VALE FARM, LLC
LINCOLN COUNTY, NORTH CAROLINA
DESIGNED BY: JAC
DRAWN BY: JBO
CHECKED BY: MAC
DATE: 04/09/13
SCALE: AS SHOWN
EXHIBIT
1
1 of 1 sheets

OFFER TO PURCHASE AND CONTRACT

[Consult "Guidelines" (Standard Form 2G) for guidance in completing this form]

For valuable consideration, the receipt and legal sufficiency of which are hereby acknowledged, Buyer offers to purchase and Seller upon acceptance agrees to sell and convey the Property on the terms and conditions of this Offer To Purchase and Contract and any addendum or modification made in accordance with its terms (together the "Contract").

1. **TERMS AND DEFINITIONS:** The terms listed below shall have the respective meaning given them as set forth adjacent to each term.

(a) **"Seller":** Daniel D McLean,Jr, Martha H McLean

(b) **"Buyer":** David Hibben, Christina Hibben

(c) **"Property":** The Property shall include all that real estate described below together with all appurtenances thereto including the improvements located thereon and the fixtures and personal property listed in Paragraphs 2 and 3 below. NOTE: If the Property will include a manufactured (mobile) home(s), Buyer and Seller should consider including the Manufactured (Mobile) Home provision in the Additional Provisions Addendum (Standard Form 2A11-T) with this offer.
Street Address: 4301 Burton Ln
City: Denver Zip: 28037
County: Lincln, North Carolina
NOTE: Governmental authority over taxes, zoning, school districts, utilities and mail delivery may differ from address shown.

Legal Description: (Complete *ALL* applicable)
Plat Reference: Lot/Unit _____, Block/Section _____, Subdivision/Condominium None
_____, as shown on Plat Book/Slide _____ at Page(s) _____
The PIN/PID or other identification number of the Property is: _____
Other description: Quinn Rmst Rd 1376 Quinn Parcel ID#31546
Some or all of the Property may be described in Deed Book 4615 at Page 17

(d) **"Purchase Price":**

$ 200,000.00	paid in U.S. Dollars upon the following terms:
$ ~~500.00~~	BY DUE DILIGENCE FEE made payable to Seller by the Effective Date.
$ 500.00	BY INITIAL EARNEST MONEY DEPOSIT made payable to Escrow Agent named in Paragraph 1(f) ☒ with this offer OR ☐ delivered within five (5) days of the Effective Date of this Contract by ☐ cash ☐ personal check ☐ official bank check ☐ wire transfer.
$ _____	BY (ADDITIONAL) EARNEST MONEY DEPOSIT made payable to Escrow Agent named in Paragraph 1(f) by cash or immediately available funds such as official bank check or wire transfer to be delivered to Escrow Agent no later than _____, *TIME BEING OF THE ESSENCE* with regard to said date.
$ _____	BY ASSUMPTION of the unpaid principal balance and all obligations of Seller on the existing loan(s) secured by a deed of trust on the Property in accordance with the attached Loan Assumption Addendum (Standard Form 2A6-T).
$ 170,000.00	BY SELLER FINANCING in accordance with the attached Seller Financing Addendum (Standard Form 2A5-T).
$ _____	BY BUILDING DEPOSIT in accordance with the attached New Construction Addendum (Standard Form 2A3-T).
$ ~~199,500.00~~ 29,000.00	BALANCE of the Purchase Price in cash at Settlement (some or all of which may be paid with the proceeds of a new loan)

Should Buyer fail to deliver either the Due Diligence Fee or any Initial Earnest Money Deposit by their due dates, or should any check or other funds paid by Buyer be dishonored, for any reason, by the institution upon which the payment is drawn, Buyer shall have one (1) banking day after written notice to deliver cash or immediately available funds to the payee. In the event Buyer does not timely deliver cash or immediately available funds, Seller shall have the right to terminate this Contract upon written notice to Buyer.

Buyer initials _____ _____ Seller initials _____ _____

(e) "Earnest Money Deposit": The Initial Earnest Money Deposit, the Additional Earnest Money Deposit and any other earnest monies paid in connection with this transaction, hereinafter collectively referred to as "Earnest Money Deposit", shall be deposited and held in escrow by Escrow Agent until Closing, at which time it will be credited to Buyer, or until this Contract is otherwise terminated. In the event: (1) this offer is not accepted; or (2) a condition of any resulting contract is not satisfied, then the Earnest Money Deposit shall be refunded to Buyer. In the event of breach of this Contract by Seller, the Earnest Money Deposit shall be refunded to Buyer upon Buyer's request, but such return shall not affect any other remedies available to Buyer for such breach. In the event of breach of this Contract by Buyer, the Earnest Money Deposit shall be paid to Seller upon Seller's request as liquidated damages and as Seller's sole and exclusive remedy for such breach, but without limiting Seller's rights under Paragraphs 4(d) and 4(o) for damages to the Property or Seller's right to retain the Due Diligence Fee. It is acknowledged by the parties that payment of the Earnest Money Deposit to Seller in the event of a breach of this Contract by Buyer is compensatory and not punitive, such amount being a reasonable estimation of the actual loss that Seller would incur as a result of such breach. The payment of the Earnest Money Deposit to Seller shall not constitute a penalty or forfeiture but actual compensation for Seller's anticipated loss, both parties acknowledging the difficulty determining Seller's actual damages for such breach. If legal proceedings are brought by Buyer or Seller against the other to recover the Earnest Money Deposit, the prevailing party in the proceeding shall be entitled to recover from the non-prevailing party reasonable attorney fees and court costs incurred in connection with the proceeding.

(f) "Escrow Agent" (insert name): Coldwell Banker United

NOTE: In the event of a dispute between Seller and Buyer over the disposition of the Earnest Money Deposit held in escrow, a licensed real estate broker ("Broker") is required by state law (and Escrow Agent, if not a Broker, hereby agrees) to retain the Earnest Money Deposit in the Escrow Agent's trust or escrow account until Escrow Agent has obtained a written release from the parties consenting to its disposition or until disbursement is ordered by a court of competent jurisdiction. Alternatively, if a Broker or an attorney licensed to practice law in North Carolina ("Attorney") is holding the Earnest Money Deposit, the Broker or Attorney may deposit the disputed monies with the appropriate clerk of court in accordance with the provisions of N.C.G.S. §93A-12.

THE PARTIES AGREE THAT A REAL ESTATE BROKERAGE FIRM ACTING AS ESCROW AGENT MAY PLACE THE EARNEST MONEY DEPOSIT IN AN INTEREST BEARING TRUST ACCOUNT AND THAT ANY INTEREST EARNED THEREON SHALL BE DISBURSED TO THE ESCROW AGENT MONTHLY IN CONSIDERATION OF THE EXPENSES INCURRED BY MAINTAINING SUCH ACCOUNT AND RECORDS ASSOCIATED THEREWITH.

(g) "Effective Date": The date that: (1) the last one of Buyer and Seller has signed or initialed this offer or the final counteroffer, if any, and (2) such signing or initialing is communicated to the party making the offer or counteroffer, as the case may be.

(h) "Due Diligence": Buyer's opportunity during the Due Diligence Period to investigate the Property and the transaction contemplated by this Contract, including but not necessarily limited to the matters described in Paragraph 4 below, to decide whether Buyer, in Buyer's sole discretion, will proceed with or terminate the transaction.

(i) "Due Diligence Fee": A negotiated amount, if any, paid by Buyer to Seller with this Contract for Buyer's right to conduct Due Diligence during the Due Diligence Period. It shall be the property of Seller upon the Effective Date and shall be a credit to Buyer at Closing. The Due Diligence Fee shall be non-refundable except in the event of a material breach of this Contract by Seller, or if this Contract is terminated under Paragraph 8(i) or Paragraph 12, or as otherwise provided in any addendum hereto. Buyer and Seller each expressly waive any right that they may have to deny the right to conduct Due Diligence or to assert any defense as to the enforceability of this Contract based on the absence or alleged insufficiency of any Due Diligence Fee, it being the intent of the parties to create a legally binding contract for the purchase and sale of the Property without regard to the existence or amount of any Due Diligence Fee.

(j) "Due Diligence Period": The period beginning on the Effective Date and extending through 5:00 p.m. on August 23, 2013 ***TIME BEING OF THE ESSENCE*** with regard to said date.

(k) "Settlement": The proper execution and delivery to the closing attorney of all documents necessary to complete the transaction contemplated by this Contract, including the deed, settlement statement, deed of trust and other loan or conveyance documents, and the closing attorney's receipt of all funds necessary to complete such transaction.

(l) "Settlement Date": The parties agree that Settlement will take place on August 29, 2013 (the "Settlement Date"), unless otherwise agreed in writing, at a time and place designated by Buyer.

COPY

AGREEMENT TO AMEND CONTRACT

WARNING: ALL PARTIES, INCLUDING ANY LENDER AND SETTLEMENT AGENT, MUST BE PROVIDED A COPY OF THIS AGREEMENT

David Hibben, Christina Hibben, as Buyer, and

Daniel D McLean,Jr, Martha H McLean, as Seller,

have entered into a contract on the Offer to Purchase and Contract (form 2-T) or the Offer to Purchase and Contract - Vacant Lot/Land (form 12-T) ("Contract") regarding the purchase and sale of the following property (insert property address): 4301 Burton Ln, Denver, NC 28037 ("Property").

Buyer and Seller hereby agree to amend the Contract as set forth below [*check applicable box(es)*]:

- ☐ **Purchase Price.** The Purchase Price is hereby changed to: $ _____.
- ☐ **(Additional) Earnest Money.** The (Additional) Earnest Money Deposit is hereby changed to: $ _____
- ☐ **(Additional) Earnest Money Deposit Date:** The date by which the (Additional) Earnest Money Deposit shall be paid to Escrow Agent is hereby changed to: _____.
- ☐ **Building Deposit.** The Building Deposit is hereby changed to: $ _____.
- ☐ **Due Diligence Fee.** The Due Diligence Fee paid to Seller is hereby changed to: $ _____.
- ☒ **Due Diligence Period.** The expiration date of the Due Diligence Period is hereby changed to: 10-25-2013.
- ☒ **Settlement Date.** The Settlement Date is hereby changed to: 10-30-2013 / ON OR BEFORE.
- ☐ **Expenses.** The amount Seller shall pay at Settlement toward Buyer's expenses associated with the purchase of the Property is hereby changed to: $ _____.

All terms and conditions of the Contract not specifically amended herein shall remain in full force and effect.

THE NORTH CAROLINA ASSOCIATION OF REALTORS®, INC. MAKES NO REPRESENTATION AS TO THE LEGAL VALIDITY OR ADEQUACY OF ANY PROVISION OF THIS FORM IN ANY SPECIFIC TRANSACTION.

Buyer: David Hibben Date 8-22-13 Seller: Daniel D McLean,Jr Date 8-22-13

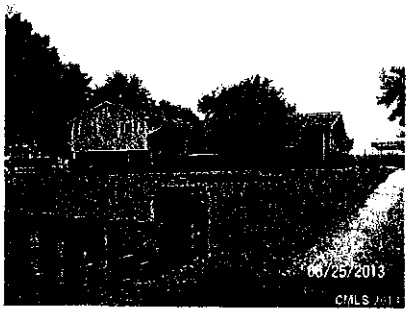
Buyer: Christina Hibben Date 8/22/13 Seller: Martha H McLean Date 8/22/13

Buyer: _____ Date _____ Seller: _____ Date _____

North Carolina Association of REALTORS®, Inc.

STANDARD FORM 330-T
Revised 7/2011

Coldwell Banker United 885 N. Highway 16 Denver, NC 28037
Phone: (704)483-3651 Fax: 704-483-3808 Marty Wulfhorst



Single Family UCS **Area:** 13-4 **Beds:** 4 **Media:** 15
MLS#: 2163652 **LP:** $225,000 **Baths:** 3/0
4301 Burton LN **Parcel ID:** 31546
Denver, NC 28037 **Deed Ref:** 589-479
Subdivision: None **Year Built:** 1973
Legal: Quinn Hmst Rd 1376 **Builder:**
Tax Loc: Catawba Springs **Tax Value:** $190,649 **Model:**
County: Lincoln **Zoning:** R-Sf **Approx. Acres:** 0.60
Aprx Lot Dim: 0 **Lot Description:**
Primary Residence: N **Ownership:** Seller owned for at le **New Construction:** N
Spec Conditions: None

HOA **Subject to HOA:** N **HOA Fee:** **HOA Mgmt:** **HOA Phone:**

SQFT	Main:	Upper:	Lower:	Bsmt:	Third:	Total:
HLA	1200 - 1500	600 - 900	0	0	0	1800 - 2300
Unheated:	0	0	0	0	0	0

Additional SqFt:

SCHOOLS
Elementary:
Middle: North Lincoln
High: North Lincoln

ROOMS

Main: Breakfast, Great Rm, Kitchen

Upper: Bedroom 2, Bedroom 3, Master BR
Lower: Bar/Entertainment, Den, Office
Basement: None
Third: None

	Main	Upper	Lower	Bsmt	Third	Total
Full Bath:	0	2	1	0	0	3
Half Bath:	0	0	0	0	0	0

DESCRIPTION

Type: Tri-Level **Style:** Traditional **Exterior Const:** Brick Veneer Partial, Vinyl
Driveway: Concrete **Foundation:**
Parking: 2 Car Garage,Driveway,Garage Door Opener,Other,Back Load,Attached, Driveway, Garage Door Opener, Other, Back Load, Attached
Fireplace: Y **Fireplace Location:** Den, Gas Logs
Laundry: Laundry Room **Floors:** Vinyl / Linoleum, Wall-to wall Carpet
Doors/Windows:
Equipment: Ceiling Fan(s), Dishwasher, Double Oven, Electric Dryer Hookup, Cooktop Electric, Ice Maker Connection, Refrigerator

Interior Features: Attic Stairs Pulldown
Exterior Features: Building - Storage Shed / Outbuilding,Patio,Pool-In-Ground, Patio, Pool-In-Ground
Community Features:
Green Certification:
HERS Index:

UTILITIES

Water/Sewer: County Water, Septic Tank **Water Heater:** Electric **HVAC:** Heat Pump - AC

DIRECTIONS

Instructions: Call Listing Agent
Directions: Hwy 16 N, R Webbs Rd, R Burton Ln. First House on R

REMARKS

Country Living at it's best!! Well built, well-maintained custom built home convenient to shopping, amenities, schools and recreation. Enjoy this summer in this fenced-in 18'x35' in-ground pool with storage building/workshop. 24'x26'garage + metal carport/party shelter. Updates incl-1994-roof, 1200 seer 2 ton HP;1997-new plumbing throughout, 2008-water heater. "Good Bones". Move-in ready.

PENDING/SOLD INFORMATION

Pending: **Sold:** **DOM:** 82 **SP:** **Slr Contr:**
DDP-End Date: 10/23/13

ASSUMPTIONS AND LIMITING CONDITIONS

GENERAL ASSUMPTIONS

1. The owner of record is assumed to have a free and clear fee simple title with no encumbrances that connot be cleared through normal channels.
2. The information on which this appraisal is based on has been obtained from sources normally used by **FRED H. BECK & ASSOCIATES, LLC** and is considered to be reliable, but is in no sense guaranteed.
3. The information furnished by others is believed to be reliable. No warranty is given for its accuracy.
4. **FRED H. BECK & ASSOCIATES, LLC** reserves the right to alter its opinions of value on the basis of information withheld or not discovered in the normal course of a diligent investigation.
5. The appraiser assumes no responsibility for the legal description or matters of a legal nature affecting the property or the title thereto. The appraiser does not render any opinion as to title, which is assumed to be good and marketable.
6. Responsible ownership and competent property management are assumed.
7. It is assumed that there is full compliance with all applicable federal, state and local environmental regulations and laws unless noncompliance is stated, defined ond considered in the appraisal report.
8. It is assumed that all applicable zoning and use regulations and restrictions have been complied with, unless a nonconformity has been stated, defined and considered in the appraisal report.
9. It is assumed that all required licenses, certificates of occupancy, consents or other legislative or odministrative authority from any local, state or national government or private entity or organization have been or can be obtained or renewed for any use on which the value estimate contained in this report is based.
10. The appraiser is not required to give testimony or appear in court because of having made this oppraisal with reference to the property in question, unless arrangements have been previously made therefore. The fee charged for this appraisal does not include payment for court testimony or for further consultation.
11. No opinion of an engineering nature is intentionally expressed or implied and no responsibility is assumed for matters of this nature.
12. No survey was made especially for this appraisal. Property lines, area, etc., of record or otherwise provided, are assumed to be correct.
13. No engineering survey has been made by the appraiser. Except as specifically stated, size and area were taken from sources considered reliable and no encroachment of real property improvements is assumed to exist.
14. Maps, plats and exhibits are for illustration only as an aid in visualizing matters discussed within the report. They should not be considered as surveys or relied upon for any other purpose.
15. It is assumed that there are no hidden or unapparent conditions of the property, subsoil or structures thot render it more or less valuable. No responsibility is assumed for such conditions or for arranging for engineering studies that may be required to discover them.
16. No opinion is expressed as to the value of subsurface oil, gos or mineral rights. The property is not subject to surface entry for the exploration or removal of such materials except as is expressly stated.
17. Disclosure of the contents of the appraisal is governed by the Bylaws and Regulations of the professional organizations with which **FRED H. BECK & ASSOCIATES, LLC** is affiliated.
18. Acceptance of and/or use of this report constitutes acceptance of these assumptions and limiting conditions.
19. This report is intended to comply with the Code of Ethics and Standards of Professional Appraisal practice of the Appraisal Institute. It is further intended to comply with the Uniform Standards of Professional Appraisal Practice (USPAP) and the guidelines set forth by the Financial Institution's Report, Recovery and Enforcement Act of 1989 (FIRREA).

LIMITING CONDITIONS

1. Possession of this report, or a copy, does not carry with it the right of publication.
2. Neither all nor any part of the contents of this report (especially any conclusions as to value, identity of the appraisers or firm with which they are connected or any reference to the Appraisal Institute or the MAI or SRA designations) shall be disseminated to the public through the advertising media or any other public means of communication without the prior written consent and approval of **FRED H. BECK & ASSOCIATES, LLC** and the signatories of the report. Acceptance of and/or use of this report constitutes acceptance of these restrictions.
3. The distribution, if any, of the total valuation in this report between land and improvements applies only under the stated program of utilization. The separate allocations for land and buildings must not be used in conjunction with any other appraisal and are invalid if so used.
4. The forecasts, projections or operating estimates contained herein are based upon current market conditions, anticipated short term supply and demand factors and a continued stoble economy. These forecasts are, therefore, subject to changes in future conditions.
5. Load bearing capacity of subsoil is assumed to be odequate for the present utilization, but no borings or engineering studies have been made especially for this appraisal and the value conclusion could be affected by such information.
6. We have not been supplied with building plans and specifications, site plans, surveys or occupancy permits. No responsibility or representation is assumed or made for any costs associated with obtaining same for any deficiencies discovered before or after they are obtoined.
7. We have personally inspected the subject property and found no obvious evidence of structural deficiencies except as stated in this report; however, no responsibility for hidden defects or conformity to specific governmental requirements, such as fire, building and safety or occupancy codes, can be assumed without provision of specific professional or governmental inspections.
8. No termite inspection report was made available. We personally inspected the subject property and found no significant evidence of termite damage or infestation.
9. Unless otherwise stated in this report, we make no representation or warranties as to the adequacy or condition of appliances, electrical systems, plumbing and heating, air conditioning, presence of insulation, adequacy or condition of structural systems or any other subsystem within the property. We assume no responsibility for any costs incurred to discover or correct any deficiencies present in the property.
10. Unless otherwise stated, no consideration in the valuation process has been given mineral deposits (oil, gas, coal, gravel, etc.) or timber, if any, that may be found on the subject.
11. Unless otherwise stated in this report, the existence of hazardous material, which may or may not be present on the property, was not observed by the appraiser. The appraisers, however, are not qualified to detect such substances. The presence of substances such as asbestos, urea-formaldehyde foam insulation or other potentially hazardous materials may affect the value of the property. The value estimate is predicated on the assumption that there is no such material on or in the property that would cause a loss in value. No responsibility is assumed for any such conditions or for any expertise or engineering knowledge required to discover them. The client is urged to retain an expert in this field, if desired.
12. On January 26, 1992, The Americans with Disobilities Act (ADA) took effect. This report has not considered this act and the impact it may have on the subject with respect to renovation cost and general compliance. Should a report be provided which indicates a possible renovation, we reserve the right to amend this report.
13. The appraisers have prepared this report in compliance with the competency provision explicitly detailed in the Uniform Standards of Professional Appraisol Practice (USPAP). The appraisers are fully experienced in the appraisal of this product type (see Qualifications).

Certificate No. A1329

State of North Carolina

North Carolina Appraisal Board

FRED H. BECK, JR.

having satisfied the North Carolina Appraisal Board regarding the qualifications to practice as a General Real Estate Appraiser in this State and having complied with the requirements prescribed by law, is hereby certified as a

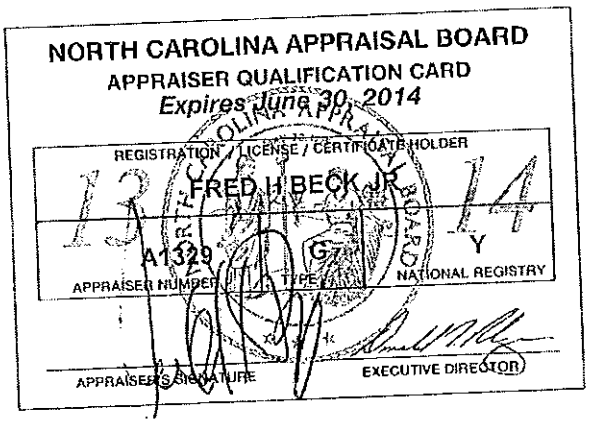
State-Certified General Real Estate Appraiser

Given under and by virtue of the provisions of Article 1 Chapter 93E of the General Statutes of North Carolina, I hereunto set my hand and seal of the North Carolina Appraisal Board at Raleigh on the date below shown:

This certificate shall expire on the 30th day of June following the date shown below unless renewed prior to expiration.

APRIL 5, 1991

A. Melton Black, Jr.
Executive Director



NORTH CAROLINA APPRAISAL BOARD

APPRAISER QUALIFICATION CARD

Expires June 30, 2014

REGISTRATION / LICENSE / CERTIFICATE HOLDER

FRED H BECK JR

13 — 14

A1329 — G — Y

APPRAISER NUMBER — TYPE — NATIONAL REGISTRY

APPRAISER'S SIGNATURE

EXECUTIVE DIRECTOR

Certificate No. A7697

State of North Carolina

North Carolina Appraisal Board

GEOFFREY A. ZAWTOCKI

having satisfied the North Carolina Appraisal Board regarding the qualifications to practice as a General Real Estate Appraiser in this State and having complied with the requirements prescribed by law, is hereby certified as a

Certified General Real Estate Appraiser

Given under and by virtue of the provisions of Article 1 Chapter 93E of the General Statutes of North Carolina, I hereunto set my hand and seal of the North Carolina Appraisal Board at Raleigh on the date below shown:

This certificate shall expire on the 30th day of June following the date shown below unless renewed prior to expiration.

FEB 7, 2013

Donald T. Rodgers
Executive Director

8/31/09


NORTH CAROLINA APPRAISAL BOARD
APPRAISER QUALIFICATION CARD
Expires June 30, 2014
REGISTRATION / LICENSE / CERTIFICATE HOLDER
GEOFFREY A ZAWTOCKI
13
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A7697
APPRAISER NUMBER
TYPE
Y
NATIONAL REGISTRY
APPRAISER'S SIGNATURE
EXECUTIVE DIRECTOR

QUALIFICATIONS OF THE APPRAISER
FRED H. BECK, JR., MAI, CCIM, MRICS

FRED H. BECK & ASSOCIATES, LLC
8924 Blakeney Professional Drive
Charlotte, NC 28277

EDUCATION

Bachelor of Science Degree - Appalachian State University, Boone, NC
Business Administration

Completed The Appraisal Institute Courses:

- Course 1A - Real Estate Appraisal Principles
- Course 1B - Capitalization Theory and Techniques
- Course 1I - Urban Properties
- Course IV - Litigation
- Standards of Professional Practice - Part A and B

Commercial Investment Real Estate Institute:

- C1101 - Financial Analysis for Commercial Real Estate
- C1201 - Market Analysis for Commercial Real Estate
- C1404 - Tax Planning for Commercial Real Estate

EXPERIENCE

- Formed Fred H. Beck & Associates, LLC - November 5, 1994
- Formed Stout-Beck & Associates, Inc. - July 1987
- Appraising real estate since 1973
- Principal of Beck Advisors, LLC – Charlotte, N.C. (September 2007 – Present)
- Principal and Broker In Charge of Torquay Realty, LLC – Charlotte, N.C. (August 2008 – Present)

PROFESSIONAL AFFILIATIONS

- Member, The Appraisal Institute (MAI #7073)
- Member, Commercial Investment Real Estate Institute (CCIM #5568)
- State-Certified General Real Estate Appraiser, North Carolina Certificate No. A1329
- State-Certified General Real Estate Appraiser, South Carolina Certificate No. CG1117
- State-Certified General Real Estate Appraiser, Georgia Certificate No. 2627
- State-Certified General Real Estate Appraiser, Virginia License No. 4001 013461
- State-Certified General Real Estate Appraiser, Tennessee License ID No. 3523
- Real Estate Brokers License, North Carolina No. 26399
- Real Estate Brokers License, South Carolina No. 2713
- Real Estate Brokers License, Georgia No. 216546
- Real Estate Brokers License, Tennessee No. 311532
- Member, North Carolina National Association of Realtors
- Member, Charlotte Region Commercial Board of Realtors
- Member, The Royal Institution of Chartered Surveyors (MRICS #1246747)

QUALIFICATIONS OF THE APPRAISER
GEOFFREY A. ZAWTOCKI

FRED H. BECK & ASSOCIATES, LLC
8924 Blakeney Professional Drive
Charlotte, NC 28277

EDUCATION

Master of Business Administration– Duke University, Durham, N.C. (May 2003)
Bachelor of Engineering– Dartmouth College, Hanover, N.H. (May 1995)
Engineering Sciences

Triangle Appraisal & Real Estate School:

Basic Appraisal Principles
Basic Appraisal Procedures
Residential Market Analysis and Highest & Best Use
USPAP

Appraisal Institute:

General Appraiser Site Valuation and Cost Approach
Market Analysis and Highest and Best Use
General Appraiser Sales Comparison Approach
General Appraiser Income Approach Parts I & II
General Appraiser Report Writing & Case Studies
Real Estate Finance, Statistics, and Valuation Modeling

Certified Commercial Investment Member Institute:

CI-101 - Financial Analysis for Commercial Investment Real Estate
CI-102 - Market Analysis for Commercial Investment Real Estate
CI-103 - User Decision Analysis for Commercial Investment Real Estate
CI-104 - Investment Analysis for Commercial Investment Real Estate

EXPERIENCE

Fred H. Beck & Associates, LLC – Charlotte, N.C.
- Staff Appraiser and Market Consultant (April 2010- Present)

Fortenberry Lambert, Inc. – Charlotte, N.C.
- Staff Appraiser and Market Consultant (August 2009 - April 2010)

Warren & Associates – Charlotte, N.C.
- Market Consultant (July 2006 – June 2009)

PROFESSIONAL AFFILIATIONS

- State-Certified General Real Estate Appraiser, North Carolina Certificate No. A7697
- State-Certified General Real Estate Appraiser, South Carolina Certificate No. CG6684
- North Carolina Real Estate Broker - License #215295

MARY MCCLINTON CLAY, MAI
218 Main Street
Paris, Kentucky 40361
859-987-5698

September 3, 2021

Senator Paul Hornback
Chairman
Agriculture Committee
702 Capital Avenue
Frankfort, KY 40601-3415

Dear Senator Hornback:

My name is Mary McClinton Clay and I am a real estate appraiser from Paris, Kentucky specializing in eminent domain and environmental damage studies.

As requested, I am attaching a summary chart of examples of diminution in property value as a result of proximity to utility scale solar farms.

I have documented these case studies in a report entitled "A Summary of Solar Energy Generation Power Systems (Solar Farm) Damage Studies as of May 25, 2021," which I prepared for the Clark Coalition for a hearing before the Clark County Planning Commission on May 25, 2021. The report summarizes peer review journal articles, professional appraiser's reports, and solar developer's neighbor agreements, as summarized on the attached chart.

I have also documented additional examples of value diminution in four recent reviews of Impact Studies prepared by appraisers for solar developers as part of their applications to the Kentucky Siting Board.

In addition to five previously published studies, indicating property decline of up to -20.0 percent, four case studies, prepared by my office, are included.

The North Branch, MN case study analyzes a developer buy-out of 7 abutting properties purchased by North Star Solar. The sale-resale analysis compares the sale prior to and after the purchase by the developer. The data indicates a property decline of -6.3 to -28.0 percent with an average and median decline of -17.0 percent.

The McBride Place solar farm case study from Midland N.C. includes the analysis of single family sale-resales indicating value declines ranging from -15.5 to -16.8 percent.

The Sunshine Farms case study analyzes 13 single family lots from a subdivision that abuts a solar farm in Grandy, N.C. The sales that adjoin the solar farm sold for -15.5 percent less than the lots that did not abut, despite a required 300.0 foot set back from the rear property line.

The Spotsylvania Solar case examines single family lot sales before and after the announcement of the 6,350 acre 617 MW solar facility. The adjoining sales sold for -30.00 percent less than those not abutting the solar farm.

Solar developers use "Neighbor Agreements" to limit local opposition to their solar farms. The Western Mustang Solar Agreement consists of a monetary offer of $17,000 to adjacent property owners to not oppose their solar farm

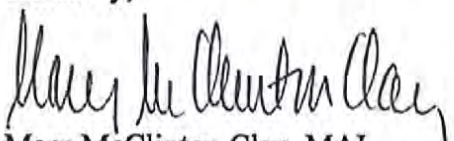
The Lighthouse BP Neighbor Agreement offers $5,000 to $50,000 to adjacent property owners depending on proximity to the solar farm.

The Posey Solar, LLC agreement offer is equal to 10.0 percent of appraised value for neighbors within 300 feet of the solar field, plus an annual $1,000 payment, or $35,000 for the life of the project. Apparently, Posey Solar considers any property within 300.00 feet of a solar farm to be at risk of value decline.

These payments are significant because the developers' own appraisers have determined that solar farms will have no adverse impact on adjacent property values. However, the payments can only be interpreted as a tacit admission of value impairment.

The evidence to date, indicates the need for a more robust and comprehensive analysis of the effect of utility scale solar farms on property values than that presented by solar developers; and prior to the approval of additional solar farms in Kentucky.

Sincerely,



Mary McClinton Clay, MAI

SUMMARY OF INDICATED VALUE DECLINE

DATE	STUDY	RESULT
2018	University	Assessor survey respones ranged from value impact of zero
	of Texas	to estimation of negative impact associated with close
		distance between the homes and the facility, and
		impact increased with increased size of the solar plant.
2020	University	Average decline within 3.0 mile radius was **-1.7%**, or $5,671.
	of Rhode Island	Average decline within 0.1 mile was **-7.0%**, or $23,682.
		The "results suggest extremely large disamenities for
		properties in very close proximity."
2013	Fred H, Beck &	Strata Solar Case Study: Potential Purchasers cancel contract
	Associates, LLC	upon learning of the solar facility.
		Clay County Case Study: Lot sales stopped after announce-
		ment of solar plant. Clay County Board of Equalization
		reduced affected property assessments **-30.0%**.
		Non-residential Use View Impariment Study: Adjacent
		incompatible use adversly impacted nearby properties **-10.7%**
		to **-25.1%,** or an average of **-15.2%.**
		AM Best Solar Farm Study: No diminution in value due to
		pre-existing industrial zoning for solar farm.
2020	Mark W.	Adams County, PA View Case Study: The loss of view results in
	Heckman, R.E.	a **-15%** to **-20.0%** loss in value.
	Appraisers	
2019	Madison County	Potential purchaser offered **-16.43 %** less than
	Indiana	appraised value upon learning of the proposed solar plant.

SUMMARY OF INDICATED VALUE DECLINE

DATE	STUDY	RESULT
2021	Mary McClinton	North Star Solar Case Study (MN): An Analysis of the 7 adjoining
	Clay, MAI	properties purchased by North Star PV, LLC. A sale-resale
		analysis of the sale prior to and subsequent to the purchase
		by the solar developer. The sale-resales indicate a range of
		diminution from **-6.3%** to **-28.0%** with a median decline of
		of **-16.9%** and an average decline of **-16.8%.**
2021	Mary McClinton	McBride Place Solar Farm Case Study (NC): Analysis of 3 sale-
	Clay, MAI	resales and a comparison of the sale price and tax assessment.
		The sale-resales indicate **-15.65%, -15.51% and -16.44 percent**
		diminution in value. The sale price/tax assessment indicates
		a **-16.81%** loss of value.
2021	Mary McClinton	Sunshine Farms Case Study (NC): Analysis of 13 vacant single
	Clay, MAI	family lot sales from a subdivision that abutts a solar farm. The
		sales that adjoin the solar farm sold for **-15.5%** percent less than
		the lots that did not abutt the solar farm.
2021	Mary McClinton	Spotsylvania Solar Case Study (VA): Analysis of 5 vacant single
	Clay, MAI	family lot sales from a section of Fawn Lake Subdivision that is
		adjacent to the solar farm. The lots that adjoin the solar farm
		sold for **-30.0%** less than those that did not adjoin.
2020	Western Mustang	Monetary offer of **$17,000** to adjacent property owners to
	Neighbor Agreem't	quel opposition to the proposed solar facility.
2020	Lighthouse BP	Monetary offer of **$5,000 to $50,000** to adjacent property
	Neighbor	owners depending on proximity to the solar facility to quel
	Agreement	opposition.
2021	Posey Solar, LLC	Monetary offer equal to **10% of appraised value** for neighbors
	Neighbor	within 300 feet of the solar field, plus an **annual $1,000**
	Agreement	payment (**$35,000** for project life).

MARY MCCLINTON CLAY
PROFESSIONAL QUALIFICATIONS

Mary McClinton Clay, MAI
218 Main Street, Paris, KY 40361
859-987-5698/Cell: 859-707-5575
mclayky@bellsouth.net

Market Area: Commonwealth of Kentucky

Primary Practice Focus: Litigation and zoning support with an emphasis on damage studies, including environmental and eminent domain.

Appraisal Experience:
1985 to Present: Self-employed - engaged in commercial, industrial and farm valuation.
1979-1984: Employed by Realty Research - engaged primarily in income property appraisal.
1976-1979: Residential appraisal experience with fee appraisers.

Previous assignments include: Eastern State Hospital; Gateway Shopping Center; Lakeside Heights Nursing Home, N. KY; L&N Office Building, Louisville; Alltech Biotechnology Center, Nicholasville, Paris Stockyards; Conrad Chevrolet, Lexington; CSX Rail Yards in Mt. Sterling and Paris; First Baptist Church, Cold Spring; Lusk-McFarland Funeral Home, Paris; Feasibility Study of proposed Hamburg Place Office/Industrial Park, Lexington; Rent Analysis of IRS Service Center, Covington; Surtech Coating, Nicholasville; Clem Refrigerated Warehouse, Lexington; Bluegrass Manufacturing, Lexington; Finley Adhesives, Louisville; Central Manufacturing and Central Light Alloy, Paris; Review Appraisal of Rand McNally Plant, Versailles and Timberland Distribution, Danville; Old Scott County Jail; Millspring Battlefield; Truck Terminals, Fast Food Restaurants, Retail Centers, Lumber Mills, Car Wash, Multi-Family Residential, Mobile Home Parks, Convenient Stores and Subdivision Analyses.

Thoroughbred Horse Farms including Pin Oak Farm, Bunker Hunt Farms, Pillar Stud Farms, Elmendorf Farm, Summer Wind Farm, Hidaway Farm, Stoner Creek Stud, Runnymede Farm, Wilshire Farm, Lynnwood Farms, Stonereath Farm, Idle Hour Farm, Canefield Farm, Elk Creek Farm, Lochness Farm, Stoneleigh Farm, Elizabeth Station Farm.

Right of Way Experience: Rose Street Extension, Lexington, 1986-87; AA Highway: Greenup Co., 1989, Carter Co., 1990-91; U.S. 27 Campbell Co. 1991-1992, 1993; Bridge Realignment, Walton, 1992; Industry Rd, Louisville, 1993; 19th St. Bridge, Covington, 1994; U.S. 27, Alexandria, 1994; S. Main St., London, 1995; Paris Pike, Paris and Bourbon County, 1995-98; KY Hwy 22 at I-75, Dry Ridge, 1996; Bridge Projects on KY Hwy 19, Whitley County, 1997; US 150, Danville, 1998; US 460 Morgan Co., 1999; US 62 South, Georgetown, 2000; Bluegrass Pkwy and KY 27 Interchange, Anderson Co., 2001; KY 519, Rowan County, 2002; US 641, Crittenden County, 2005; US 25, Madison County, 2008-09; US 68, Bourbon County, 2009-10; Clark County, 2011; US 68 Millersburg By-pass, Bourbon County, 2012-13; US 119, Bell County, 2014-15; US 25, Madison County, 2016-17; Excess Land, Georgetown By-pass, 2020; Access Break, Industrial Drive, Lebanon, 2020.

Railroad Right of Way Experience: CSX in Floyd, Perry, Clark, Woodford, Franklin, Montgomery, Johnson, Magoffin, Breathitt, Fayette, Madison, Mason, and Bourbon Counties, 1987-2016.

Rails to Trails: Rowan County, 2005; Montgomery County, 2009, Franklin County, 2014; Floyd County, 2016.

MARY MCCLINTON CLAY
PROFESSIONAL QUALIFICATIONS

Environmental Damage Studies: *Yellow Creek Concerned Citizens v. Middlesboro Tannery*: effect of tannery contamination on 350 properties along Yellow Creek, Bell County, KY, 1988; *James E. Sullivan, et al v. Board of Regents, et al*: effect of Animal Waste Fermentation Project at the Organic Pasteurization Plant at North Farm of Murray State University on Sullivan's Executive Par 3 Golf Course and Sports Center, Murray, KY, 2003; West Farm Subdivision, Pulaski County: effect of contamination of groundwater from underground storage of dry cleaning solvents on residential lot values, 2004; *Gene Nettles, et al v. Environmental and Public Protection Cabinet: Division of Water, David Morgan, Director and J.P. Amberg Hog Farm*: Diminution of Value Analysis As a Result of Proximity to Hog Facilities in Daviess, Warren, Calloway, Graves, Hickman and Carlisle Counties, Kentucky, 2006; *Terry Powell, et al v. Tosh, et al*: Diminution of Value Analysis as a Result of Proximity to Hog CAFOs in Marshall County, KY, 2007; City of Versailles v. Prichard Farm Partnership, Ltd,: effect of sewage treatment pump station and ancillary easements upon Woodford County cattle farm, 2008; *Kentucky Utilities Company v. James and Mary Jent, CDH Preserve, LLC and Farm Credit Services of Mid-America, FLC, Violet Monroe:* the effect of High Voltage Transmission Lines on three Hardin County agricultural properties, 2011; *Terrence G. Kerschner, et al v. Burley Oil Company, et al:* the effect of Leaking Underground Gasoline Tanks on Country Lane Estates, Frankfort, KY, 2013; *Jerry Whitson v. Donnie Cross:* effect of Drainage Encroachment upon Adjacent Property, 2013; the effect of Cell Tower on Bourbon County Farm, 2014; *Steve D. Hubbard v. Prestress Services Industries, LLC*: effect of Fugitive Particulate Emissions upon a Single Family Dwelling, 2016; *Henderson City-County Airport v. Mary Janet Williams, et. al.*: the effect of Proximity of a Regional General Aviation Airport on Agricultural Values, 2019; *Patricia Kushino, et al v. Federal Aviation Administration, et al*: the effect of Stormwater Drainage on Woodland Value, 2021.

Additional Damage Studies:
Faulty Construction: 172 Post Oak Road, Paris, KY; 152 Cross Creek Drive, Paris, KY; Hartland Subdivision, Lexington, KY
Flood Damage: 208 Cary Lane, Elizabethtown, KY
Blasting Damage: Chicken Farm, Tolesboro KY
Super Fund Sites: KY Wood Preserving, Inc., Winchester, KY; River Metals Recycling, Somerset, KY

Expert Witness: Circuit Courts of Bourbon, Carter, Fayette, Franklin, Hardin, Laurel and Woodford Counties

Court Testimony:
Laurel Circuit Court: *Yellow Creek Concerned Citizens v. Middlesboro Tannery*, 1995.
Franklin County Circuit Court: *Richard McGehee v. Commonwealth of Kentucky Transportation Cabinet*, 2008; *Terrence G. Kerschner, et al v. Burley Oil Company, et al, 2014*.
Hardin County Circuit Court: *Richard McGehee v. Commonwealth of Kentucky Transportation Cabinet*, 2008.
Woodford County: *Horn v. Horn*, 2009
Bourbon County Circuit Court: Blasting Case, 1980s; Waterway Impediment Case, 2000; Faulty Construction, 2009, *Hadden v. Linville*, 2015.
Fayette County Circuit Court: Faulty Construction, 1980s; Bluegrass Manufacturing (Divorce Case), 1999, *Whitson v. Cross*: Drainage Encroachment, 2013.
Carter County: Condemnation for Commonwealth of KY Transportation Cabinet.

MARY MCCLINTON CLAY
PROFESSIONAL QUALIFICATIONS

Conservation and Wetland Easements: Bluegrass Heights Farm, Fayette County: Conservation and Preservation Easement; Wetland Easements in Pulaski, Lincoln, and Fulton Counties for NRCS.

Zoning Support: *John Vance, et al v. Paris City Commission* 2019; *Citizens for Progressive Growth and Development v. Paris Bourbon County Planning Commission* 2004-2007 and 2016; *Paris First v. Paris Bourbon County Planning Commission* 2003-2006; *Paris First v. Paris City Commission* 2002-2003; *Coppers Run Historic District, Inc. v. Abundant Life Worship Center* 1995; *Sugar Grove Farm v. East Kentucky Power* 1994-1996; *Lawrence Simpson, et al v. Harry Laytart* 1986-1996.

Professional Organizations:
Appraisal Institute: MAI, 1985; SRPA, 1982; SRA, 1980

Appraisal Institute Education Certification:
The Appraisal Institute conducts a voluntary program of continuing education for its designated members. I am certified under this program through December 31, 2023.

Education: Hollins College, B.A., 1972

Appraisal Education: Society of Real Estate Appraisers Course 101, 1977; SREA Course 201, 1978; SREA Course 301, 1981; AIREA Course VIII, 1979; AIREA Course VI, 1979; AIREA Course II, 1980; AIREA Course in Investment Analysis, 1980; AIREA Course in Valuation Litigation, March, 1986; Appraisal Institute Standards of Professional Practice, 1992; AIREA Comprehensive Examination, August, 1983; Courses in Real Estate Finance, Income Property Appraisal, Real Property Valuation, and Investment Analysis, 1977-1978, Eastern Kentucky University; Appraisal Institute Course 400G, Market Analysis/Highest and Best Use, 2008, Conservation Easement Certification, 2008.

Attended numerous seminars covering a variety of topics including investment analysis, feasibility and market analysis, eminent domain and condemnation, valuation of lease interests, component depreciation, risk analysis, current issues in subdivision and zoning law, Yellow Book and appraiser as expert witness.

380 MW Goldin Solar
near Knight

Goldendale AL — Hawy Solar atmost 80M
Daniel

Crater Valley
6 Prong Solar
north of 6 prong ...

Talked w/ Ron Schultz

Knight 380 solar — 4,400 looking @ but needs 2,400

Tax credits ramp down 2023
start construct 2019

May Goldendale / Chennoweth
A Holen Rd ~100 MW

Consultant West

Application

FROM COUNTY RECORDS

GOLDENDALE AREA
9,200 ACRES

KNOWN SINCE AT LEAST 2018

Invenergy

Ken Emily Taylor
Wind 312
met Towers up need yr data
prob start permits in 2021

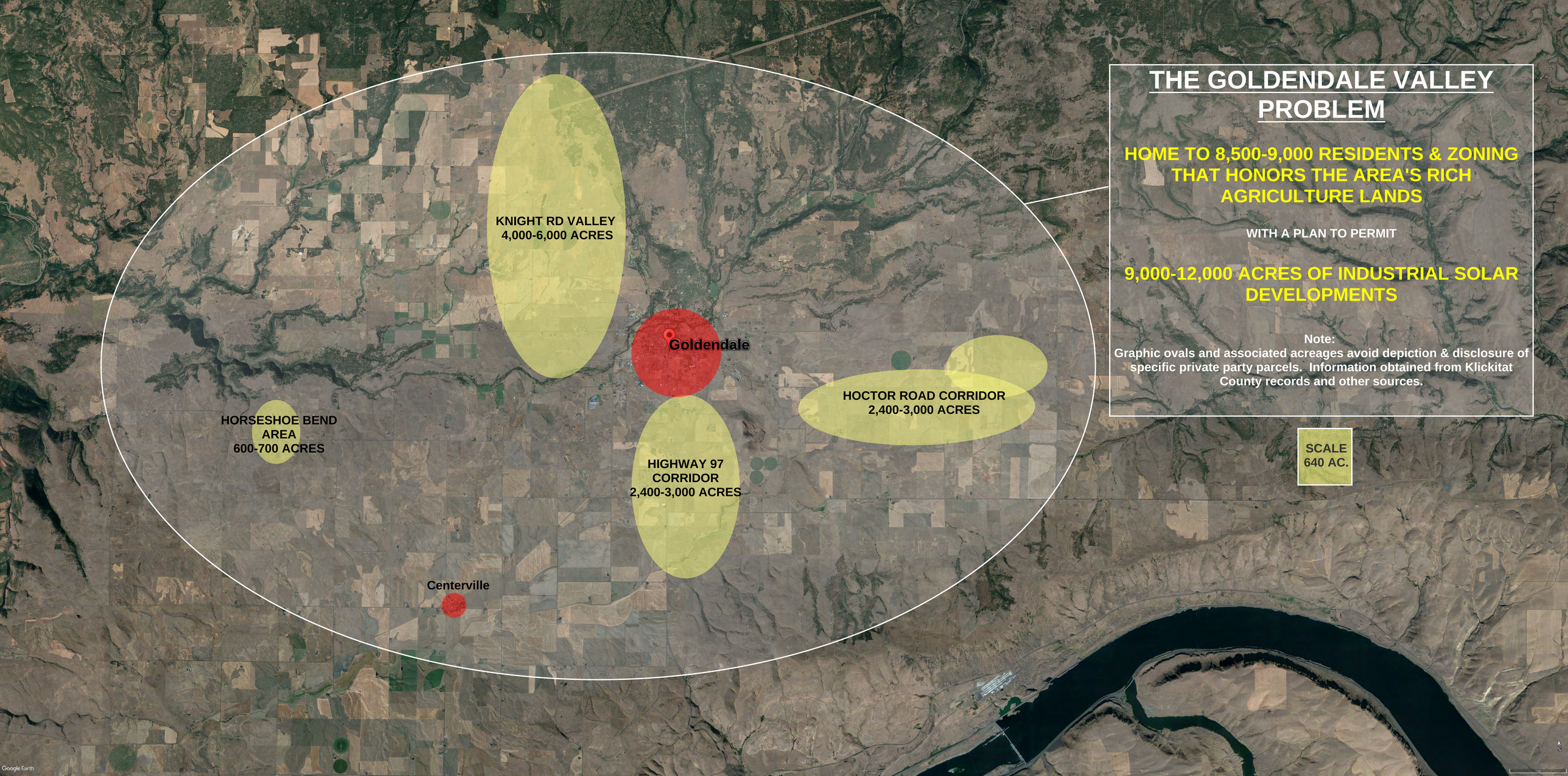
2 Solar storage ~60MW
127 MW ~900 acres
Hoctor north of hoctor
working w/ Pend
Byallen/ Falenkamp
Imyert along 97
connect to Eclowa land
new substation or connect to
existing substation
Tom Burnett

Bothy - Fri ?

Doing surveys next spring
application by end of 2020

FROM COUNTY RECORDS

have 1070 acres
Goldendale still looking for 21C
North of Fish Hatchery Rd
People who support R Puschauer - subdivision
Hanson
prob 2021 application



THE GOLDENDALE VALLEY PROBLEM

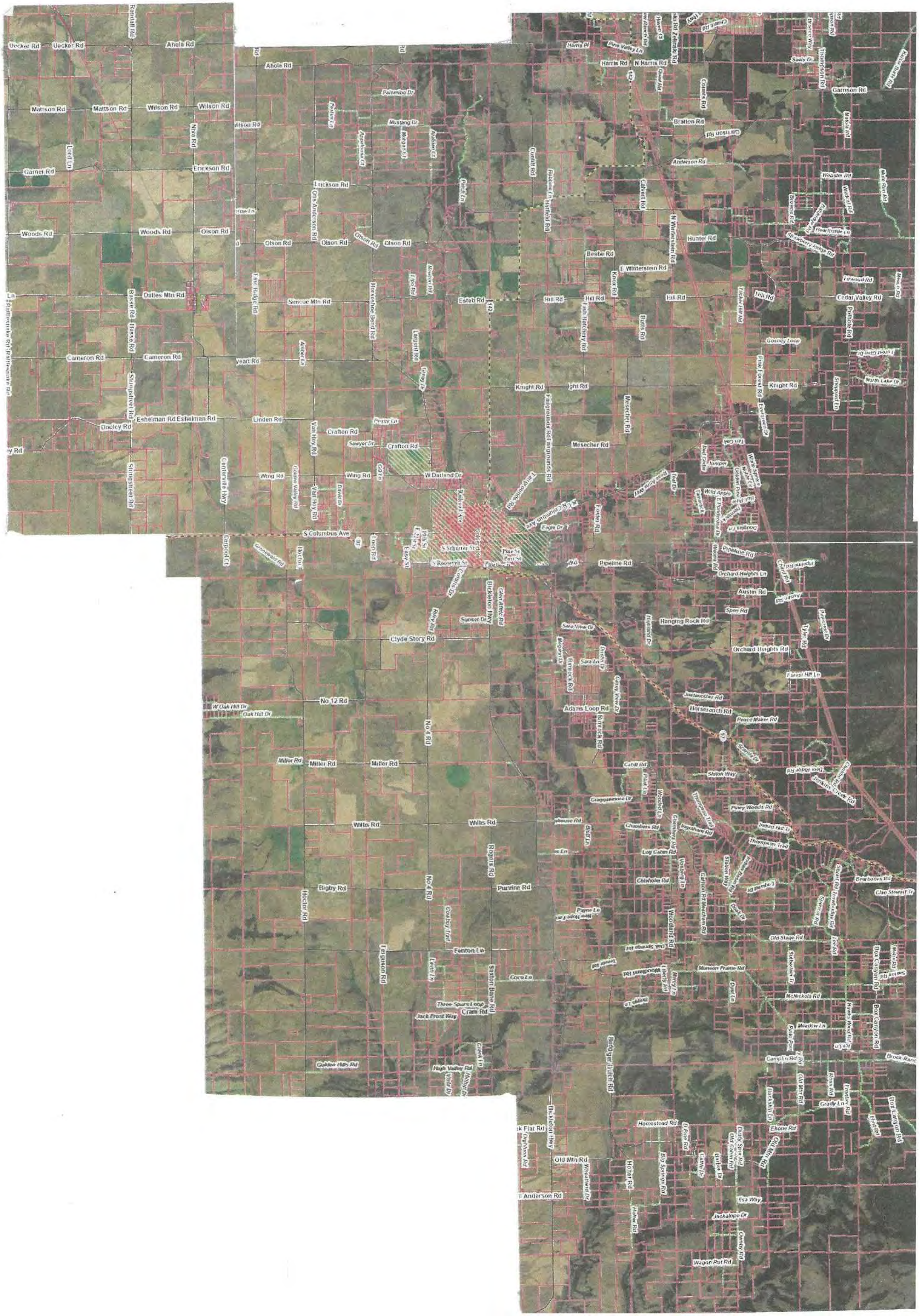
HOME TO 8,500-9,000 RESIDENTS & ZONING THAT HONORS THE AREA'S RICH AGRICULTURE LANDS

WITH A PLAN TO PERMIT

9,000-12,000 ACRES OF INDUSTRIAL SOLAR DEVELOPMENTS

Note:
Graphic ovals and associated acreages avoid depiction & disclosure of specific private party parcels. Information obtained from Klickitat County records and other sources.

SCALE
640 AC.



Randall Rd
Uecker Rd
Ahola Rd
Mattson Rd
Wilson Rd
Niva Rd
Lord Ln
Garner Rd
Erickson Rd
Woods Rd
Olson Rd
Dalles Mtn Rd
Hasse Rd
Cameron Rd
Stringstreet Rd
Eshelman Rd
Dooley Rd
Centerville Hwy
Linden Rd
Van Hoy Rd
Crafton Rd
Wing Rd
Golden Valley Rd
W Darland Dr
S Columbus Ave
Loop Rd
Hoctor Rd
Otis Anderson Rd
Simcoe Mtn Rd
Horseshoe Bend Rd
Amber Ln
Palomino Dr
Mustang Dr
Esteb Rd
Harris Rd
N Harris Rd
Pine Valley Ln
Coumbs Rd
Thompson Rd
Garrison Rd
Bratton Rd
Anderson Rd
Calvert Rd
Fairgrounds Rd
Hatfield Rd
Hunter Rd
Beebe Rd
E Wintersten Rd
Knox Rd
Hill Rd
Fish Hatchery Rd
Butts Rd
Cedar Valley Rd
Gosney Loop
Knight Rd
Mesecher Rd
Pipeline Rd
Orchard Heights Ln
Austin Rd
Spin Rd
Hanging Rock Rd
Orchard Heights Rd
Tyler Rd
Forest Hill Ln
Horseranch Rd
Peace Maker Rd
Adams Loop Rd
Clyde Story Rd
Sunset Dr
Bickleton Hwy
No 12 Rd
Oak Hill Dr
No 4 Rd
Miller Rd
Cahill Rd
Shiloh Way
Jenkins Creek Rd
Piney Woods Rd
Willis Rd
Rogers Rd
Log Cabin Rd
Chambers Rd
Thompson Trail
Bigby Rd
Purvine Rd
Hoctor Rd
Woodland Rd
Bearbones Rd
Old Stage Rd
Fenton Ln
Ferguson Rd
Saxton Bane Rd
Cora Ln
Box Canyon Rd
McNickols Rd
Three Spurs Loop
Jack Frost Way
Cram Rd
Meadow Ln
Bridger Hunt Rd
Campbell Rd
Golden Hills Rd
High Valley Rd
Grady Ln
Homestead Rd
Old Mtn Rd
Holter Rd
Anderson Rd
Big Springs Rd
Jackalope Dr
Wagon Rut Rd

From: lhill@olypen.com
To: EFSEC mi Comments
Subject: Carriger Solar Project
Date: Monday, April 24, 2023 9:19:06 AM
Attachments: Letter to EFSEC.docx

External Email

Attached, please find my letter regarding the Carriger Solar Project in Goldendale, WA.

Larry H. Hill
lhill@olypen.com

To the Energy Facility Site Evaluation Council:

My name is Larry H. Hill. My younger brother and two older sisters and I are the heirs to Mary and Harold Hill's farm which we refer to as Hillsview Ranch. I am writing this letter on behalf of my siblings and their children.

Our Grandparents moved to the Goldendale area in 1923 when our father was one year old. Dad was raised on the family farm, attended Goldendale High School and graduated from Washington State College in 1942. Following his service with the US Army in the ETO during WW II he and Mary returned to Goldendale and began farming on the current property in 1946.

The four of us were raised on the family farm, attended Goldendale public schools and graduated from Goldendale High School. Each of us attended Washington State University and pursued careers in public education which led us to reside and raise families in other parts of the state. All of our children are now established in their respective careers, and it is obvious none of that generation will return to farm the land.

Despite not living in the area for many years we all think of Goldendale and Hillsview Ranch as our "home". We take the responsibility of land ownership seriously and try to make thoughtful decisions that benefit as many people as possible in addition to our immediate family members.

Change is never easy and there will always be opposition to anything that shifts the status quo. Change is difficult for our family as well. We share a far deeper attachment to Hillsview Ranch than anyone and many of the concerns expressed by voices in opposition to the project were shared by us as well. Through careful consideration and due diligence, we feel those concerns have been addressed.

We believe our involvement in the Carriger Solar Project offers the best alternative at our disposal for the most viable use of our land. We are convinced that contributing a portion of our property to the project allows us to make a small contribution to the development of renewable energy, gives future generations of our family a measure of financial assistance, and provides the people of Klickitat County and Goldendale with significant economic benefits from the tax revenue the installation will generate.

- Currently the farm generates enough income to cover our property taxes, insurance and utility bills on an average year.
- On a year with a good crop and/or high prices we can cover expenses, make improvements to our childhood home, and maybe make a couple thousand dollars each.
- As we all eventually pass on, however, any proceeds from the farm get split at least 9 ways instead of 4. Also, the burden of what to do with the property will be thrust onto the next generation, a burden that will be made more difficult simply by the number of stakeholders involved.
- Trying to sell the property is not financially equitable to our family when compared to a solar lease.
- Developing the property is also not as beneficial and a much more expensive undertaking. In addition, the idea of 50 to 100 scattered small parcels, each requiring their own septic and well, roads, and outbuildings is far less desirable than a solar array.

- Dividing the property among the four of us is not feasible because the various parcels cannot be separated easily with regards to current and/or future value.
- For the folks who are concerned that the beauty of the land will be destroyed by the project I would point out that no one's view will be affected more than the one from the west picture window in our childhood home which we plan to keep in the family as a gathering place for holidays and family retreats.
- Given the current desire for development of renewable energy sources this project seems like a worthy endeavor.
- It is my understanding that our property is within the borders of the County's Energy Overlay Zone.
- Our parents, Mary and Harold Hill, were well-known and respected citizens of the Goldendale community. In addition to farming, Harold also served as a Klickitat PUD Commissioner for 30 years and was elected President of the State PUD Association for a term. Dad was involved in bringing the Boeing MOD 2 wind power research project to Klickitat County in the 70's, which served as a precursor to wind power in the state. The HW Hill Landfill Gas Project in Roosevelt bears his name. He and I often discussed what we should do with the farm after he was gone. Given his lifelong interest in renewable energy I firmly believe he would be very much at peace with our decision to lease part of the ranch to the Carriger project.
- I wish Dad was alive to see this development take shape as he would have been fascinated to observe the process and the construction of the project.
- Although the Carriger Project will change the look of the land for a period of years the land itself will not be permanently altered and could once again become viable farmland when the project is decommissioned. In our view this project allows our family to maintain ownership of the property and still preserve the land.
- Our family will benefit from the Carriger project financially, but that benefit will pale in comparison to the economic benefit to Klickitat County, the City of Goldendale, as well as the schools, fire departments, library, and other entities that are supported by tax dollars.

Finally, as I mentioned, our family has served as stewards of our land for 80 to 100 years. It is our land now, a legacy passed to us by our parents and one we would deeply like to pass on to our children. We appreciate the intricacy and stringent requirements this Council applies to projects of this nature and are pleased that Cypress Creek Renewables has chosen this path to proceed with the permitting process. I hope I have conveyed that our decision to participate in the Carriger Project was made with thoughtfulness and consideration of multiple viewpoints. We wholeheartedly support the project and Thank You for taking the time to hear our voice.

Larry H. Hill

Representing

Randy L. Hill

Susan G. Bennett

Sandra K. Goodwin

From: ken hill
To: EFSEC mi Comments
Subject: Carriger Solar Project
Date: Monday, April 24, 2023 2:43:25 PM
Attachments: revisionWe addressed the county commissioners 2 years ago at the previous solar moritorim.docx

External Email

Dear Council Members:

We own 320 acres along Knight Road and would like to address the issue of agricultural land being used for industrial solar.

Approximately 212 of our 320 acres are tillable while the remaining 108 are termed scab land due to large unmovable rocks that make tillage impossible. This means one third of our acreage is not farmable. The 212 tillable acres is not prime farmland resulting in marginal dryland production with no option of developing irrigation.

We have farmed the land along Fish Hatchery Road and Knight Road for over 50 years and have learned to utilize the 212 tillable acreage as profitably as possible. Now we have the opportunity to utilize the entire 320 acres through producing solar energy while developing conservation practices that will establish a haven for small animals and birds.

Given our age and that our children do not want to continue farming the land, we must plan for the future use of our property. We do not want to subdivide our property into more 20 acre and 5 acre rural homesites as other agricultural property in Klickitat County has seen happen. We want a quiet solar farm, with a well maintained fence, that benefits our entire community with increased tax revenues and supply clean energy for future generations.

The entire 320 acres will finally be utilized, a clean non polluting energy will be produced, the water table will remain stable, and the land itself will be protected.

As a country we need to use our land to its fullest potential and in a manner that will benefit the future in the most productive way, in this case solar energy production.

The attachment includes comments we have recently shared with Klickitat County Commissioners.

Thank you for your time.

Respectfully,
Melody and Ken Hill
569 Spring Creek Road
Goldendale, WA 98620

Lets start with the Energy Overlay Zone document. While more than 1 type of energy is mentioned, including solar, the document is more broadly about the development of energy in Klickitat County and the acceptable boundaries. The key word of the document being ENERGY – not one particular kind.

Everyone is demanding more and more electrical energy, including the majority of Klickitat County. Using cell phones, doing Google searches, buying on Amazon, posting on Social Media and on and on. The amount of energy needed to supply the servers of all the platforms in use is astronomical and growing – in 12 years all new cars in our state will be plugging in for a Charge. How can the supply keep up with demand?

About 15 years ago Bonneville Power Administration proposed an expansion of their power grid. The chosen route went north close to Knight Road and ended with an impressive substation close to the base of Jack Knife Butte. We challenged BPA in court but to no avail and resigned ourselves to having a very large power line cutting thru our property with an easement so wide that more lines can be added later- All this simply because people need more energy.

Private energy companies saw BPA's huge new addition to the power grid and their need for help filling those lines with power. Solar companies saw that Klickitat County has been progressive in their view of energy. The county could profit from solar development. But here comes the rub

"Not in my Backyard"

If not in your backyard than whose? It's ok to have coal trains and oil trains go thru Klickitat County – they are passing thru – not in your backyard until there is a derailment. So whose backyard is the energy we are all using suppose to come from?

My backyard turned into 20 , 10 , 5 even 2 ½ acre house sites. Land that was once farmed has been subdivided. Every direction you look from Goldendale there are developments - possibly thousands of acres. People have the right to subdivide their land. We accepted the new populated look of our rural landscape

BPA forced changes on us. The unsatiable need for more energy by so many has presented us with the opportunity to invest in the future - helping supply energy into the power grid for the energy needs of the country. A solar farm won't produce air, noise or light pollution, the water table won't be lowered due to wells being drilled for small acreages – the land will get a rest.

We started a process in 2018 that fell within our rights as property owners and within the parameters set forth by Klickitat County. We followed the system in place but now 5 years later we are having to fight for those rights.

Its OK to turn our farmland into your small acreage house site but how dare we help fill future energy needs of our country.

From: Lori Zoller
To: Hafkemeyer, Ami (EFSEC); Snarski, Joanne (EFSEC); EFSEC mi Comments
Subject: Commissioner Zoller, Klickitat Comments
Date: Monday, April 24, 2023 4:09:12 PM
Attachments: EFSEC best.docx

External Email

Good afternoon. Please find attached my comments for the record in regards to the Carriger Project Application in Klickitat County. Looking forward to seeing you at the Public Information Meeting this Tuesday and I have registered to speak.

Best regards.

Lori Zoller
District #2 Klickitat County Commissioner

4/22/2023

Ami Hafkemeyer
EFSEC Manager
Washington Energy Facility Site Evaluation Council
Via email: ami.hafkemeyer@efsec.wa.gov

Re: Application for Site Certification, Carriger Solar, LLC Project
Solar ASC Submittal EFSEC 02-10-2023

Ms. Hafkemeyer,

Please enter this into the record as my beginning testimony regarding the Carriger Solar Project application for the Knight Road area of Klickitat County.

Welcome to Klickitat County. Well known for our diversity of people and landscapes from West to East. Recreation to farming and ranching. Conservation and parks to timber harvest. Klickitat County is an interesting effort to how competing lifestyles and land use can work together for the good of all. Working through the upcoming processes, you will find that Klickitat County has worked hard for many years to achieve a balance with competing land uses. You will also find that Klickitat County is an overachiever in green energy.

As forerunners to the green energy movement, Klickitat County began a program that captured methane gas and turned it into energy at our landfill in Roosevelt in 1999. Klickitat County has 602 operating wind towers. We are now well into the planning processes for the Pump Storage Facility. A project which the Governor himself has toured and touted as a “State of art project for green energy.” As a County, we are the largest supplier of green energy in WA State.

In anticipation of the coming need for green energy, Klickitat County was the first in Washington State to enact an Energy Overlay Zone in 2005.

That document, when crafted, focused on wind power. There are slight notes to solar energy but in the context of small projects. At that time, no one understood what or how sizeable industrial solar was.

The EOZ also allowed the creation of a blanketed Environmental Impact Statement for all wind power projects. But as you review the EOZ, you will find that in the final stages, the document was appealed. One primary concern was the need for more language for large-scale solar and its differences from wind power. The EOZ was challenged, and as part of a settlement agreement, Klickitat County was required to put each large-scale solar application through the rigors of its own complete EIS, site by site.

Under the EOZ for solar, Klickitat County retained the right to be the lead agency for large-scale solar or be allowed to pick which agency that would be.

With the placement of our new 2023 moratorium prior to the submission of the Carriger application, we have ensured the time to accomplish the required studies and additions for large-scale solar. We have set goals for our Planning Director and have already begun the work with our Planning Commission to update our EOZ for industrial solar within our County.

Proper sensitive placement of large-scale industrial solar is a priority. The Carriger application, as submitted, has yet to go through the appropriate planning and reviews, mainly since the application is unusually located in a higher population area with documented, valuable resource lands. There are legitimate concerns about the aquifers and hundreds of domestic water wells, the future livability of the site, and property values. Extensive wildlife, birds, and fish concerns are also of matter. And the road systems, the potential of deadly battery fires, and proper decommissioning plans. All of these should have been adequately vetted before submitting this application.

My review of the Carriger Solar Project Application for the Knight Road area of Klickitat County leaves me wondering why such an application with so many faults and incompleteness would be forwarded to EFSEC for approval. Within the opening cover letter, the tone was set by Carriger, which continues throughout the application. The cover letter and documents lead the reader to believe Carriger had met the Revised Code of Washington and Washington Administrative Code for siting. They boldly claimed they were ready for an expedited process. I could not come to rest on any chapter or addendum, A through L, that did not require a tremendous number of qualified studies, information, and documentation to legally meet the intent of Federal, State, and County land use planning laws or Tribal requirements.

I thank those on the EFSEC review board with the background and expertise to review this application. And for the EFSEC process allows refuting testimony and documentation so that a project of this magnitude does not just slip through in the dark of night but is required, as it should, to go through a full Environmental Impact Study.

We look forward to working with EFSEC throughout the site consistency hearing and ensuring our County's true intent regarding industrial solar and our planning efforts at the County are recognized and honored. My goal is to help EFSEC help Klickitat County create a prosperous future from the balance of competing for land use options and new green energy.

Sincerely,

Lori Zoller
District #2 Klickitat County Commissioner

Klickitat County Energy Overlay web address:

Index to Final Energy Overlay Zone & EIS Files | Klickitat County, WA

Dana Peck

Dana Peck
422 Foster Road
Goldendale, WA 98620
drpeck66@gmail.com – 509-250-0123

April 24, 2023

RE: Docket No. EF-230001
Energy Facility Site Evaluation Council
Carriger Project Additional Comments

Thank you for this opportunity to submit additional comments.

I am providing this information as a retired individual living in the Goldendale area.

Previously, I was a Klickitat County employee serving as Director of Economic Development from 1997-2005 and in that capacity was the lead person on the County's energy overlay zone programmatic environmental impact statement and related actions, with outside legal counsel provided by Stephen DiJulio of the Foster Pepper (now Foster Garvey) law firm in Seattle.

Attached here are the following documents:

- My brief testimony submitted at EFSEC's April 25, 2023, public meeting in Goldendale.
- A guest editorial I prepared which ran in the Goldendale *Sentinel* on March 15, 2023, which addresses the local tax benefits provided by large projects.
- A detailed response -- prepared before any permit applications had been filed -- to the written statements made by the CEASE organization at that time.
- March 2023 analysis of large solar project effects on neighboring property values published in the Elsevier Energy Policy journal by researchers at the Lawrence Berkeley National Laboratory and the University of Connecticut.

Again, thank for this opportunity to comment.

Dana Peck

Dana Peck

Peck Response to CEASE Letter
Jan. 17, 2022

CEASE leader Greg Wagner, a new arrival to Klickitat County living on 5 acres of land in the middle of the County's early 2000 energy overlay zone boundary (see attached maps), has raised several points about proposed solar projects. This memo responds to those points from my perspective as the lead staffer on the County's energy overlay zone effort in the early 2000's, as well as my experience as a project developer for wind and solar projects in several Western states[1].

I have highlighted the letter's assertions I am responding to, and also printed those assertions in the body of this text.

Quick History of the Energy Overlay Zone Concept

The County's experience with windpower development in the mid-1990's prompted adaptation of the well-established overlay zone concept[2] to renewable energy when the wind industry began to revive in 2000. As a former wind developer then serving as Director of Economic Development, County Planning Director Curt Dreyer (County lead staffer on wind project development in the 1990's) and I were determined to give the public a role in deciding where such project were welcomed by local residents prior to specific projects being proposed,

In addition, rather than depend on privately funded environmental impact statements (EIS) for projects, we felt a County-funded , County-wide EIS would provide more confidence to local residents that the results were impartial. That same EIS could then be used by County staff to define more detailed, project specific studies when developers proposed a project. Also, developers could use the County's EIS to determine whether they wanted to develop in a specific area prior to acquiring land[3].

Land use studies focused on renewable energy projects, the technologies where the County appeared to have competitive advantages sought by private developers. The main advantage was transmission lines linking the County to urban markets paying a premium for electricity from renewable projects. The environmental analyses, which included an extensive avian study of the entire county, were designed to address known and potential issues associated with wind and solar projects.

[1] Kenetech (leading US renewable energy developer in the 1990's; Horizon (formerly a division of Goldman Sachs, now EDP Renewables); and EDF Renewables (formerly enXco and owned by the world's largest utility, EDF).
[2] Washington State encourages so-call "planned use development" for areas anticipating growth. Also, the landfill in eastern Klickitat County was developed under a similar overlay process.
[3] Typically, in the absence of this kind of process, developers determine a site that meets their criteria, leases land, approaches the local permitting entity, and initiates an environmental study process all before there is any public input or awareness.

It's important to recognize that in early 2000, when this project began, neither wind nor solar technology deployment was widespread but their land use requirements and impacts were generally understood. The visual impact and setback provisions in the energy overlay reflect that, as do the other studies incorporated into the County's EIS.

Public hearings took place during the EIS process and also when the County Planning Commission reviewed the proposed adoption of the zone, which were well-publicized and well-attended. Landowners not wanting to be in the energy overlay zone could opt out, as did a large area around Snowden (see attached map).

Developers have a large incentive to locate projects within the energy overlay zone and meet whatever criteria are established. The energy overlay zone, having been made a part of the County code through a public process, gives the County Planner authority to review project applications, determine additional impact studies, and grant the final permit approval. Unlike the conditional use process, this provides a predictable timeframe, something all developers want.

More recent arrivals moving into the energy overlay zone area could, through their realtors, have been aware of this history. The presence of large wind projects should, at the very least, have suggested that Klickitat County was a place where renewable energy development occurred.

Land Is Being Secretively Acquired And Leased

This is an accurate statement. Developers generally negotiate with landowners one-on-one, a situation preferred by both parties as they attempt to arrive at a mutually agreed upon price. I suspect Mr. Wagner did the same; although I don't know that for a fact, I doubt he informed his neighbors before purchasing his 5 acre lot.

6,000 Acres Will Be Covered With 2.5 Million Solar Panels And Surrounded By A Chain Link Fence.

I don't know how many acres have been leased by Cypress and Invenergy and I suspect Mr. Wagner doesn't either. It is a large number and runs north of Rt. 142 on both sides of Knight Road. It would be surrounded by a fence, usually chain link, for insurance and security reasons.

The number and type of solar panels is also not known. While the energy overlay zone application, when filed, will address layout of the project, solar panels are not purchased until just before construction. That is a function of the constant downward price of solar panels.

When Constructed It Will Reduce The Value Of Your Home And Make It Difficult To Sell, Impact The Enjoyment And Quality Of Life,. Destroy The Natural Beauly, Kill Wildlife During Construction, Destroy Wildlife Habitat. Damage The Ecosystem, Pollute Ground Water, Potential Battery Fire/Explosion And Emission Of Deadly Toxic Fumes.

I'll respond to these items in turn:

- **When Constructed It Will Reduce The Value Of Your Home And Make It Difficult To Sell**

  This is the most prevalent theme voiced by opponents of any project. Locally, it was a frequent statement by wind project opponents claiming that no new residential would occur where wind turbines could be seen – a statement clearly not borne out by experience.

  The irony of this statement in this context is that it denies the right of his neighbors – most of whom lived in the County at the time the energy overlay zone was open for public comment -- to profit from the proposed solar projects. Given the lease rates in solar contracts, it is unlikely a rancher would take land generating good earnings out of production and sign a solar lease.

- **Impact The Enjoyment And Quality Of Life Destroy the Natural Beauty**

  Much like the previous assertion, this assumes that the landowners signing these leases are operating public parks, not commercial properties.

  My favorite response to this statement was made by a Centerville rancher some years back, "No one ever offered to pay me for my view."

-

- **Kill Wildlife During Construction, Destroy Wildlife Habitat, Damage The Ecosystem, Pollute Ground Water**

  The County Planner responsible for overseeing energy overlay zone permit applications addresses all these points in the permit criteria and assures County regulations are met. The energy overlay zone doesn't supersede pre-existing County requirements, it provides additional criteria – and incentives to meet those criteria –on project developers. That's why it's called an "overlay".

- **Potential Battery Fire/Explosion And Emission Of Deadly Toxic Fumes**

  Although I don't know if the proposed projects plan to include batteries, there is a growing trend to include them at solar projects to provide additional hours of renewable electricity output to sell after sunset.

  There have been incidences of battery fires in solar and electric vehicle applications, much like the occasional wind turbine failure, but project developers and the utilities that buy either the output or the entire project have major incentives to assure all safety criteria are met. It's not a guarantee this won't happen, but it makes it highly unlikely.

  Permit conditions can assure these installations meet best industry practices and the equipment itself is far removed from residences.

We Will Receive None Of The Electricity Generated

This is undoubtedly the case, and it's the same for wind power generated in the County. Klickitat PUD can purchase electricity from BPA at much lower prices than local renewable energy projects can get from utilities serving urban markets, most of which also have to meet renewable portfolio standards set at the state level.

Renewable energy generated in the immediate area – and the Mid-Columbia is one the top five renewable energy producing regions in the country – is an export product, much like Pacific Northwest wheat.

In my corporate days, this was one of my favorite questions to answer when signing leases with ranchers. It was fun to say "We'll sell our electricity to the lowest bidder when you sell your wheat to the lowest bidder." Always got the same response.

Only A Few Landowners, Invenergy And Cypress Creek Will Make Money

"Only a few landowners, Invenergy and Cypress Creek will receive direct payments" is more accurate.

Rural economic development that directly benefits ranchers and farmers is rare. Nationwide, renewable energy projects have been a rural economic development success story. In Klickitat County, they represent a significant source of revenue for landowners (in the form of royalty payments), the County road and general fund, and the numerous special tax districts (hospital, school, fire, cemetery) where the projects are built. And the projects contribute to the County having the lowest tax rate in the state.

When Solar Panes Reach The End Of Their Productive Life They Can Not Be Disposed Of In A Landfill

This isn't accurate on two levels: first, small numbers of broken panels are being landfilled, although probably not in the Rabanco site which has more stringent criteria than the Arlington, Oregon site. And second, the industry is too new to have dealt with large-scale decommissioning of entire sites, a topic addressed in the next response.

When The Solar Panels Are No Longer Profitable To The Corporations, They Will File Bankruptcy And Walk Away Rich. The County Residents Will Be Financially Responsible For The Clean Up Cost, Not the Money Making Landowners Who Leased Their Land To The Corporations.

Totally wrong. All County permits for renewable energy projects include a section providing for the project owner to create a fund to remove the project should the project be closed. Wind projects have the added requirement to remove the top three feet of the tower foundation to allow for future agricultural use; solar project installation lacks that specific provision since they don't have massive foundations and are much easier to remove.

More likely than decommissioning a permitted project, the sites will probably be upgraded to more productive versions of the technology as is being seen at County wind sites where "repowering" has occurred.

The County Officials Have Failed To Study The Full Impact Of This Project. County Ordinances Are Inadequate And Do Not Protect Us.

Again, uninformed and wrong. The County has recognized its competitive advantage in renewable energy – most specifically wind and solar – since the early 2000's. It has thoroughly studied County resources for renewable energy development in a County-funded EIS that explicitly addresses wind and solar, held multiple hearings, and defined a publicly-approved specific area of the County where a specialized permit process is available with the intent of drawing projects to that area.

That level of analysis and protection – which both anticipated and preceded specific project development-- is, at this time, unique in the US and is more comprehensive than what most state or local government permitting entities bring to bear.

I have permitted projects on Federal land in Idaho, on land overseen by state-level entities in Washington and Wyoming, and at the county level in Washington, Oregon, Utah, Montana, and California. None of them have the underpinning of the energy overlay's EIS or the extensive public hearings in advance of a specific project seen in the overlay's ordinance.

This Solar Farm Is Intentionally Being Kept Quiet To Avoid Opposition

The cheap shot reply is, "Then how do you know about it?"

The actual reply is that no permit application has been filed by either Cypress Creek or Invenergy, so technically there is no "real" project to discuss in the eyes of the County. Land has been leased and informal conversations have been held to determine permit application requirements, but no application has been filed.

Once the permitting process is formally initiated, developers are mandated to hold a well-publicized public meeting to explain the project.

Reinforcing the County Commission's long-time commitment to achieving economic development that's a fit with Klickitat County culture, there have recently been two County workshops open to the public during which these concerns have been discussed. No final decision has been made on how to proceed, but there's an understanding that nothing has been raised that hasn't been previously addressed in the energy overlay zone process and related EIS.

We Are Not Against Renewable Energy When Done Responsibly With The Citizens Rights Protected And There (sic) Concerns Addressed And Fully Resolved.

I couldn't agree more. In the absence of the energy overlay zone, only developer criteria[4] drives the siting process. In Klickitat County, siting is guided by a process that began with local public input and a county-wide EIS and now has twenty years of operating experience. Project-specific concerns are weighed against planning criteria and addressed within that process by permit conditions administered by the County Planner.

[4] Renewable energy project criteria is remarkably simple: good resource (wind or unobstructed solar), transmission access (typically within 20 miles of a substation or major transmission line for wind, under 10 miles for solar), willing landowners, and no obvious fatal flaws when it comes to environmental issues.

C.E.A.S.E.

CITIZENS EDUCATED ABOUT SOLAR ENERGY

CONTACT: CEASE2020@AOL.COM

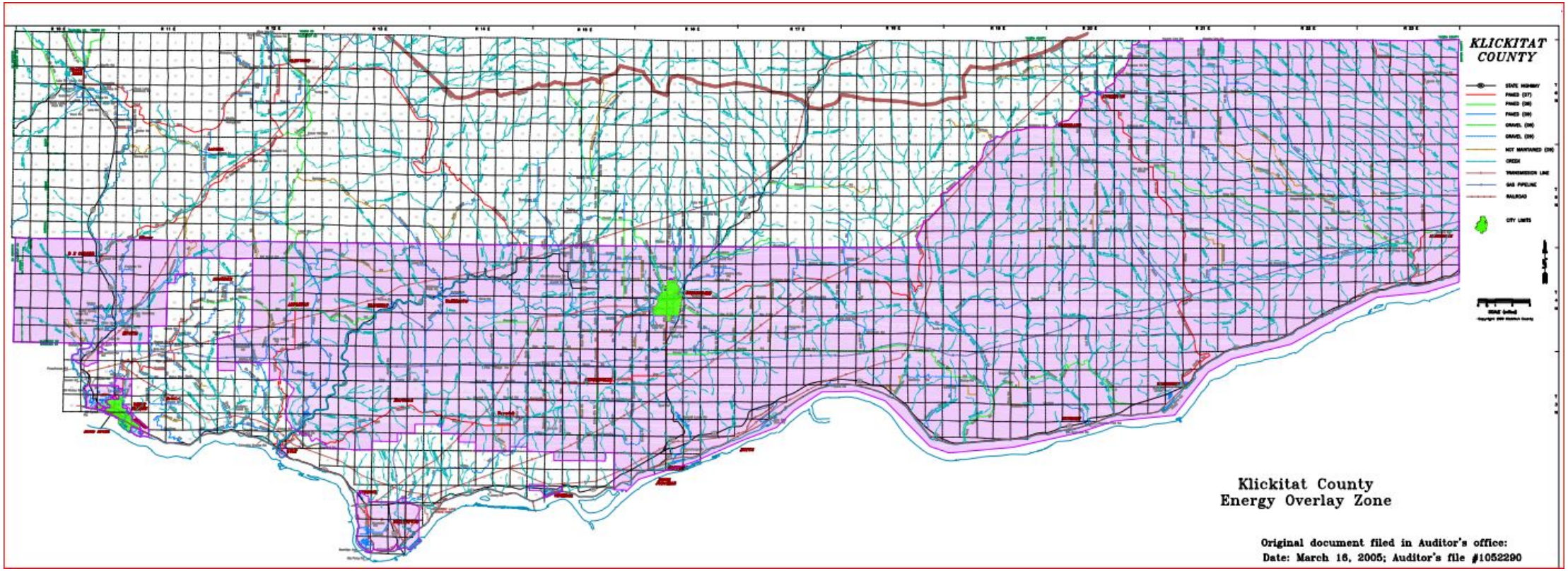
THIS LETTER IS TO INFORM YOU ABOUT THE KNIGHT ROAD UTILITY SCALE SOLAR FARM TO BE BUILT IN KLICKITAT COUNTY,WA.THE PROJECT WILL BE CONSTRUCTED BY THE INVENERGY, CYPRESS CREEK RENEWABLES AND IN CONJUNCTION WITH THE BONNEVILLE POWER ADMINISTRATION. IT IS TO COVER APPROXIMATELY 6000 ACRES. THIS LAND IS BEING SECRETIVELY ACQUIRED AND LEASED JUST 3 MILES WEST OF GOLDENDALE,WA.THE AREA IS FROM HIGHWAY 142 NORTH, EACH SIDE OF KNIGHT ROAD NORTH,TO PINE FOREST ROAD, WEST TO HILL ROAD AND SOUTH BACK TO HIGHWAY 142.THE 6000 ACRES WILL BE COVERED WITH 2.5 MILLION SOLAR PANELS AND SURROUNDED BY A CHAIN LINK FENCE. THE BEAUTIFUL LANDSCAPE WILL LOOK LIKE A INDUSTRIAL COMPLEX.THIS PROJECT WILL START 01-2022.

WHEN CONSTRUCTED IT WILL REDUCE THE VALUE OF YOUR HOME AND MAKE IT DIFFICULT TO SELL, IMPACT THE ENJOYMENT AND QUALITY OF LIFE, DESTROY THE NATURAL BEAUTY,KILL WILDLIFE DURING CONSTRUCTION,DESTROY WILDLIFE HABITAT,DAMAGE THE ECOSYSTEM, POLLUTE GROUND WATER, POTENTIAL BATTERY FIRE/EXPLOSION AND EMISSION OF DEADLY TOXIC FUMES.THESE ARE JUST A FEW OF THE NEGATIVE IMPACTS.WE WILL RECEIVE NONE OF THE ELECTRICITY GENERATED, JUST THE UGLY AND HARMFUL SOLAR FARM.ONLY A FEW LANDOWNERS, INVENERGY AND CYPRESS CREEK WILL MAKE MONEY.WE THE CITIZENS ARE THE LOSERS.WHEN SOLAR PANELS REACH THE END OF THEIR PRODUCTIVE LIFE THEY CAN NOT BE DISPOSED OF IN A LANDFILL.THEY ARE HAZARDOUS WASTE DUE THE TO THE CANCER CAUSING CHEMICALS IN THEM: LEAD,CADMIUM,COPPER INDIUM SELENIDE,SILICON TETRACHLORIDE, NITROGEN TRIFLOURIDE.THIS WILL BE THE FUTURE ENVIRONMENTAL PROBLEM.WHEN THE SOLAR PANELS ARE NO LONGER PROFITABLE TO THE CORPORATIONS,THEY WILL FILE BANKRUPTCY AND WALK AWAY RICH.THE COUNTY RESIDENTS WILL BE FINANCIALLY RESPONSIBLE FOR THE CLEAN UP COST,NOT THE MONEY MAKING LANDOWNERS WHO LEASED THEIR LAND TO THE CORPORATIONS.TODAY SOLAR ENERGY APPEARS TO THE PERFECT SOLUTION BUT THE SAME WAS THOUGHT ABOUT NUCLEAR ENERGY AND LOOK AT THE ENVIRONMENTAL DISASTER IT HAS CAUSED.THE COUNTY OFFICIALS HAVE FAILED TO STUDY THE FULL IMPACT OF THIS PROJECT.COUNTY ORDINANCES ARE INADEQUATE AND DO NOT PROTECT US.TOMORROW THIS SOLAR FARM MAYBE NEXT TO YOUR HOME. THIS SOLAR FARM IS INTENTIONALLY BEING KEPT QUIET TO AVOID OPPOSITION. IF THIS CONCERNS YOU CONTACT: BONNEVILLE POWER ADMINISTRATION 503-230-3000/CYPRESS CREEK RENEWABLES 310-581-6299/ INVENEGRY CORP.971-346-4981 SENATOR CONGRESSMAN REPRESENTATIVE GOVERNOR. COMMISSIONER 773-4612/PLANNING 773-5703/ ECONOMIC 773-7060. WE ARE NOT AGAINST RENEWABLE ENERGY WHEN DONE RESPONSIBLY WITH THE CITIZENS RIGHTS PROTECTED AND THERE CONCERNS ADDRESSED AND FULLY RESOLVED.

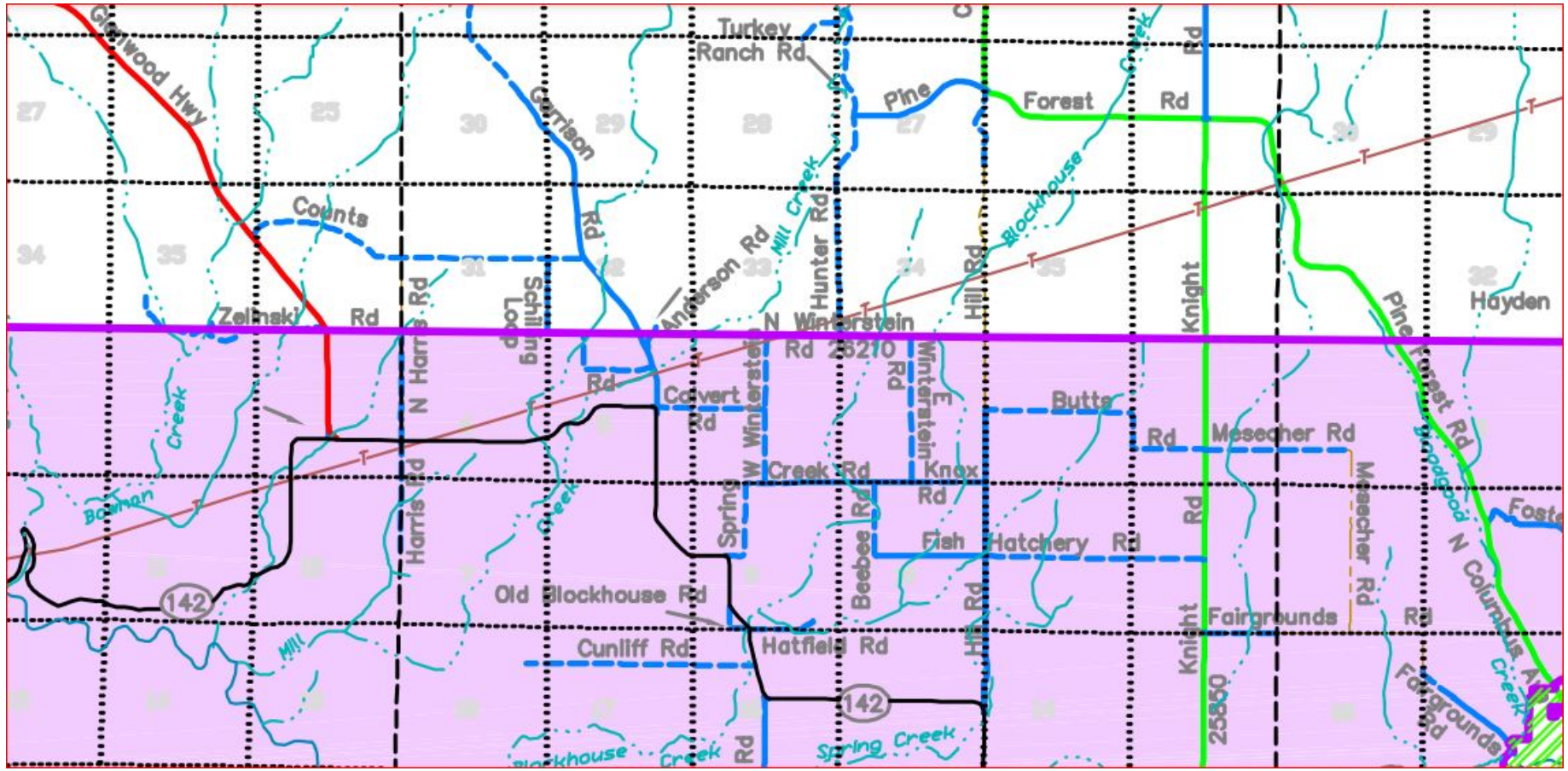
VISIT: CEASE2020.ORG

SIGN THE PETITION

County-Wide Energy Overlay Zone Boundary

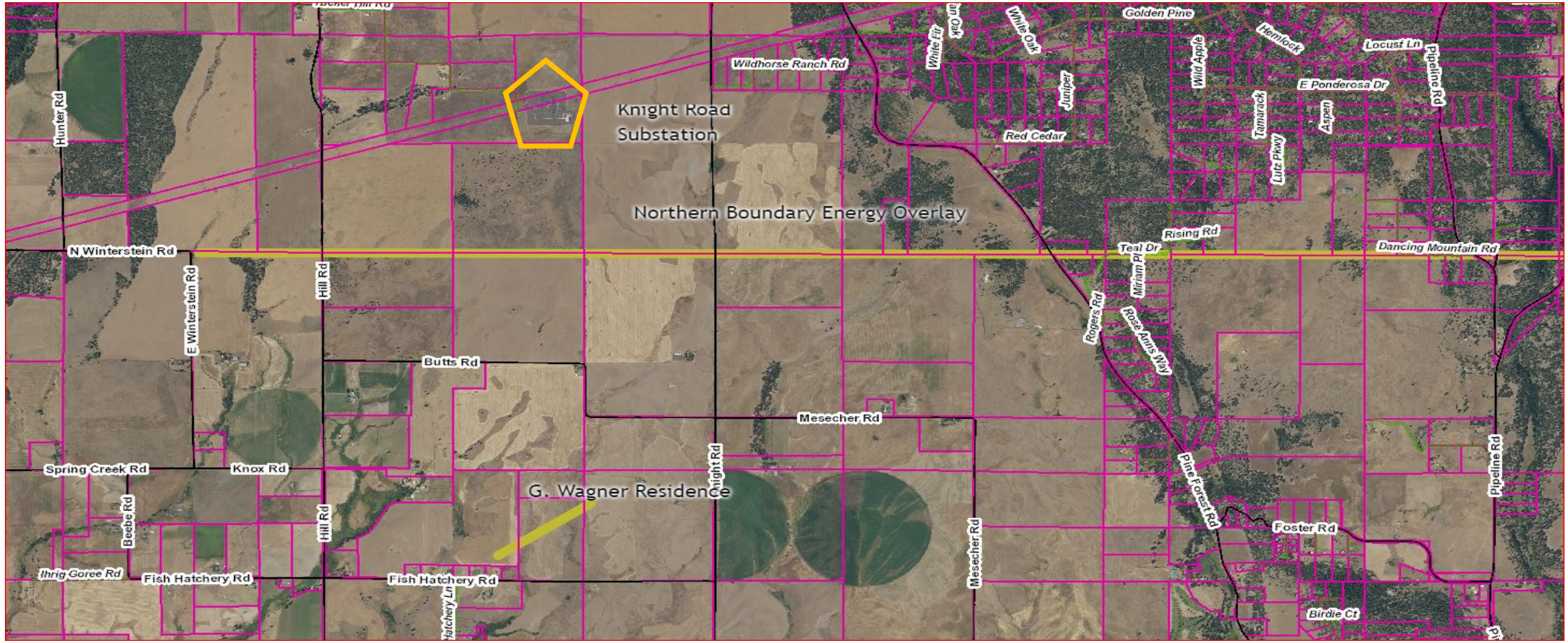


Knight Road-Area Energy Overlay Boundary



G. Wagner Property within Energy Overlay

(5 Acres, Two Adjoining Lots)



Statement of Dana Peck
Energy Facility Site Evaluation Council
April 25, 2023

I am the retired Director of Economic Development for Klickitat County and was the manager of the County's energy overlay zone project in the early 2000's.

My purpose in presenting testimony today is to clarify what I feel are several points related to the energy overlay zone, solar energy projects, and public involvement in the energy facility siting process..

- The energy overlay zone's northern boundary in west Klickitat County, although based on the findings of a programmatic eis, is arbitrary and could have been drawn to include the new BPA substation and surrounding area if we'd have known it was planned.

- Solar is addressed in the programmatic eis, and related county actions, but the absence of installed large-scale solar installations --- unlike wind at the time -- didn't provide specific examples for guiding zoning language so we relied on wind project data for setbacks and included the CUP process as an alternative rather than prohibit energy projects outside the energy overlay zone.

- The energy overlay concept was pursued mostly to resolve what the planning director and I felt needed to be done to address recurring public concerns, specifically the lack of public awareness over where projects were proposed prior to formal announcement, the recurring skepticism over the content of developer-funded project eis documents, and the narrow cumulative impacts analysis allowed by project eis guidelines. Economic development was a hoped-for outcome, but it wasn't the main driver.

- I have provided additional information to your portal and have some information on economic development benefits attached to these comments.

Example of Local Tax District Benefits from a Hypothetical Solar Project West of Goldendale

Total annual revenue increases from a single $150 million solar project for tax districts west of Goldendale would be just under $1 million, and additional projects would likely double that annual number:

County General	$165,337
County Road	$208,963
EMS	$61,048
Fire 7	$111,197
Goldendale School Dist	$290,136
Klickitat County Health	$84,759
Library	$41,921
Rec Dist 1	$36,167
Total	**$999,530**

Klickitat County Tax Revenues – Wind Projects and Other Major Employers

Name	Type	2020 Taxes	2019 Taxes	2016 Taxes
Windy Flats	Wind	$2,110,975	$2,114,275	$2,703,764
PSE	Other	$1,473,704	$1,540,810	$1,771,094
BNSF	Other	$1,523,189	$1,174,870	$844,863
Tuolumne Wind	Wind	$1,015,839	$1,010,437	$1,207,019
Summit Power	Wind	$790,074	$795,964	$1,171,419
Pacificorp	Wind	$747,033	$743,277	$777,856
Big Horn Wind	Wind	$612,221	$615,160	$1,009,264
Harvest Wind	Wind	$550,710	$555,969	$598,278
Northwest Pipeline	Other	$518,831	$501,951	$561,867
Juniper Canyon	Wind	$444,725	$448,389	
S. Cal Pub Pwr	Wind	$409,838	$407,662	$477,038
SDS	Other	$524,095	$373,741	$291,911
Insitu	Other	$257,756	$278,063	$197,383
Big Horn II	Wind	$259,489	$261,208	$404,993
Republic	Other	$142,589	$83,830	$145,994
Mt Adams Orchards	Other	$456,300	$172,750	$195,721
Dpt Wildlife	Other		$163,653	
Andrews & Rowell	Other		$163,467	
Robert & Louise Andrews	Other	$191,895	$154,116	
Mercer Ranches	Other	$144,836	$136,334	
The Dalles Fruit Co	Other	$96,615	$112,239	
Trinity Industries	Other			
Wells Fargo Rail Corp	Other			$165,181
Total		**$12,270,713**	**$11,808,166**	**$12,523,645**

Total Taxes	**2020**
Wind	$6,940,903
Other	$5,329,810
Total	**$12,270,713**

Large Projects Mean Lower Tax Rates

Dana Peck Opinion Piece
Goldendale Sentinel March 15, 2023

New, large projects, like the proposed solar projects west of Goldendale, lower your property taxes. That's what makes them attractive, especially in rural areas where the number of people paying property taxes is small.

It takes a couple paragraphs to explain, but I think you'll find how it works interesting.

Your "county property taxes" are what pays for services you use every day. Roads, senior services, the hospital, ambulance service, fire protection, and law enforcement from the Sheriff's office are a few examples. Schools are also included, especially important if you have your own children or young relatives in the area. The library and swimming pool, services most rural communities lack, are also supported by property taxes.

Each of the organizations providing local services and receiving property tax support has an annual budget. Typically, that budget gets its revenue from a mix of sources in addition to property taxes, but property taxes tend to be a significant percentage of the revenue for each organization. Without those property taxes, most of their services would be either greatly reduced or halted.

If you own your residence and pay property taxes, the tax bill you get has tax assessments – for tax districts – at the bottom of the bill. If you rent, the charges are included in your rental fee. For example, if you live in the area served by Fire District 7, you pay about $.75 for each $1,000 of your property's assessed value, and that pays a part of Fire District 7's annual operating budget.

This is where new large projects, which get a similar tax bill, help lower your property taxes. I don't know what the average assessed value of a house or land is in Fire District 7's tax district, but for use here, let's say it's $350,000. The fire district's levy rate of $.75 per $1,000 produces about $260.00 per year for the fire district's budget from that single property. A $150 million new solar project – again, that's my guess on the average assessed value of a project, not an exact number – produces about $111,000 annually for the fire district. With the annual revenue from one large solar project, the fire district has the option of dramatically increasing its budget and providing additional services, lowering its levy rate, or both – and lowering your taxes.

Another way to look at this new project tax revenue is its effect on special levies for facility upgrades. For example, if a $2 million levy is proposed by one of the tax districts for a new building, that amount would be spread across all properties in the tax district, typically for 10 to 20 years. If one of the properties in the tax district is worth $150 million dollars, that property pays a large share of the special levy, allowing other properties in the tax district – your house, for example – to pay less and still benefit from the upgraded facility. It's the equivalent of

someone paying a portion of your annual mortgage payment for you. The amount you need to pay doesn't change, but the amount you're personally responsible for shrinks.

Depending on where you live and which tax districts you pay into, here's the estimated annual contribution from a new $150 million project on the better known tax districts:

Bickleton Fire District 2	$107,448
Bickleton School	$90,757
Centerville School	$272,905
County General	$165,337
County Road	$208,963
EMS	$61,048
Fire 7	$111,197
Fire District 5	$127,487
Goldendale School Dist	$290,136
Klickitat County Health	$84,759
Library	$41,921
Rec Dist 1	$36,167
Roosevelt Fire District 9	$154,967

Just like the Fire District 7 example, each tax district getting a new large project would have the option of expanding their annual budget and related services, reducing their levy amount, or some combination of the two. In any case, your taxes go down, your services go up, or both.

Total annual revenue increases from a single $150 million solar project for tax districts west of Goldendale would be just under $1 million, and additional projects would likely double that annual number:

County General	$165,337
County Road	$208,963
EMS	$61,048
Fire 7	$111,197
Goldendale School Dist	$290,136
Klickitat County Health	$84,759
Library	$41,921
Rec Dist 1	$36,167
Total	**$999,530**

Annual property tax revenue from the single $350,000 home used in this example would be:

County General	$386
County Road	$488
EMS	$142
Fire 7	$259
Goldendale School Dist	$677
Klickitat County Health	$198
Library	$98
Rec Dist 1	$84
Total	**$2,332**

It would take hundreds of new homes – 428 $350,000 homes in this example – to get the same tax effect as one large solar project. New residents building new homes bring costs of added services such as road repair and pressure on schools and hospitals that largely offset their property tax payments. Those kinds of service demands are not typically seen with new large projects, which, for example, sign agreements with the county for road repair and put funds in escrow to guarantee removal of the equipment if the project is terminated.

To wrap this up, it's not often stated, but the goal of recruiting new large projects like solar that don't have large labor needs after construction is to expand the tax base, improve services, and lower overall resident property tax rates while preserving our rural ag culture. New residents in new homes do just the opposite.

You've seen how this works since the 1980's. The landfill and energy projects are the reason Klickitat County has the lowest property taxes in the state while supporting a range of services unusual in a rural area. The next round of projects offers similar benefits.

On a personal level, I'm sympathetic with my neighbors in the county who live here for the view, the great rural culture, and the low property taxes but oppose solar energy projects near them. What I've tried to show here is that there is a price to be paid by all of us for that opposition. Thanks for taking the time to read this.

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Shedding light on large-scale solar impacts: An analysis of property values and proximity to photovoltaics across six U.S. states

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ABSTRACT

We examine the impact of large-scale photovoltaic projects (LSPVPs) on residential home prices in six U.S. states that account for over 50% of the installed MW capacity of large-scale solar in the U.S. Our analysis of over 1,500 LSPVPs and over 1.8 million home transactions answers two questions: (1) what effect do LSPVPs have on home prices and (2) does the effect of LSPVP on home prices differ based on the prior land use on which LSPVPs are located, LSPVP size, or a home's urbanicity? We find that homes within 0.5 mi of a LSPVP experience an average home price reduction of 1.5% compared to homes 2–4 mi away; statistically significant effects are not measurable over 1 mi from a LSPVP. These effects are only measurable in certain states, for LSPVPs constructed on agricultural land, for larger LSPVPs, and for rural homes. Our results have two implications for policymakers: (1) measures that ameliorate possible negative impacts of LSPVP development, including compensation for neighbors, vegetative shading, and land use co-location are relevant especially to rural, large, or agricultural LSPVPs, and (2) place- and project-specific assessments of LSPVP development and policy practices are needed to understand the heterogeneous impacts of LSPVPs.

1. Introduction

Large-scale photovoltaic projects (LSPVP), defined here as ground-mounted photovoltaic generation facilities with at least 1 MW of DC generation capacity, are an increasingly prevalent source of renewable energy. LSPVPs accounted for over 60% of all new solar capacity in the United States in 2021, and, as the largest resource by capacity in interconnection queues, are projected to continue growing (Bolinger et al., 2021). However, the local economic impacts of LSPVPs are poorly understood (Mai et al., 2014), despite surveys showing that local public support for large-scale solar is strongly related to perceived economic impacts, including the impact on property values (Carlisle et al., 2014). Concerns surrounding the property value impacts of solar power are reflected in solar industry and environmental advocacy communication that challenge the conception that solar power reduces property values (Center for Energy Education, n.d.; Solar Energy Industries Association, 2019), and in attempts by neighbors of solar plants to claim solar panels as a private nuisance (Westgate, 2017).

The purpose of this paper is to provide some of the first comprehensive evidence on the impact of LSPVPs on residential home values. Specifically, we seek to answer two related research questions: (1) what effect, if any, do LSPVPs have on residential home prices and (2) does the effect of LSPVPs on home prices differ based on the prior land use on which a LSPVP is located, the size of the LSPVP, or the urbanicity of a home's location? To address these questions we use data from CoreLogic on over 1.8 million residential property transactions that occurred within six years before and after a LSPVP was constructed in the five U.S. states with the highest concentration of LSPVPs as measured by number of installations: California (CA), Massachusetts (MA), Minnesota (MN), North Carolina (NC), and New Jersey (NJ), as well as in Connecticut (CT), chosen for its relatively high population density (i.e., urbanicity) near LSPVPs. We then combine the transaction data with other geo-spatial datasets including an original dataset of LSPVP footprints developed by the project team for this research, a suite of environmental amenities and dis-amenities, urban, rural, and suburban classifications, and historic land cover data. We identify the arguably causal impact of LSPVPs on residential property values using a difference-in-differences identification strategy that compares the sale price of residential homes located in close proximity to a LSPVP (e.g. 0–0.5 miles away) both before and after a LSPVP is constructed to the sale price of homes located farther away from a LSPVP (e.g. 2–4 miles away).

Our paper makes several important contributions. First, we examine the impacts of LSPVPs in a large set of U.S. states that account for the

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Abbreviations

A/D	amenities and dis-amenities
API	Application Programming Interface
CA	California
CT	Connecticut
DC	direct current
dB	decibel
DiD	difference-in-difference
EIA	Energy Information Administration
FE	fixed effects
GHG	greenhouse gas
LSPVP	large-scale photovoltaic project
MA	Massachusetts
MN	Minnesota
MW	megawatt
NJ	New Jersey
NLCD	National Land Cover Database
NY	New York
NC	North Carolina
PV	photovoltaic
RI	Rhode Island
RPS	Renewable Portfolio Standard
SB	Senate Bill
U.K.	United Kingdom
U.S.	United States
USDA	United States Department of Agriculture

majority of U.S. LSPVP capacity, most of which, to our knowledge, have not previously been studied with respect to the impact of LSPVPs on property values. Existing research on the property value impacts of LSPVPs provides mixed results from a limited set of geographies. Where researchers do find an adverse impact of LSPVPs on property values, as in studies from the Netherlands and from the U.S. states of RI, MA, and NC, they theorize a change in property values due to visual intrusion from panels (Abashidze, 2019; Dröes and Koster, 2021; Gaur and Lang, 2020) and land use change (Gaur and Lang, 2020). Conversely, one study based in the U.K. finds no statistically significant effect of LSPVPs on property values (Jarvis, 2021). Expanding the geographic scope of the literature, then, facilitates both generalization (Brinkley and Leach, 2019) and more location-specific policy insights.

Second, we investigate whether the effect of LSPVPs on home prices is heterogenous with respect to LSPVP area, prior LSPVP land use, and home urbanicity. One of the major concerns surrounding LSPVPs, as well as one of the major opportunities to explore the co-benefits of LSPVP development, are its land use requirements (Hernandez et al., 2014a; Hernandez et al., 2014b; Katkar et al., 2021). In particular, more adverse home price impacts might be found where LSPVPs displace green space (consistent with results that show higher property values near green space (Crompton, 2001)) or where LSPVPs are larger in area, and thus more visually intrusive. While some previous studies (Gaur and Lang, 2020) find that greenfield solar development is primarily responsible for their observed decrease in home prices when compared to brownfield development, our constructed dataset of LSPVP footprints allows us to more precisely identify the prior land use of a LSPVP (for instance, breaking up the "greenfield" category into agricultural and non-agricultural land uses). Our dataset of LSPVP footprints additionally allows us to accurately characterize the area of each LSPVP.

In section 2, we introduce the policy context for LSPVP development in the study area and review the existing literature on property value impacts of LSPVPs. In section 3, we detail the data used in this study, the geospatial methods used to combine datasets, and the difference-in-differences approach to assessing property value impacts of LSPVPs. In section 4, we present our base model, event study, and heterogeneity analysis results. In section 5, we summarize and discuss our findings. In section 6, we note the limitations of our study and describe avenues for future work. Finally, in section 7, we review the key conclusions and policy implications of our study.

2. Background and relevant literature

2.1. Policy context

The study area is defined as the six states of CA, CT, MA, MN, NC, and NJ. The states in the study area were chosen based on number of installations: CA, NC, MA, MN, and NJ represent the top five states in terms of number of >1 MW DC solar installations through 2019. Together, these states contain over 2,000 solar projects, or approximately 53% of the total MW DC capacity in the United States through 2019. We additionally include CT because of its relatively high population density near solar projects (U.S. Energy Information Administration, 2021a).

All six states face increasing demands for large-scale solar along with intensifying land use and permitting constraints on solar development. Both CA and CT have ambitious Renewable Portfolio Standards (RPSs), aiming for 100% of electricity retail sales to be supplied by renewable sources by 2045 and 2040, respectively (Schwartz and Brueske, 2020; U.S. Energy Information Administration, 2021a). In CA, this necessitates, by some estimates, a tripling of California's renewable energy production; of those possible renewable resources, solar PV is both the least expensive and has the largest technical potential in the state (Schwartz and Brueske, 2020). Though MA, MN, and NJ have less ambitious renewable energy development goals, state reports still estimate that building solar PV is a key strategy to meeting both MA and MN's GHG reduction and renewable electricity sourcing targets (Jones et al., 2020; Putnam and Perez, 2018), and NJ introduced legislation in 2021 that aims to double existing solar installations through incentives (NJ Department of Environmental Protection, 2021). NC's solar future is less definite: although the state has, historically, been a leader in solar installations, the dominant electric utility in the state, Duke Energy, has proposed an integrated resource plan that largely privileges fossil generation over renewables. This plan is currently under review by the NC Utility Commission, with challenges from multiple environmental groups (Southern Environmental Law Center, 2021).

State reports identify persistent LSPVP land use and permitting challenges. In CA, for instance, San Bernardino county voted to ban utility-scale solar farms on over a million acres of private land (Schwartz and Brueske, 2020), citing concerns about the industrializing impact of solar projects on rural or desert landscapes (Roth, 2019). Tradeoffs between land use and LSPVP development are also observed at the state level in CT, MN, and NJ. In CT, Public Act 17–218, enacted in 2017, limits PV development on forest and prime farmland[1]; this has resulted in a reduced number of approved commercial PV projects per year (CT Council on Environmental Quality, 2020). Before the passage of this act, in 2016, the CT Council on Environmental Quality reported that solar PV was the single largest type of development displacing agricultural and forest land (CT Council on Environmental Quality, 2017). MN, too, prohibits solar development on prime farmland: the state's Prime

[1] Both CT Public Act 17–218 and the MA Prime Farmland Rule cite 7 CFR 657 for the definition of "prime farmland"; 7 CFR 657 is a periodically updated set of federal regulations, administered by the Department of Agriculture, that defines prime and important farmlands (Legal Information Institute, n.d.).

Farmland Rule includes solar development as one of the prohibited industrial uses of select agricultural land (Bergan, 2021). The MN Prime Farmland Rule is currently being contested: legislation that allows more PV development on farmland is now under consideration in the MN legislature (Bergan, 2021), and the MN Department of Commerce has, in the past, issued guidance for developers on how to make their case for an exception to the rule (Birkholz et al., 2020). In NJ and NC, too, concerns about farmland preservation and LSPVPs have appeared in discussions among agricultural stakeholders, although neither state has adopted prime farmland legislation like CT or MN (American Farmland Trust, 2021; Cleveland and Sarkisian, 2019). In MA, state reports refer to siting difficulties due to high population densities, expensive land for development that is disconnected from transmission, and opposition to disturbance of natural land (Jones et al., 2020).

In summary, while LSPVP installations are prevalent in the six states analyzed in this, these states also represent regions where an increasing need for LSPVP is met with restrictions, opposition, and land-use tradeoffs. These restrictions are often specific to farmland, although concerns do extend to other landscapes (like high density areas, deserts, and forests). Investigating property value impacts of LSPVPs, both overall and by prior land use and installation size, can potentially provide policymakers, practitioners, and developers with valuable information on how LSPVPs affect residents' willingness to pay for properties located near LSPVPs. To the extent that these concerns represent possible burdens of LSPVP development, investigating property value impacts of LSPVPs also helps us understand how these burdens are distributed. These insights, in turn, can guide policy or best practices that seek to mitigate adverse impacts of LSPVP development to enable build-out that meets climate and clean energy goals.

2.2. Relevant literature

The property value impacts of LSPVPs have received only recent, limited attention (Abashidze, 2019; Al-Hamoodah et al., 2018; Dröes and Koster, 2021; Gaur and Lang, 2020; Jarvis, 2021). Studies on LSPVPs and property values employing difference-in-differences (DiD) analyses find mixed results. Studies based in the U.S., specifically, MA and RI (Gaur and Lang, 2020) and NC (Abashidze, 2019), and the Netherlands (Dröes and Koster, 2021), find a statistically significant negative effect for homes near solar projects compared to homes further away. One study, based in the U.K., finds no statistically significant effect of LSPVP proximity on home property values (Jarvis, 2021). Although none of the existing studies find evidence of an increase in sales prices for homes near solar projects, Abashidze (2019) finds an increase in agricultural land value for land in close proximity to transmission lines after a solar farm is built in the area. To our knowledge, only Gaur and Lang (2020) investigate the impact of prior land use using a DiD framework, finding that greenfield solar construction is associated with a statistically significant reduction in sale prices in both rural and non-rural areas, with greater reductions observed in rural areas. One study using a contingent valuation survey finds that respondent willingness to pay for large-scale solar developments is a function of prior land use, where brownfield solar developments are more desirable than greenfield developments (Lang et al., 2021). Both Jarvis (2021) and Abashidze (2019) find no evidence of heterogeneity in home price impacts by income or other socio-economic indicators.

The mixed results to date in the LSPVP and property value literature motivates studies that look at previously understudied geographies to develop a more comprehensive view of the possible property value impacts of LSPVPs. The existing literature also orients us to relevant heterogeneity analyses, including heterogeneity by prior land use. We extend this literature by looking at a more specific set of prior land uses beyond greenfield and brownfield, as well as by looking at heterogeneity of effects by LSPVP size and urbanicity.

3. Methods

3.1. Data

This project utilized five major sources of data, shown on the left-most side of Fig. 1. First, to characterize and locate LSPVPs, we utilized the U.S. Energy Information Administration's Form 860 (U.S. Energy Information Administration, 2021b), which provides latitude-longitude data on solar plants, their installed capacities (in megawatts, MW), and their operation start date. We kept only solar plants within the study area with an installed capacity over 1 MW and eliminated rooftop installations, leaving us with 1,630 solar plants. Second, to understand the impact of prior LSPVP land use on property values, we used land use data from the United States Geological Survey (USGS)'s Multi-Resolution Land Characteristics (MRLC) Consortium's National Land Cover Database (NLCD) from 2006 (Multi-Resolution Land Characteristics Consortium, 2006). Third, for information about home sales, we used transaction data from CoreLogic (CoreLogic, n.d.), which provided information on location, property characteristics and transaction characteristics. We filtered this dataset for only relevant, complete records; the criteria used to screen data are outlined in Table A.1. Fourth, to identify amenities or disamenities (herein referred to as A/D), or landscape characteristics that could positively or negatively impact the price of a home, we used the data sources summarized in Table A.2. Finally, to understand the impact of urbanicity on property value impacts, we used the U.S. Census Bureau's (U.S. Census Bureau, n.d.) urban-urban cluster-rural classification (a metric based on population density, where urban areas are the most dense, followed by urban clusters, then rural areas). These data sources were validated and combined to produce a final analytic dataset. Fig. 1 graphically depicts the data preparation steps, which we describe below.

Step 1: To obtain a polygon representation of each LSPVP from the EIA point data, we first verified installation locations using satellite imagery from Esri and DigitalGlobe and revised project centroid coordinates where necessary. We manually drew polygons around the boundaries of each LSPVP based on satellite imagery; for projects that consisted of multiple, non-contiguous groups of panels, we drew a multipart polygon around the boundaries of each group of panels. We calculated a construction start year for each LSPVP, assuming construction begins one year before the EIA-provided operation start date. Fig. A.1 shows an example of two LSPVPs and their corresponding polygons; Fig. 2 shows the location of LSPVP sites as well as the density of transacted homes for the six states in the study area.

Additionally, in this step we determined the predominant prior land use type of each LSPVP. We first determined the distribution of prior land cover types by area for each LSPVP; each LSPVP polygon is composed of some proportion of the NLCD land cover classes shown in the right-most column of Table 1 (15 of the 16 possible NLCD classes showed up in our sample). Each LSPVP's distribution of NLCD classes was grouped and summed as per the left-most column of Table 1, and each LSPVP was assigned the predominant prior land use type that constituted 50% or more of its land cover. If no single predominant prior land use type accounted for 50% or more of an LSPVP's prior land cover by area, that LSPVP was assigned a predominant prior land use type of "mixed".[2] Fig. 3 shows (a) the proportion of displaced LSPVP area and

[2] For instance, a solar installation on land that was, in 2006, 15% barren land, 25% cultivated crops, 25% herbaceous, and 35% hay/pasture, would be generalized as 60% agriculture and 40% greenfield, and would be given the predominant prior land use type of "agriculture". A solar installation on land that was, in 2006, 15% barren land, 25% developed, high intensity, 25% herbaceous, and 35% hay/pasture, would be generalized as 35% agriculture, 40% greenfield, and 25% brownfield, a would be assigned the predominant prior land use type of "mixed", because no single category amounted to greater than 50%.

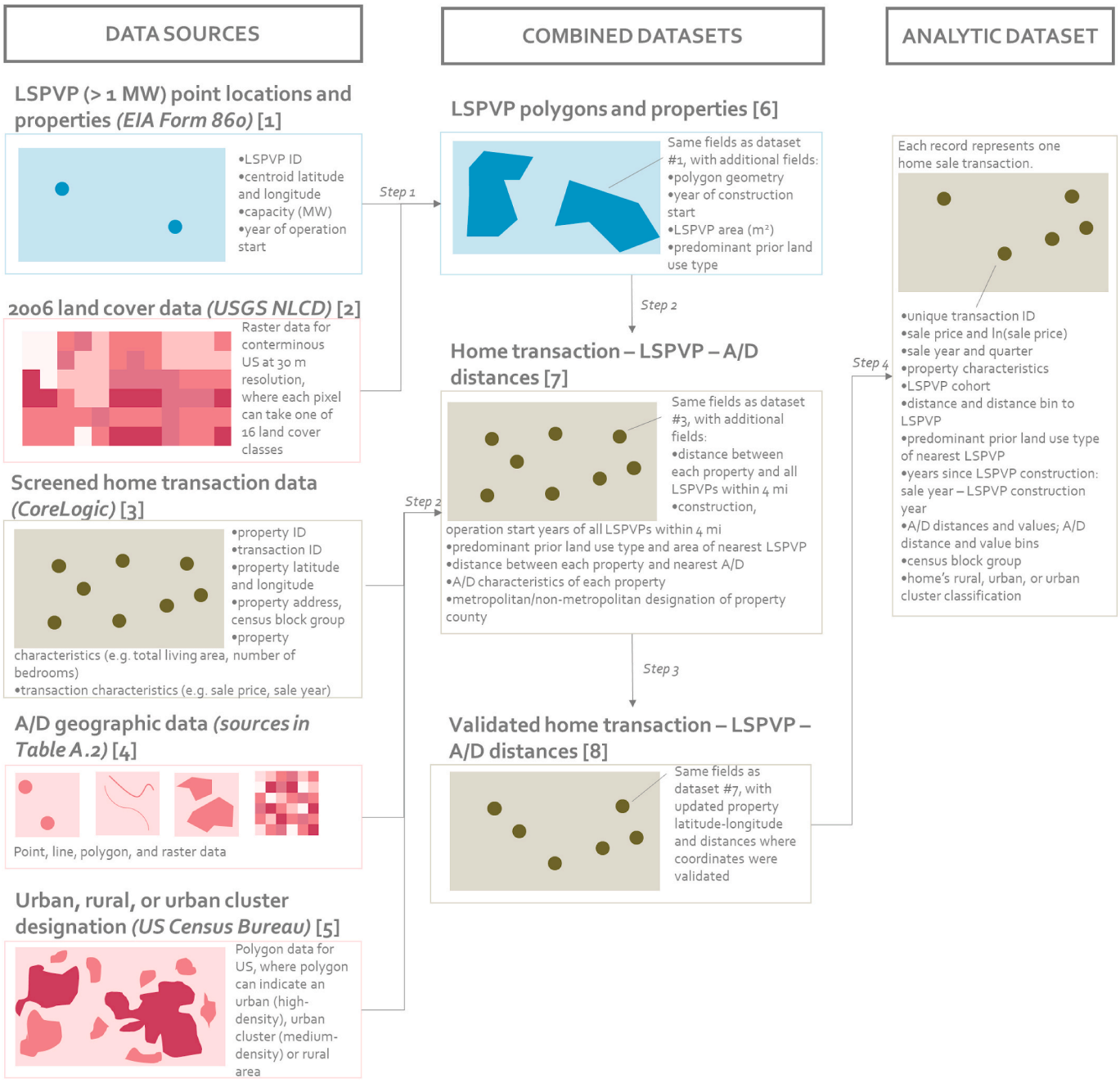

Fig. 1. Data sources and data preparation steps.

Table 1
Grouping of NLCD classes into predominant land use types; LSPVPs are assigned a predominant prior land use of "mixed" if their area does not contain 50% or more of the NLCD classes within a single predominant prior land use type.

Predominant prior land use type	NLCD classes
Agriculture	Cultivated Crops; Hay/Pasture
Brownfield	Developed, High Intensity; Developed, Low Intensity; Developed, Medium Intensity
Greenfield	Barren land; Deciduous forest; Developed, Open Space; Emergent Herbaceous Wetlands; Evergreen Forest; Herbaceous; Mixed Forest; Open Water; Shrub/Scrub; Woody Wetlands

Table 2
Transaction count by state in final analytic dataset.

State	Number of transactions
CA	933,037
CT	34,313
MA	291,325
MN	75,394
NC	204,134
NJ	297,756
6 state total	1,835,961

(b) the proportion of transactions near LSPVPs by predominant prior land use type.

Step 2: For each home we calculated the geodesic distance to the polygon boundary of the nearest LSPVP and to all A/D locations. We also

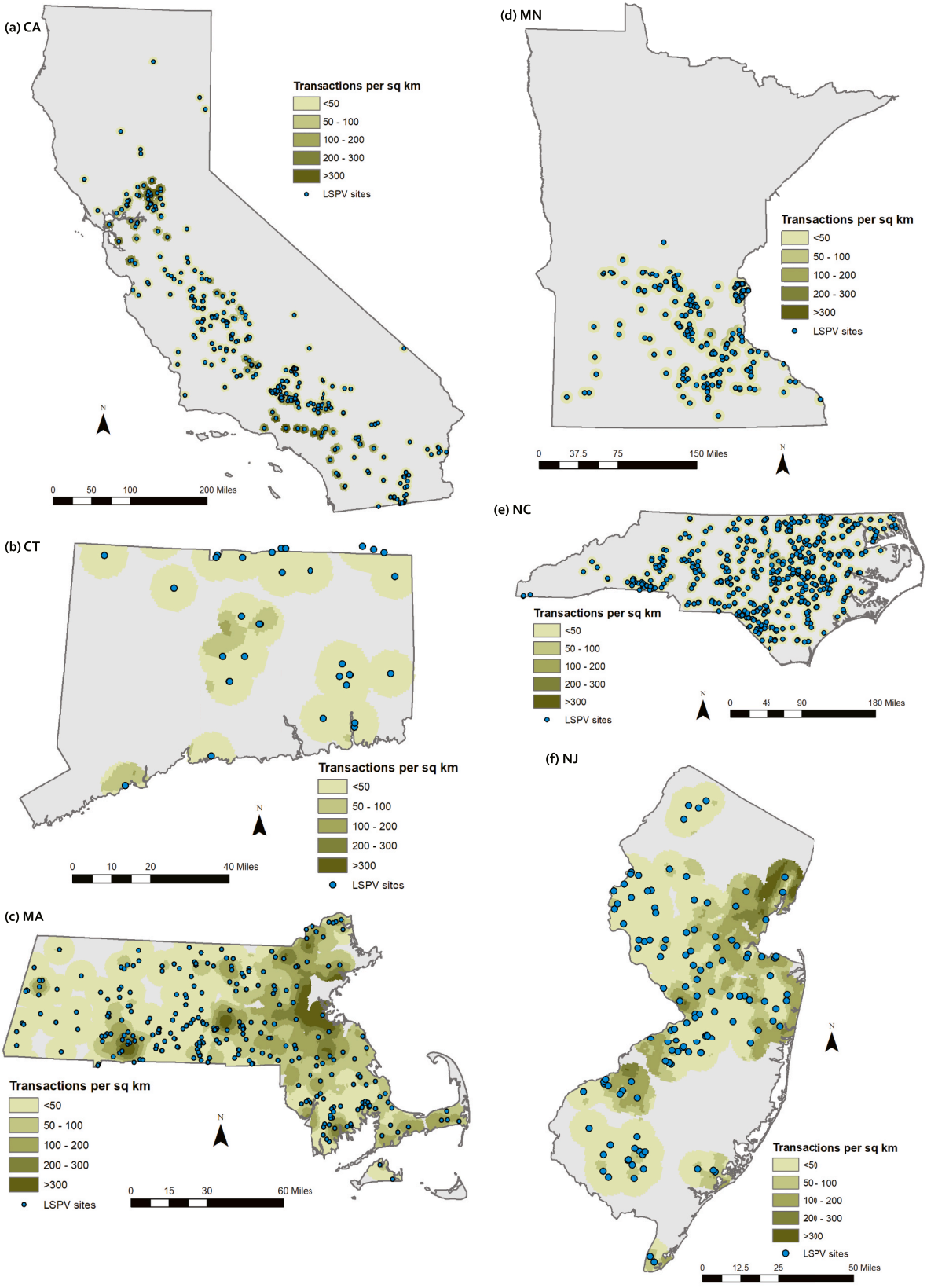

Fig. 2. Heat map of transacted home density within 5 miles of LSPVP sites in individual states.

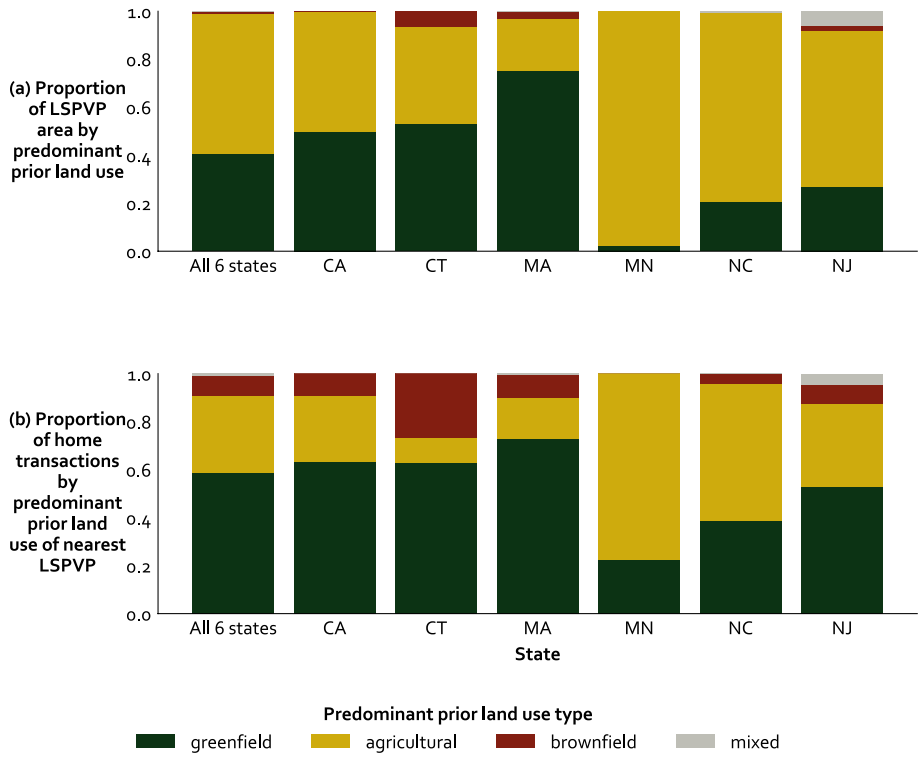

Fig. 3. Distribution of predominant prior land use by (a) LSPVP area and (b) number of homes near LSPVPs.

determined underlying A/D characteristics, where appropriate, such as flood zone status and road/airport sound levels. Finally, we determined the urbanicity of each home's location. Fig. 4 shows the distribution of homes by state and urban, urban cluster, or rural designation.

Step 3: We validated the coordinates of select homes[3] that were sited near LSPVPs or A/D using the Google Geocoding API (Google Maps Platform, n.d.), which takes as input an address and returns a set of coordinates as well as a precision indicator. We dropped from our analysis any home transactions where there was inconsistency in the coordinates between CoreLogic and the Google Geocoding API. For some homes, we replaced the CoreLogic coordinates with coordinates from the Google Geocoding API where Google returned a high precision indicator.[4]

Step 4: Given validated coordinates and distances, we retained only the home transactions that were suitable for use in the final analysis. Specifically, we eliminated (1) properties that host a LSPVP (i.e. their coordinates fall within the boundaries of a LSPVP polygon), (2) properties that are over four miles away from a LSPVP, and (3) properties that transacted over 6 years before or after the operation start date of a LSPVP. We also calculated three sets of key values used in the analysis: the transaction's project cohort, LSPVP distance bin, and years since LSPVP construction.

The project cohort refers to the unique ID of the LSPVP that is nearest to a home transaction within 4 miles, and for which the operation start date occurred up to 6 years before or after a LSPVP began construction. If a given transaction belonged to more than one cohort, we retained only the nearest project cohort for that transaction.[5] The distance between the transacted home and the nearest LSPVP was binned into 4 categories: [0 mi, 0.5 mi), [0.5 mi, 1 mi), [1 mi, 2 mi), and [2 mi, 4 mi]. To calculate the number of years since LSPVP construction, we subtracted the LSPVP year of construction start from the sale year (recall that the construction start year is assumed to be the operation start year minus 1 year). The years since LSPVP construction were categorized into 1-year bins (i.e. a sale occurred [−5 years, −4 years), [−4 years, −3 years), …,[5 years, 6 years), [6 years, 7 years] since LSPVP construction). Our final analytic dataset consists of 1,836,053 transactions near 1,522 different LSPVPs.

Table 2 and Fig. 5 summarize the number of transactions, and the number and size of LSPVPs, respectively, by state. The final dataset contains a number of continuous and categorical property and transaction characteristics (e.g. sale price, sale year, number of bathrooms). Summary statistics for those continuous variables are shown in Table 3 for all six states; summary statistics for individual states are shown in Table A.3 to Table A.8. The categorical property characteristic variables are listed in Table A.9. Finally, Fig. 6 shows the total number of transactions within each distance bin by years since LSPVP construction and indicates that the sample has a robust set of transactions in all distance bins throughout the full sample period. While the home-level transaction data used in this study is protected by a non-disclosure agreement and cannot be made publicly available, our dataset of LSPVP locations and associated sizes and prior land uses is available on Github (Elmallah et al., 2022).

[3] We selected properties that were <0.5 miles from an LSPVP or A/D; within a flood zone with at least 1% chance of flooding, or within an area with road or aviation noise exceeding 55 dB. Of the properties that satisfied these conditions, only those with an area greater than 1 acre or those with missing or non-unique coordinates were validated.

[4] We dropped home transactions from our analysis if the difference between the coordinates provided by the Google Geocoding API and CoreLogic was greater than 2 times the distance between that home and its nearest PV plant or A/D. We additionally dropped any duplicate coordinates within 0.5 mi of a PV plant. Where the Google Geocoding API returned a "rooftop" precision indicator, we replaced the CoreLogic coordinates with Google coordinates; for those homes, we recalculated distances to LSPVP and A/D using the process described in Step 2.

[5] In other words, if transaction T_1 is 0.5 miles from $LSPVP_1$ and 2 miles from $LSPVP_2$, and transacted within 6 years of the operation start date of both $LSPVP_1$ and $LSPVP_2$, we consider transaction T_1 to belong to the $LSPVP_1$ project cohort.

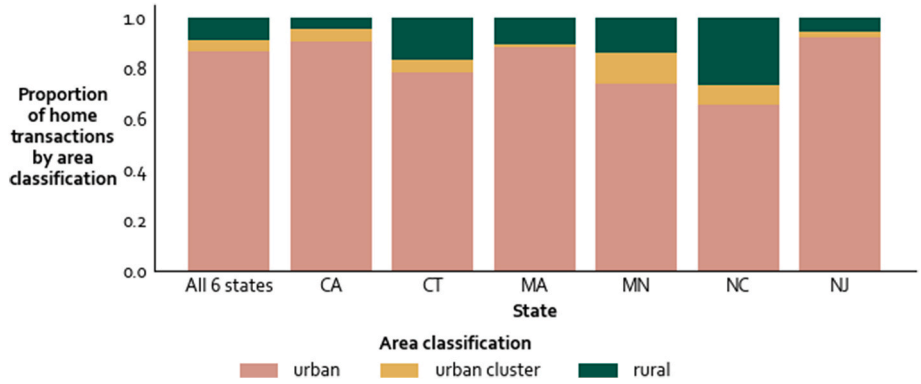

Fig. 4. Distribution of urban, urban cluster, and rural classifications by number of home transactions.

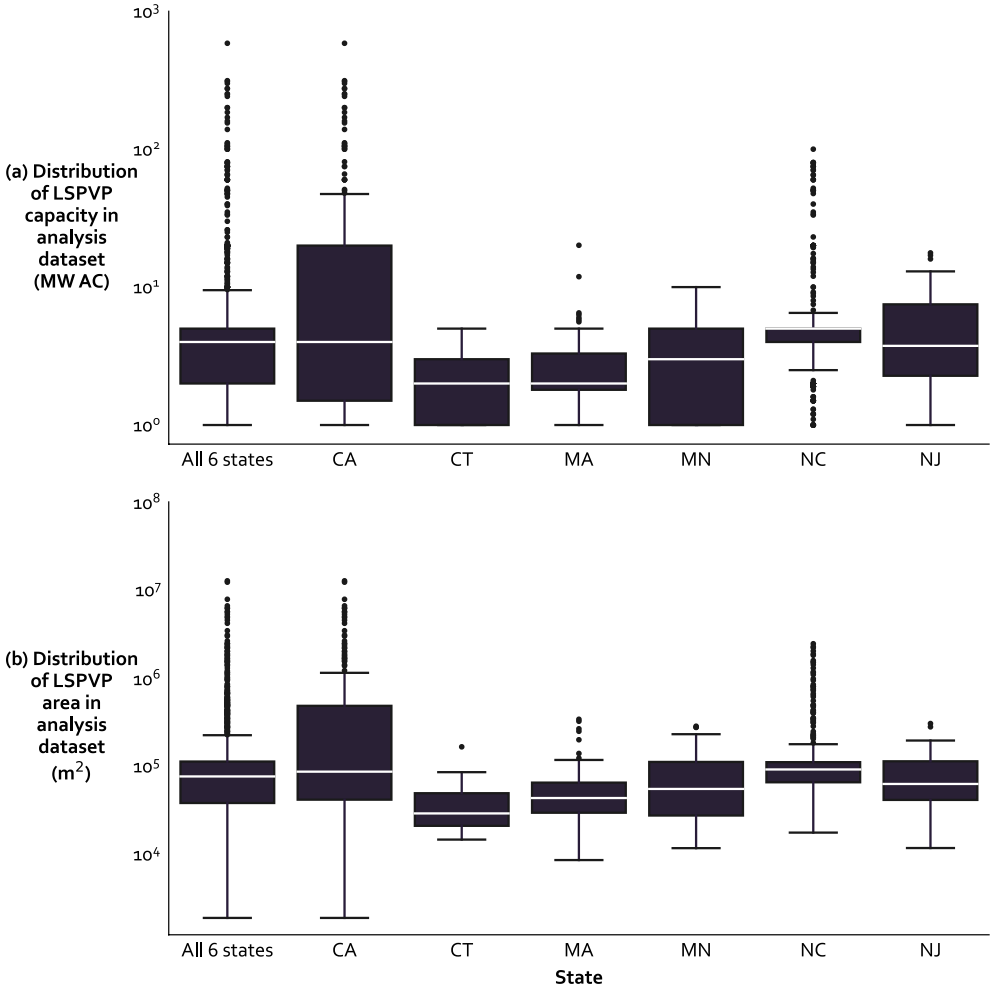

Fig. 5. Distribution of (a) capacity in MW AC and (b) ground-mount area in m^2 of unique LSPVPs in analysis dataset by state. Line represents median value; box limits represent 1st to 3rd quartiles; whiskers represent 4x the inter-quartile range.

3.2. Model specifications

3.2.1. Base difference-in-difference model

To examine the relationship between LSPVPs and residential property values we utilized a difference-in-differences (DiD) identification strategy that relates the timing of treatment (being close to an LSPVP post construction) to home prices for homes located [0 mi, 0.5 mi), [0.5 mi, 1 mi), and [1 mi, 2 mi) away from a LSPVP. Specifically, we first created 1,522 unique datasets, each representing a unique LSPVP and the residential home transactions that occurred within four miles of the LSPVP and transacted within 6 years before or after the first year of operation of the LSPVP. We call each of these unique datasets a "project cohort." We then stacked the 1,522 project cohorts to create our final analytic dataset and specify a stacked difference-in-differences specification of the following form:

$$ln\left(P_{icdjqt}\right) = \beta\, \boldsymbol{T}_{idt} + \boldsymbol{X}_i\alpha + \delta_{dc} + \lambda_{tc} + \rho_{qc} + \varphi_j + \varepsilon_{icdjqt} \quad (1)$$

The dependent variable in (1) is the natural log of sales price P for

Table 3
Summary of dependent variables and property and transaction characteristics in full analysis dataset.

Variable	Description	Mean	Std. dev.	Min.	Med.	Max.
Sp	Sale price ($)	$406,552.22	$340,123.75	$5050.00	$321,000.00	$3,998,000.00
Lsp	log of sale price	12.65	0.74	8.53	12.68	15.2
Lsf	Living area (ft^2)	1936.53	1002.05	102	1720.00	120,215.00
acres	Land area (acres)	0.455	0.873	0.006	0.19	14.14
Age	Age of home at time of sale (years)	44.08	30.86	0	40	212
agesq	Age of home at time of sale, squared ($years^2$)	2895.66	3708.86	0	1600.00	44,944.00
salesqtr	Quarter of sale	2.27	0.87	1	2	4
salesyr	Year of sale	2015	3	2003	2015	2020

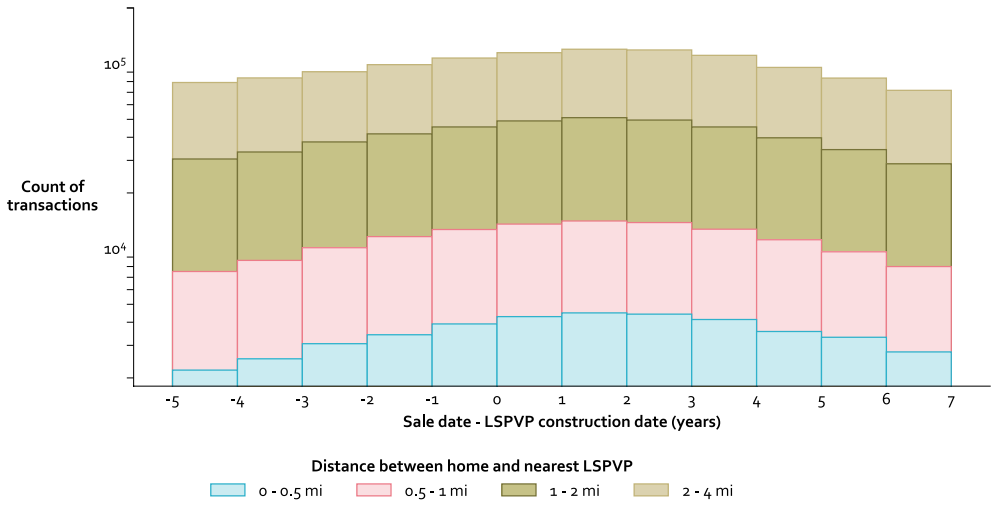

Fig. 6. Count of transactions in final analysis dataset by distance between transacted home and nearest LSPVP.

residential home transaction i that belongs to a project cohort c within distance bin d and census block group j, that transacted in quarter q of year t. T_{idt} is a vector consisting of 3 distance bin indicators for homes located [0 mi, 0.5 mi), [0.5 mi, 1 mi), [1 mi, 2 mi) from a LSPVP, where each distance bin is interacted with an indicator for whether the home sale occurred after LSPVP construction. The omitted category for the distance bin indicators is homes located 2 to 4 miles from a LSPVP. δ_{dc}, λ_{tc} *and* ρ_{qc} are, respectively, distance bin-by-project cohort fixed effects (FEs), transaction year-by-project cohort FEs and transaction quarter-by-project cohort FEs. φ_j is a vector of census block group FEs, and ε_{icdjqt} is a random disturbance term. Finally, $\boldsymbol{X}_i$ is a vector of individual home characteristics including living square footage, land area, the age of the home at the time of sale, age squared, the number of full bathrooms and stories, the type of air conditioning (AC) and heating, the construction type and exterior wall type of the home, indicators for fireplaces and new construction, the type of garage, and the type of view a home has. The standard errors in (1) are clustered at the project cohort level.

The coefficients of primary interest in (1) are the β s which represent the DiD estimates of the effect of treatment (being close to an LSPVP post construction) on home prices for homes located [0 mi, 0.5 mi), [0.5 mi, 1 mi), and [1 mi, 2 mi) away from an LSPVP, respectively. Our DiD identification strategy is both transparent and intuitive. Specifically, each of the 1,522 project cohorts represents a unique quasi-experiment where the treatment group is homes located within [0 mi, 0.5 mi), [0.5 mi, 1 mi), and [1 mi, 2 mi) from a LSPVP and the control group is homes located 2 to 4 miles from a LSPVP. For each of these 1,522 quasi-experiments, our DiD framework then compares the sale price of homes located close to a LSPVP to the sale price of homes located farther away before and after LSPVP construction. The inclusion of distance bin-by-project cohort FEs, δ_{dc}, transaction year-by-project cohort FEs, λ_{tc}, and transaction quarter-by-project cohort FEs, ρ_{qc}, imply that our estimates are identified based only on within-project cohort variation in sale prices and distance from a LSPVP. Our coefficients of primary interest, β s, therefore represent the average treatment effect over the 1,522 quasi-experiments for homes located within each of our specified distance bins.

Another advantage of our stacked DiD framework is that it avoids the potential biases that can arise in standard DiD and event study models in the presence of staggered timing of treatment with heterogeneous treatment effects. Specifically, several recent studies have shown that DiD specifications relying on the staggered timing of treatment for identification may be biased in the presence of heterogeneous treatment effects due to the contamination of treatment effects from early versus later adopters from other relative time periods (Callaway and Sant'Anna, 2021; Goodman-Bacon, 2021; Sun and Abraham, 2021). As discussed by Cengiz et al. (2019) and Goodman-Bacon (2021), our stacked DiD model avoids this potential source of bias by ensuring that treatment effects are based only on within-project cohort comparisons.

3.2.2. *Robustness checks*

We investigated the robustness of the base model given by (1) to the choice of spatial FEs, time FEs, and treatment and control categories with three alternative specifications. Our first robustness check added a distance bin for homes located within 0.25 miles of a LSPVP. Specifically, we augmented the distance bins in (1) to include four (rather than three) indicators for homes located in the [0 mi, 0.25 mi),[6] [0.25 mi, 0.5 mi), [0.5 mi, 1 mi), and [1 mi, 2 mi) distance bins; the indicator equals 1 if a transaction occurred within that distance bin in the same year or after LSPVP construction started, and 0 otherwise. This specification allows us to investigate the presence of a home price effect at even

[6] A total of 6,252 transactions occurred both within 0.25 mi of an LSPVP and after that LSPVP was constructed.

smaller distances. In our second robustness check we replaced the year-by-project cohort and quarter-by-project cohort FEs in the base model by a single vector of quarter-by-year-by-project cohort FEs to allow for more granular trending of home values across quarters and years. In our third robustness check we added the vector of A/D variables, consisting of distance and value bins described in section 3.1 to account for any potential correlation between the A/D variables and the timing and location of a LSPVP that may bias our base model estimates.[7]

3.2.3. Event study model

In addition to the base model specification in (1), we specified an event-study model, which allowed us to test the parallel trends assumption underlying the difference-in-differences model and to allow treatment effects to evolve non-parametrically post-construction. Specifically, we estimated a model of the following form:

$$\ln\left(P_{icdjqtk}\right) = \sum_{k=-5}^{7} T_{k,idt}\gamma_k + \boldsymbol{X}_i\boldsymbol{\kappa} + \delta_{dc} + \lambda_{tc} + \rho_{qc} + \varphi_j + \eta_{icdjqtk} \quad (2)$$

where $T_{k,idt}$ represents a series of lead and lag indicators for when a LSPVP began construction for each of the three distance bins defined in (1). We re-centered $T_{k,idt}$ so that $T_{0,idt}$ always equals one in the year the LSPVP began construction. We included a series of indicators from 1 to 5 years prior to a LSPVP being constructed ($T_{-5,idt}$ to $T_{-1,idt}$), and a series of indicators for 1–7 years after construction ($T_{1,idt}$ to $T_{7,idt}$). The omitted category for our treatment indicators (i.e. the reference year for all estimates) is the year of construction start for a LSPVP ($T_{0,idt}$). $\eta_{icdjqtk}$ is a random disturbance term and all other terms are as defined in (1).

The coefficients of primary interest in (2) are the $\gamma_k's$. The estimated coefficients on the lead treatment indicators ($\gamma_{-5}, \ldots, \gamma_{-1}$) indicate whether the parallel trends assumption, which underlies all causal claims based on DiD models, appears to hold. Specifically, if LSPVP installation induces exogenous changes in home values, these lead treatment indicators should be small in magnitude and statistically insignificant, implying that the price of homes located close to a LSPVP (within 2 miles) were trending in a similar way to homes located farther away (2 to 4 miles) prior to LSPVP construction. The lagged treatment indicators ($\gamma_1, \ldots, \gamma_7$) allow the effect of distance to a LPSVP on home prices to evolve over time in the post treatment period in a non-parametric way.

3.2.4. Heterogeneity analyses

We conduct four heterogeneity analyses using the baseline model given by (1). First, we examined potential heterogeneity across states by estimating (1) separately for each of the six states in our sample. Second, we investigated the relationship between prior LSPVP land use and property value impacts by dividing our sample into four groups: home transactions near LSPVPs that were predominantly agricultural, greenfield, brownfield, or mixed land use prior to LSPVP construction. Third, we investigated the relationship between urbanicity and property value impacts by dividing our sample into one of the following U.S. Census Bureau designations: urban, urban clusters, or rural. Finally, we investigated the relationship between project size (area in square meters) and property values by applying the base model (1) to two subsets of the data: home transactions near LSPVPs below the 50th percentile of LSPVP areas and above the 50th percentile of LSPVP areas, where the 50th percentile is calculated from the set of unique LSPVPs in our sample.

[7] For A/D distance bins, the omitted category is [2 mi, 4 mi) from a home; for noise levels, the omitted category is the <45 dB category; for flood zone, the omitted category is the missing category.

4. Results

4.1. Base model and robustness check results

Table 4 shows results for the base model given by (1) and the robustness checks described above. As shown in column 1, we find an average 1.5% reduction in house prices for homes within 0.5 miles of a LSPVP that transacted post-LSPVP construction, and an average 0.82% reduction in home prices for homes 0.5–1 mi away from a LSPVP. Both estimates are statistically significant at the 5 percent level or better. As shown in column 2, we additionally find an average 2.3% reduction in home prices within 0.25 mi of a LSPVP. In both models, the estimated treatment effects for homes located 1 to 2 miles from a LSPVP are quite small in magnitude and statistically insignificant, suggesting that the impact of LSPVPs on home values fades relatively quickly with distance from a LSPVP. Further, all effects are monotonically ordered from closest distances to further away, which meets a priori expectations and provides us additional confidence in the model. As shown in columns 3 and 4 of Table 4, altering the time FEs by including quarter-by-year-by-project cohort FEs or controlling for other A/D does not notably alter the estimates from the base model.

4.2. Event study results

In Fig. 7 we present results from our event study specification given by (2), with coefficient estimates of our three distance bins shown as lines, and 95% confidence intervals shaded in similar colors. Homes located 2–4 miles from a LSPVP are once again the omitted category. Despite some noise in the estimates based on sales that occurred four or five years prior to LSPVP construction, in general there is very little evidence that home values were trending lower prior to the construction of a LSPVP: all of the estimated pre-treatment effects are small in magnitude and statistically insignificant. The lack of differential trending prior to the installation of a LSPVP provides evidence that our main identification assumption—the parallel trends assumption—holds. Fig. 7 also shows a relatively clear decline in home values that starts shortly after the beginning of LSPVP construction and continues up to six years post construction. The negative impact of LSPVPs on home values is particularly pronounced for homes located 0 to 0.5 miles from a LSPVP where we see home values declining by 4 percent six years after LSPVP construction.[8]

4.3. Heterogeneity analyses results

Fig. 8 shows results from all the heterogeneity analyses alongside the base model results; for ease of visualization, only the coefficients and 95% confidence interval for the 0–0.5 distance bin are shown, while Table 5 through Table 8 show more detailed results for each heterogeneity analysis. As shown in Table 5, which shows base model results for individual states, changes in sales price are not statistically significant for CA, CT, and MA. However, MN, NC, and NJ, show a statistically significant negative effect of 4%–5.6%, more than double that of the average across all states in the base model. In Table 6, where we examine potential heterogeneity by predominant prior land use of the nearest LSPVP,we find that statistically significant home value reductions are only observed for homes nearest to LSPVPs that are sited on previously

[8] When investigating results for individual states, both for the event study (section 3.2.3) and the heterogeneity analyses (section 3.2.4), our results largely agreed with the results for the full 6 state sample. However, our individual state estimates suffer from small sample sizes in individual time and distance categories for the event study and in individual subcategories for the heterogeneity analyses, so results are less reliable. Therefore, we do not present them in this paper. Results for individual states are available upon request from the authors.

Table 4
Average effect of LSPVP construction and proximity on home prices for all six states. Standard errors are clustered at the project cohort level and are in parentheses. Significance levels: ***p < 0.01, **p < 0.05, *p < 0.1

Dependent variable: the logarithm of house prices	Base model (1)	Including 0–0.25 mi distance bin	Including quarter-year-project cohort FEs	Including amenities and disamenities vector
Distance between home and LSPVP: [0 mi, 0.25 mi)		−0.0226***		
		(0.00767)		
Distance between home and LSPVP: [0.25 mi, 0.5 mi)		−0.0133**		
		(0.00641)		
Distance between home and LSPVP: [0 mi, 0.5 mi)	−0.0154**		−0.0171***	−0.0170***
	(0.00630)		(0.00642)	(0.00589)
Distance between home and LSPVP: [0.5 mi, 1 mi)	−0.00820**	−0.00820**	−0.00941**	−0.00987**
	(0.00413)	(0.00413)	(0.00424)	(0.00403)
Distance between home and LSPVP: [1 mi, 2 mi)	−0.000841	−0.000841	−0.00179	−0.00131
	(0.00226)	(0.00226)	(0.00234)	(0.00225)
Home characteristics	✓	✓	✓	✓
Distance-project cohort FEs	✓	✓	✓	✓
Sale year-project cohort FEs	✓	✓		✓
Sale quarter-project cohort FEs	✓	✓		✓
Census block group FEs	✓	✓	✓	✓
Sale year-sale quarter-project cohort FEs			✓	
Amenities and disamenities				✓
Observations	1,832,888	1,832,888	1,826,915	1,778,533
R^2	0.835	0.835	0.839	0.835

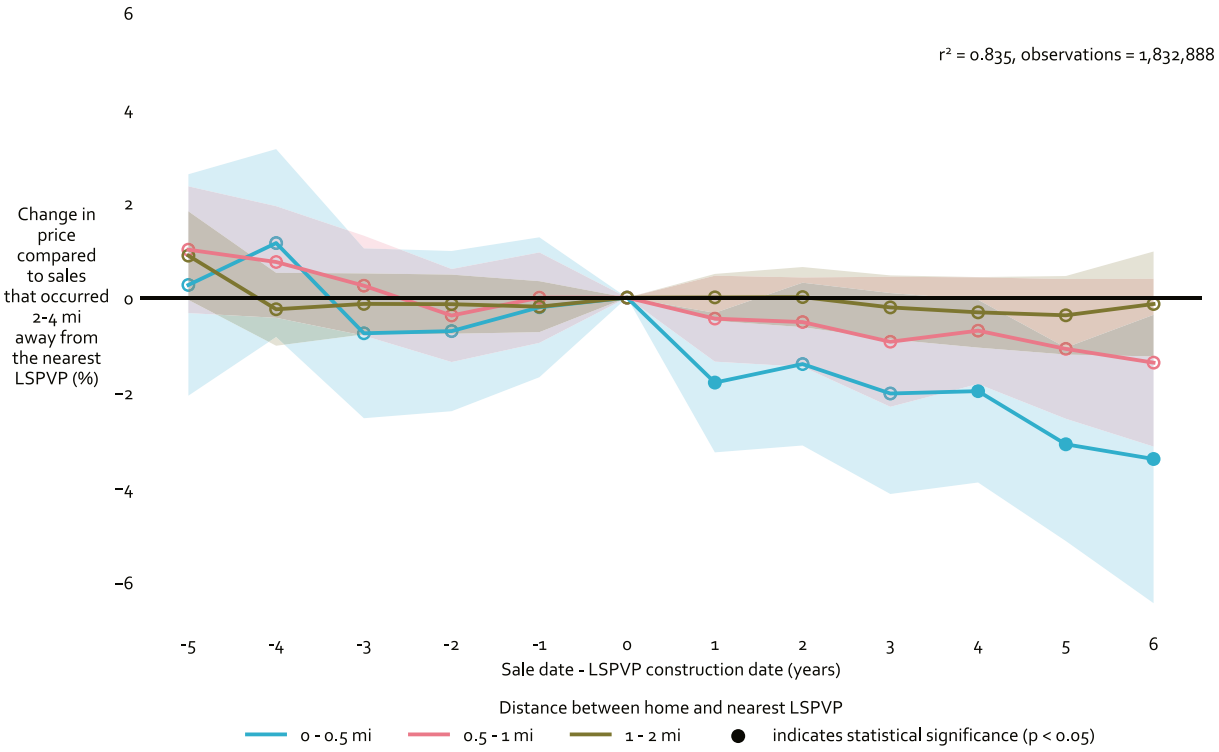

Fig. 7. Average effect of proximity to LSPVP by year of sale relative to year of LSPVP construction; shaded area represents 95% confidence interval; x-axis label represents lower bound of year range (e.g. −5 refers to all transactions that occurred [-5, −4) years before the construction date of the nearest LSPVP).

agricultural land.[9] These findings are consistent with the results in Table 7, which shows that statistically significant effects were only observed for homes located in rural areas. Finally, in Table 8 we examine potential heterogeneity in property value impacts by the size of a LSPVP project. Specifically, we split the sample based on LSPVP areas and estimate separate models for homes located near LSPVPs that are above or below the median LSPVP area in our sample. Adverse effects are only observed for LSPVPs with an area larger than the median area of all

[9] We also tested the base model for a sample of only homes nearest to LSPVPs on previously forested land (NLCD classes of Deciduous Forest, Evergreen Forest, or Mixed Forest) and found no statistically significant results with p < 0.1.

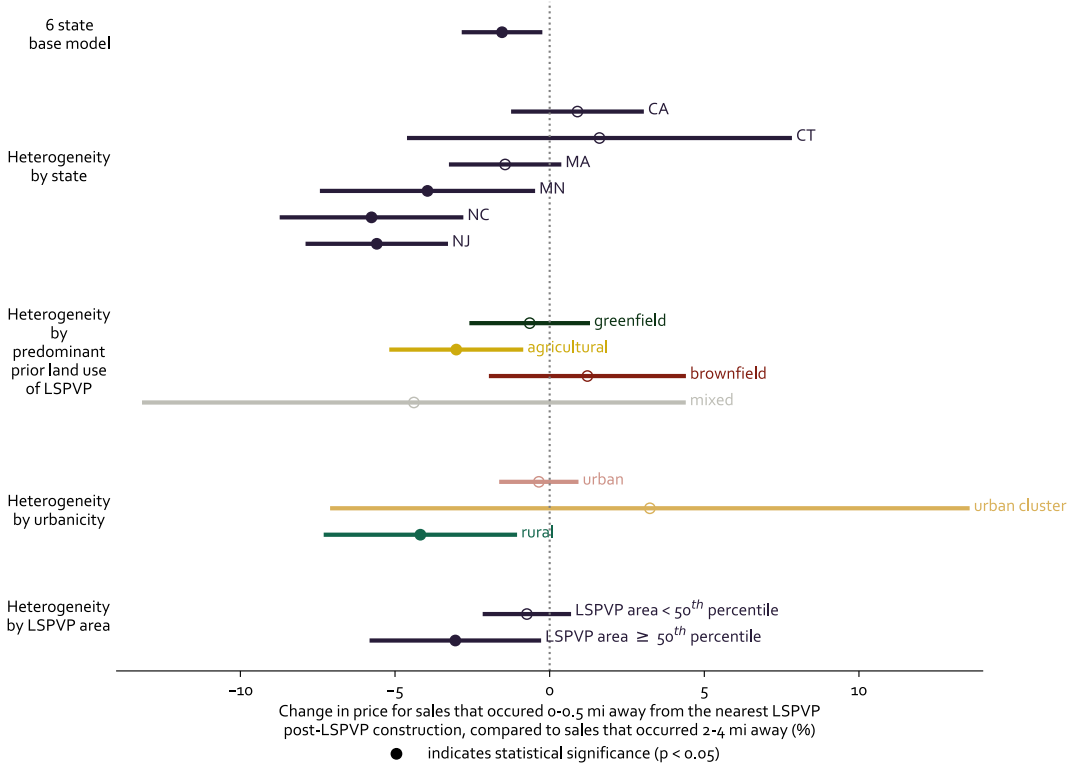

Fig. 8. Results from base model as well as each heterogeneity analysis, showing average effect of LSPVP construction and proximity for homes 0–0.5 mi away from nearest LSPVP. Range of change in price represents the 95th percent confidence interval.

Table 5
Effect of LSPVP construction and proximity on home prices in individual states, using base model specification. Standard errors are clustered at the project cohort level and are in parentheses. Significance levels: ***p < 0.01, **p < 0.05, *p < 0.1

Dependent variable: the logarithm of house prices	CA	CT	MA	MN	NC	NJ
Distance between home and LSPVP: [0 mi, 0.5 mi)	0.00899	0.0161	−0.0144	−0.0395**	−0.0576***	−0.0559***
	(0.0106)	(0.0314)	(0.00892)	(0.0174)	(0.0148)	(0.0114)
Distance between home and LSPVP: [0.5 mi, 1 mi)	0.000849	0.0234	−0.00933**	−0.0209**	−0.0473***	−0.0135*
	(0.00696)	(0.0150)	(0.00469)	(0.00932)	(0.0118)	(0.00698)
Distance between home and LSPVP: [1 mi, 2 mi)	0.00296	0.0186**	−0.00190	−0.0108*	−0.0117**	−0.00487
	(0.00384)	(0.00786)	(0.00319)	(0.00625)	(0.00570)	(0.00331)
Observations	931,735	34,135	291,403	74,905	203,005	297,677
R^2	0.881	0.774	0.777	0.708	0.735	0.751

Table 6
Average effect of LSPVP construction and proximity on home prices by predominant prior land use of nearest LSPVP to home, using base model specification. Standard errors are clustered at the project cohort level and are in parentheses. Significance levels: ***p < 0.01, **p < 0.05, *p < 0.1

Dependent variable: the logarithm of house prices	Greenfield	Agricultural	Brownfield	Mixed
Distance between home and LSPVP: [0 mi, 0.5 mi)	−0.00646	−0.0302***	0.0122	−0.0439
	(0.00960)	(0.0107)	(0.0159)	(0.0445)
Distance between home and LSPVP: [0.5 mi, 1 mi)	−0.000991	−0.0202***	−0.00909	−0.00679
	(0.00480)	(0.00629)	(0.0170)	(0.0342)
Distance between home and LSPVP: [1 mi, 2 mi)	0.000836	−0.00408	−0.00483	−0.000377
	(0.00248)	(0.00498)	(0.00739)	(0.0191)
Observations	1,074,492	577,769	147,951	12,987
R^2	0.843	0.833	0.860	0.828

Table 7
Average effect of LSPVP construction and proximity on home prices by home urban, urban cluster, or rural designation, using base model specification. Standard errors are clustered at the project cohort level and are in parentheses. Significance levels: ***p < 0.01, **p < 0.05, *p < 0.1

Dependent variable: the logarithm of house prices	Rural	Urban cluster	Urban
Distance between home and LSPVP: [0 mi, 0.5 mi)	−0.0418***	0.0324	−0.00350
	(0.0156)	(0.0524)	(0.00619)
Distance between home and LSPVP: [0.5 mi, 1 mi)	−0.0201*	0.0221	−0.00342
	(0.0119)	(0.0316)	(0.00437)
Distance between home and LSPVP: [1 mi, 2 mi)	0.00775	−0.00597	0.00137
	(0.00613)	(0.00896)	(0.00222)
Observations	151,792	79,279	1,592,715
R^2	0.803	0.785	0.845

Table 8
Average effect of LSPVP construction and proximity on home prices by area of LSPVP, using base model specification. Standard errors are clustered at the project cohort level and are in parentheses. Significance levels: ***p < 0.01, **p < 0.05, *p < 0.1

Dependent variable: the logarithm of house prices	**LSPVP area < 50th percentile of area (75,138 m^2)**	**LSPVP area ≥ 50th percentile of area (75,138 m^2)**
Distance between home and LSPVP: [0 mi, 0.5 mi)	−0.00737	−0.0305**
	(0.00694)	(0.0138)
Distance between home and LSPVP: [0.5 mi, 1 mi)	−0.00483	−0.0166**
	(0.00521)	(0.00684)
Distance between home and LSPVP: [1 mi, 2 mi)	0.00225	−0.00841**
	(0.00287)	(0.00344)
Observations	1,291,762	537,189
R^2	0.841	0.833

unique LSPVPs in our sample[10].

5. Discussion

In this paper, we add to the growing body of research on the impact of LSPVPs on residential home values. By assembling an analysis dataset consisting of transaction data, an original dataset of LSPVP footprints, a suite of environmental amenities and dis-amenities, urbanicity classifications, and historic land cover data, we answer two related research questions.

First, we ask: what effect, if any, do LSPVPs have on residential home prices? Across the six states in the study area, we observe that homes within 0–0.5 mi of an LSPVP that transact after a LSPVP is constructed decline in sale price by an average of 1.5% compared to homes 2–4 mi away. At closer distances of 0–0.25 mi, the average decline in property values is 2.3%. This effect fades at further distances from a LSPVP; we observe a small adverse effect for homes 0.5–1 mi away of 0.8%, and no evidence of an effect at distances beyond 1 mi. Our estimates are robust to choices of time FEs and we control for other landscape characteristics that could impact property values. Our results are consistent with some prior literature (Dröes and Koster, 2021; Gaur and Lang, 2020) that find an overall adverse impact of LSPVP construction on property values.

Second, we ask: does the effect of LSPVPs on home prices differ based on the state, the prior land use on which a LSPVP is located, the size of the LSPVP, or the urbanicity of a home? When looking at individual states in our sample, we observe no effect on sales prices in CA, CT, and MA, but find sale price reductions for homes 0–0.5 mi away from a LSPVP of 4%, 5.8%, and 5.6% in MN, NC, and NJ, respectively. In those states where we do observe sale price reductions, the effect fades as distances from an LSPVP increases, as with the full 6 state model. When separating transactions by the prior land use and the area of the LSPVP to which they are closest, as well as by the urbanicity of the home, we observe statistically significant effects only for transactions near LSPVPs sited on previously agricultural land, transactions in rural areas, and transactions near larger LSPVPs by area. We observe decreases of 3%, 4.2%, and 3.1% for homes within 0–0.5 mi of LSPVPs on previously agricultural land, in rural areas, or near large LSPVPs, respectively, compared to homes 2–4 mi away. In all three cases, these effects fade with distance from a LSPVP. We observe no statistically significant effect of LSPVP construction and proximity on home prices in other categories for land use (greenfield, brownfield, or mixed land use sites), urbanicity (urban or urban cluster regions), or LSPVP area (where areas fall below the median LSPVP area in our dataset). Looking at the heterogeneity results by land use and urbanicity may help us understand the heterogeneity we observe by state: the states where we observe no statistically significant difference in sales price (in CA, CT, and MA) are also the states with lower proportions of LSPVP development on agricultural land (Fig. 3). CA additionally has very few transactions in rural areas (Fig. 4).

Our heterogeneity analyses show that the property value impacts of LSPVP development are highly contextual, and reinforce scholarly arguments that research on public support for solar energy should consider both project scale and proposed locations (Nilson and Stedman, 2022). Specifically, our results point to the importance of understanding the perceptions, economic impacts, and social dynamics of larger solar developments, rural developments, and developments built on previously agricultural land. Broader social science scholarship can contextualize these results: for instance, researchers have theorized that the siting of renewable energy in rural areas can counter personal, cultural, and political representations and understandings of rural landscapes (Batel et al., 2015). Our observed heterogeneity may reflect how large, agricultural, or rural developments potentially conflict more directly with those representations than smaller, non-agricultural, or urban developments. Furthermore, our results with respect to land use connect to an emerging literature on the co-location of solar and agriculture: surveys show that residents in agricultural communities are more likely to support solar development that integrates agricultural production (Pascaris et al., 2022), though scholarly reviews note that our understanding of perceptions of solar-agricultural systems remains limited (Mamun et al., 2022).

6. Limitations and future work

A key limitation of our research approach is that we consider only one aspect of the economic impacts of LSPVPs: property values. The impacts of local energy development are also shaped by local tax revenue and employment impacts, which have consistently been found to result in positive benefits (Brunner et al., 2021; Brunner and Schwegman, 2022a, 2022b), as well as by LSPVP ownership structures. This implies that homeowners can and do capitalize the positive impacts of renewable energy into home prices. Because this analysis compared home prices between homes around the same projects, any differences in value as compared to homes not near any LSPVP, and thus not subject to local tax or employment impacts, would have remained undiscovered. Furthermore, to the extent that property value changes reflect the revealed preferences of residents, they only reflect the preferences of the subset of residents who are homeowners. Where homeownership rates are lower – largely in urban areas, but in an increasing portion of rural areas as well (Pendall et al., 2016) – property value changes may not reflect the preferences of neighbors to the extent that they do where homeownership rates are higher. Considering these varied economic impacts would necessitate methodologies and data collection beyond the hedonic DiD analysis used in this paper.

These limitations suggest two major avenues for future work. First, more research attention is needed on the economic impacts of LSPVPs, broadly understood to encompass dimensions such as tax revenue, ownership structures, or employment. Added research on the local economic impacts of LSPVPs can position our findings on the average adverse impact of LSPVP development on home prices in a broader context of economic benefits and burdens due to LSPVP development. Second, more research is needed to understand the heterogeneity that we observe with respect to larger, agricultural, and rural LSPVPs. Here, surveys, qualitative research, mixed-methods, and case study-based approaches may indicate how neighbors of LSPVPs engage differently with their nearby solar installation based on its size, land use, or the

[10] We also tested the base model for two additional samples: homes near very large LSPVPs (areas greater than the 75th percentile of areas of unique LSPVPs in our sample) and near very small LSPVPs (areas below the 25th percentile of areas of unique LSPVPs in our sample). For both subsets of our data, we found no statistically significant results with p < 0.1.

urbanicity of their home.

7. Conclusion and policy implications

This paper provides some of the first comprehensive evidence on the impact of LSPVPs on residential home values. Specifically, we ask: (1) what effect, if any, do LSPVPs have on residential home prices and (2) does the effect of LSPVPs on home prices differ based on the prior land use on which an LSPVP is located, the size of the LSPVP, or the urbanicity of a home? In our six-state study area (CA, CT, MA, MN, NC, NJ), we find that homes within 0.5 mi of LSPVP experience an average home price reduction of 1.5% compared to homes 2–4 mi away; statistically significant effects are not measurable over 1 mi from a LSPVP. These effects are only measurable in certain states (MN, NC, and NJ), for LSPVPs constructed on agricultural land, for larger LSPVPs, and for rural homes.

Our study extends the existing literature in three ways. First, we consider a larger sample, both in terms of transactions and LSPVPs, than prior studies. Our six-state study area encompasses 53% of the total MW nameplate capacity of PV generators in the U.S., and our analysis included evidence from over 1,500 LSPVPs and over 1.8 million home transactions. The scope of our dataset allows us to provide average impact estimates for a much larger set of LSPVP projects within the United States. Second, to our knowledge, our study is the first study on LSPVP property values impacts to use a dataset of LSPVP footprints (as opposed to point locations or approximations of LSPVP area using circular buffers). By constructing and using footprint data, we can more precisely assess the land area and prior land use of LSPVPs, as well as reduce measurement error when calculating distances between homes and a LSPVP. Finally, we employ a stacked DiD specification with bin-by-project cohort FEs, which not only advances the methodology used for this type of analysis but also addresses recent concerns over DiD specifications that rely on staggered timing of treatment.

Our findings have two main policy implications. First, they point to the need for policy and development measures to ameliorate possible negative impacts of LSPVP development in some contexts. Our results suggest that there are adverse property value impacts of LSPVP construction for homes very close to a LSPVP and those predominantly in rural agricultural settings around larger projects. But we find that most impacts fade at distances greater than 1 mile from a LSPVP. In some cases – for homes near large LSPVPs, and in the states of MN and NC – negative effects persist at distances greater than 1 mile but are smaller than they are at nearer distances to a LSPVP. These results suggest that care should be taken in siting LSPVPs near homes in some contexts. Developers or policymakers considering siting LSPVPs very close to homes have several tools to employ, such as compensation schemes with neighbors and landscape measures like vegetative screening.

Second, the heterogeneity analyses reveal the importance of place and project-specific assessments of LSPVP development practices. Although we find adverse impacts of LSPVP construction on property values overall, we notably find no evidence of impacts in three states in our study area – including in CA, which alone accounts for over half of the transactions in our dataset. On the other hand, we do see evidence of adverse property value impacts of LSPVPs in the other three states in our dataset – including in MN, despite MN having arguably the most restrictive state-wide laws on LSPVP development in high-value agricultural areas of the states in our study area (Bergan, 2021). While our sample for individual states was too small to conclusively explore heterogeneity within states, our overall heterogeneity analysis suggests that adverse impacts of LSPVP development are present specifically in rural areas, where LSPVP displaces agricultural land uses, and where LSPVP installations are larger. For policy-makers, this heterogeneity may point to the importance of carefully considering siting strategies for rural, large, or agricultural installations – for instance, by exploring ways to co-locate agricultural land uses and solar development. However, this heterogeneity does not mean that economic impacts are negligible where property value impacts were insignificant (CA, CT, MN, as well as urban, non-agricultural, and smaller developments): as discussed in section 6, many economic impacts remain undiscovered by our methodology, some of which might increase home values, and future policy-relevant research is needed to understand the economic impacts of LSPVPs, broadly construed.

By combining a novel dataset of LSPVP footprints with home transaction data, our analysis provides comprehensive evidence that LSPVPs have an average adverse effect on home prices, but notably shows that these impacts are not uniform across geographies, land uses, or LSPVP size. In doing so, we contribute to the emerging literature on the economic impacts of LSPVPs and point to important avenues for future policy discussions and research.

CRediT authorship contribution statement

Salma Elmallah: Conceptualization, Methodology, Formal analysis, Data curation, Writing. **Ben Hoen:** Conceptualization, Methodology, Formal analysis, Writing, Project administration, Supervision, Funding acquisition. **K. Sydny Fujita:** Methodology, Formal analysis, Data curation, Writing. **Dana Robson:** Data curation, Writing. **Eric Brunner:** Conceptualization, Methodology, Formal analysis, Writing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Datasets related to this article that can be shared can be found at https://zenodo.org/record/7415662.

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Appendix

Table A.1
Retention criteria for transactions

Condition for retention	Rationale
Coordinate values are populated	Coordinates are needed to obtain distances between homes and LSPVP, amenities, and dis-amenities
Land area, year built, and home square footage are populated	Land area, year built, and home square footage are essential property characteristics to control for in analysis
Coordinates appear 20 times or less	Repeated, identical coordinates for multiple properties may indicate data quality issue
Property type is residential (including single family residence, condominium, duplex, apartment)	Analysis only considers homes (i.e. residential properties) sold in arms length transactions after the year 2000
Transaction is categorized as arms length	
Year of sale between 2000 and 2021	
Sale amount is greater than $5000 or the 1st percentile of sale price (whichever value is higher) and less than the 99th percentile of sale amount values within a given state	Removing outliers from analysis
Sale amount per unit area of living space is greater than the 1st percentile and less than the 99th percentile of sale amount per unit area of living space values within a given state	
Land area is greater than the 1st percentile and less than the 99th percentile of land area values within a given state	
Property was built before 2020, and after the 1st percentile of values for year built within a given state	
Sale amount is greater than the mortgage amount, or mortgage amount is missing	Any other relationship (between sale amount & mortgage amount, land area & living space area, sale year & year built, set of variables representing land area) may indicate data quality issues
Land area is greater than living space area	
Age of property (sale year minus year built) is non-negative	
Both variables representing land area converge within 0.01 acres	
Deed is not categorized as foreclosure	Sale amount in a foreclosure may not accurately represent the value of a home
Sale occurred over one year after last recorded sale for that property	Removes potentially "flipped" homes, or homes that undergo a rapid renovation and are re-sold, from dataset; for those homes, characteristics in CoreLogic dataset may not be representative of characteristics after renovation
Property address was not determined from mail	Address determined from mail may reflect the address of an absentee owner, not of the physical property location

Table A.2
Amenity and dis-amenity data sources

Amenity/dis-amenity	Data source	Data description	Reference
Aviation noise Road noise	U.S. Department of Transportation	Raster representing approximate average noise energy due to transportation noise sources over a 24-h period at the receptor locations where noise is computed, expressed in decibels (dB)	(U.SDepartment of Transportation, 2020)
Flood zones	U.S. Federal Emergency Management Agency	Categorizes areas by likelihood of flood, ranging from minimal risk to 26% chance of flooding over the life of a 30-year mortgage	Federal Emergency Management Agency (2021)
Municipal, industrial, and transfer landfills	U.S. Department of Homeland Security	Provides locations of active permitted municipal solid waste facilities and construction and demolition debris facilities.	Department of Homeland Security (2020)
State and national parks	Esri	Provides boundaries of parks and forests in the United States at the national, state, regional, and local level	Esri (2021)
Nuclear power generation facilities	National Institute of Health	Provides locations of U.S. commercial nuclear power plants	Hochstein and Szczur (2006)
Coal power generation facilities	U.S. Environmental Protection Agency	Facility data (as of 2017) where primary or secondary fuel type is coal-related (e.g., Coal, Coal Refuse, and Petroleum Coke).	(U.S. Environmental Protection Agency, 2021)
Coastline	ABB Group	Locations of U.S. coastline, including bays, river outlets, and Great Lakes	ABB Group (2020)
Lakes		Locations of U.S. lakes, represented as polygons	
High-voltage lines		Transmission and distribution lines with a voltage of 100 V or greater, represented as polylines	

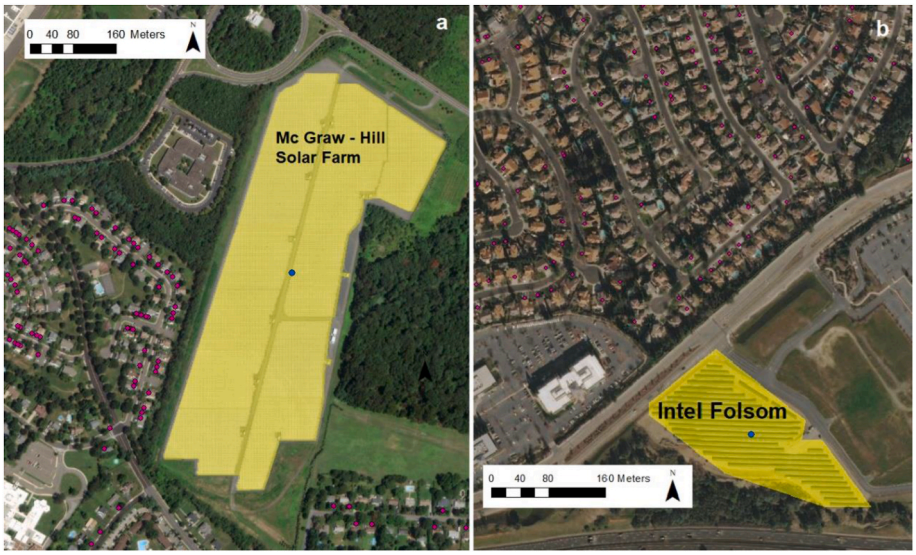

Fig. A.1. Satellite imagery showing examples of LSPVP centroids (blue dots) and polygons (yellow shaded areas) near homes including homes that transacted during our study period (pink dots): (a) McGraw-Hill Solar Farm, NJ and (b) Intel Folsom, CA

Table A.3
Summary of dependent variables and property characteristics, CA

Variable	Description	Mean	Std. dev.	Min.	Med.	Max.
Sp	Sale price ($)	$457,797.53	$403,489.03	$35,500.00	$350,000.00	$3,998,000.00
Lsp	log of sale price	12.75	0.75	10.48	12.77	15.2
Lsf	Living area (ft^2)	1868.69	1026.22	102	1654.00	98,694.00
Acres	Land area (acres)	0.336	0.7	0.018	0.165	7.231
Age	Age of home at time of sale (years)	36.94	24.79	0	34	112
Agesq	Age of home at time of sale, squared ($years^2$)	1979.42	2233.94	0	1156.00	12,544.00
Salesqtr	Quarter of sale	2.23	0.88	1	2	4
Salesyr	Year of sale	2014	3	2003	2015	2020

Table A.4
Summary of dependent variables and property characteristics, CT

Variable	Description	Mean	Std. dev.	Min.	Med.	Max.
Sp	Sale price ($)	$283,251.18	$184,202.97	$36,000.00	$239,900.00	$1,640,000.00
Lsp	log of sale price	12.4	0.56	10.49	12.39	14.31
Lsf	Living area (ft^2)	1916.21	951.46	196	1669.00	35,170.00
Acres	Land area (acres)	0.818	1.114	0.07	0.41	9.51
Age	Age of home at time of sale (years)	59.74	33.65	0	58	212
Agesq	Age of home at time of sale, squared ($years^2$)	4700.55	5311.95	0	3364.00	44,944.00
Salesqtr	Quarter of sale	2.32	0.83	1	2	4
Salesyr	Year of sale	2017	2	2011	2018	2020

Table A.5
Summary of dependent variables and property characteristics, MA

Variable	Description	Mean	Std. dev.	Min.	Med.	Max.
Sp	Sale price ($)	$428,122.04	$284,039.71	$5100.00	$360,000.00	$2,199,000.00
Lsp	log of sale price	12.78	0.63	8.54	12.79	14.6
Lsf	Living area (ft^2)	2019.36	961.96	173	1802.00	35,721.00
Acres	Land area (acres)	0.584	0.764	0.03	0.315	6.6
Age	Age of home at time of sale (years)	62.74	38.25	0	58	209
Agesq	Age of home at time of sale, squared ($years^2$)	5399.73	5906.47	0	3364.00	43,681.00
Salesqtr	Quarter of sale	2.35	0.84	1	2	4
Salesyr	Year of sale	2015	3	2005	2016	2020

Table A.6
Summary of dependent variables and property characteristics, MN

Variable	Description	Mean	Std. dev.	Min.	Med.	Max.
Sp	Sale price ($)	$274,027.53	$152,774.95	$5500.00	$240,000.00	$1,299,000.00
Lsp	log of sale price	12.38	0.56	8.61	12.39	14.08
Lsf	Living area (ft^2)	1956.58	978.6	155	1740.50	42,840.00
Acres	Land area (acres)	0.612	1.316	0.02	0.26	11.87
Age	Age of home at time of sale (years)	42.03	31.21	0	35	134
Agesq	Age of home at time of sale, squared ($years^2$)	2739.86	3587.53	0	1225.00	17,956.00
Salesqtr	Quarter of sale	2.31	0.82	1	2	4
Salesyr	Year of sale	2016	2	2010	2016	2020

Table A.7
Summary of dependent variables and property characteristics, NC

Variable	Description	Mean	Std. dev.	Min.	Med.	Max.
Sp	Sale price ($)	$233,970.66	$169,170.45	$5050.00	$194,000.00	$1,499,500.00
Lsp	log of sale price	12.12	0.75	8.53	12.18	14.22
Lsf	Living area (ft^2)	2091.02	1110.70	150	1852.00	120,215.00
Acres	Land area (acres)	0.788	1.437	0.021	0.36	14.14
Age	Age of home at time of sale (years)	29.48	24.08	0	22	114
Agesq	Age of home at time of sale, squared ($years^2$)	1448.56	2083.56	0	484	12,996.00
Salesqtr	Quarter of sale	2.26	0.86	1	2	4
Salesyr	Year of sale	2016	3	2004	2016	2020

Table A.8
Summary of dependent variables and property characteristics, NJ

Variable	Description	Mean	Std. dev.	Min.	Med.	Max.
Sp	Sale price ($)	$390,953.28	$243,373.52	$5143.00	$340,000.00	$1,599,999.00
Lsp	log of sale price	12.68	0.66	8.55	12.74	14.29
Lsf	Living area (ft^2)	1959.42	868.99	160	1786.00	19,176.00
Acres	Land area (acres)	0.393	0.656	0.006	0.185	6.167
Age	Age of home at time of sale (years)	56.92	30.02	0	57	139
Agesq	Age of home at time of sale, squared ($years^2$)	4140.35	3664.38	0	3249.00	19,321.00
Salesqtr	Quarter of sale	2.31	0.86	1	2	4
Salesyr	Year of sale	2014	4	2004	2014	2020

Table A.9
Categorical variables representing property characteristics (* = omitted category in regressions)

Variable	Category
Fullbaths	Number of full bathrooms missing*
	1 full bathroom
	2 full bathrooms
	3 full bathrooms
	4 full bathrooms
	$\geq$ 5 full bathrooms
Actype	Air conditioning code missing*
	Central AC
	AC type unknown
	Refrigeration AC
	Separate AC system
	No AC
	Evaporative AC
	All other types of AC
Constrtype	Construction type missing*
	Wood construction type
	Frame construction type
	Wood metal/frame construction type
	All other construction types
Heattype	Heating type missing*
	Central heat
	Forced air
	Unknown heating type
	Forced hot water

(*continued on next page*)

Table A.9 (*continued*)

Variable	Category
	Heat pump
	Hot air
	Floor/wall furnace
	No heat
	Steam
	All other heating types
Extwalltype	Exterior wall type missing*
	Stucco
	Frame
	Vinyl
	Aluminum/vinyl
	Wood siding/shingle
	Brick
	Aluminum siding
	Wood siding
	Wood
	All other wall codes
Fireplace	No fireplace indicated*
	Fireplace present
Garagecode	Garage type missing*
	Undefined garage type
	Attached
	Attached frame
	Undefined type – 2 car
	Detached
	Finished
	Basement
	Carport
	Undefined type – 1 car
	Frame
	Attached finished
	Attached garage/carport
	All other garage codes
Stories	Number of stories missing*
	0 to 1 stories
	1 to 2 stories
	2 to 3 stories
	>3 stories
View	View category missing*
	Average view
	All other view categories
newconstruction	New construction not indicated*
	New construction

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April 24, 2023

Joanne Snarski
Assigned Site Specialist
EFSEC
621 Woodland Square Loop SE
PO Box 43172
Olympia, WA 98503-3172

Dear Ms. Snarski,

Following are my comments regarding the Carriger Solar EFSEC application Land Use Consistency Review submitted by Cypress Creek for the greater Goldendale area. On January 3, 2023, the Klickitat County Board of Commissioners passed a resolution initiating a moratorium on large scale solar permitting in the general area west and south of Goldendale. This land use decision was in response to the possibility of up to 380 megawatts of electricity from industrial solar being sited in the heart of the Klickitat Valley. Siting up to 6000 acres of panels on land zoned agriculture in the heart of an area experiencing steady residential growth would stymie the growth of the Goldendale community and do harm to residents' real estate values. I ask the EFSEC council to deny this permit application for this and other reasons.

Please accept my additional comments and reasoning regarding the Carriger Solar land use application. Thank you.

Sincerely,

Dave Barta

Carriger Solar Project
Land Use Consistency Review
Attachment B
Comments

In general, each comment area refers to the numbered item of the applicant**.**

2.1.15 Public Services Police/Fire
Rebuttal:

CCR states "the applicant will coordinate with the fire district and KCEMD during development and construction." Avangrid's Lund Hill Project, the largest to date in the state, still has a safety plan copied verbatim from a Central Oregon project, including that the nearest hospital for emergencies is in Prineville. The Lund Hill project is about 20 miles east of Goldendale. The CCR application speaks of all the ways safety will be maintained and fires will be suppressed, but as history speaks to the present, every one of these industrial solar sites puts the wires above ground as soon as it becomes difficult to dig. Often the the DC conductors are about 30" above ground, which will impede any fire suppression within the site. Solar sites are not fire suppression friendly.

The Battery Storage system is dealt with even more ambiguously. There is no piece of fire fighting equipment currently in the possession of either Rural 7 or the City of Goldendale that will allow firefighters to reach a battery fire; there is no ladder truck that will accommodate adequate extension. Further, all fire water will have to be delivered by tender, and the pump unit will stay way ahead of the tenders. Turnaround time is simply too long. Further, the average age of rural 7 firefighters is 52 years old. The only full time paid staff are a chief, mechanic, and office manager. Response times in this scenario will exceed 30 minutes, meaning the burning battery will only spread.

CCR must be required to have a complete evacuation plan for all residents living within a five mile radius of the storage site. The plan must be developed with Klickitat County Emergency Management *before* any work on that facility is begun. Industrial solar site developers do not have a track record of following through in a timely manner.

2.1.16-Open spaces
Rebuttal

This +/-2000 acre project will have miles of chain link fence surrounding it. It converts agricultural resource lands to an industrial site. It will absolutely have the opposite effect of open spaces. Impediment of wildlife, the closing off of traditional root gathering areas, and miles of chain link fence will be the actual outcome. The project also abuts the WDFW Goldendale Hatchery site, which has for years been a fall hunting site. What a picture when a rooster flushes and flies south or east straight into chain link fence!

2.1.17-Government
Rebuttal

Nearly all of this land is zoned extensive agriculture or general rural. He applicant says "this project has been designed to be consistent with the adopted Klickitat County Comprehensive Plan and the zoning districts in which it is proposed." A 2000 acre industrial site could not be less consistent with extensive agriculture or general rural. This application shows no consistency with current land use or regulation.

2.1.18-General Land Use Plan
Rebuttal

According to the CCR document and relative to agricultural/forest land, "the purpose and intent of this designation is to retain or conserve, insofar as is practicable and desirable, prime agricultural and forest lands…" The plan put forth by CCR permanently takes the land out of agricultural use. Regardless of how flexible one is in using linguistic gymnastics, once the soil has been removed and thousands of steel stakes driven into the ground, it will never be agriculture again. During public testimony at a recent Klickitat County Planning Commission meeting, Bob Ross stated that these leases will be for 30 years fwith uup to two ten year extensions. Fifty years of industrial solar use ins not cinsistent with current use. That's like claiming that any of the many shopping malls built on the west side of the state in wetlands "are only temporary". They can be removed to return the land to the pond or wetland it once was. It will never happen. Like a quarry, the environmental impacts are simply too great—it can never cease to operate or someone will have to pay to clean it up.

In 2005, the Klickitat County Board of commissioners accepted the planning commission's recommendations on the Energy Overlay Zone by incorporating the planning commission's findings by reference to the county code. In the planning commission's document in 2005, they clearly stated in item 3.2 "Solar energy will likely not be developed to the same extent as wind energy, but like wind, is a clean energy resource. The Planning Commission recommends adopting an EOZ for solar energy." Again, the PC's findings were "incorporated by reference, as if fully set forth herein" by the BOCC at the time.

2.2.1-Title 19—Zoning Ordinance
Rebuttal

CCR's application repeatedly claims to be a "Utility facilit(y) necessary for public service." This characterization is disingenuous at best. "Utility facilities necessary…" clearly refers to transmission lines and substations run by Public Utility District #1 of Klickitat County. Any other reading is dishonest. CCR is a private corporation, not a public entity. Any power its proposed project generates will be sold on the open market, most of which is a thousand miles from Klickitat County. CCR's interpretation of "utility facilities…" has never been an accepted definition by Klickitat County. It is meant to describe PUD powerliines and PUD substations.

No allowance of a conditional use renders this compatible with agriculture. CCR offers this application as if they are the only ones who thought of putting solar in the lap of the Simcoes, in the heart of the Klickitat Valley. They know that Avangrid and Invenergy have already leased additional thousands of acres in the same area. Public records requests for the next set of leased lands have already been submitted by industrial solar develpers . CCR, Avangrid, and Invenergy will effectually eliminate wildlife and eliminate agricultural, zoning, and reasonable rural living in the Klickitat Valley.

Though CCR states they "are no more onerous" than the other allowed uses in a conditionally permitted area, no one considers 6000 acres of quarrying, or 6000 acres of churches, etc. Converse to CCR's statements, this project is not "an activity specified by this title that...subject to reasonable conditions...renders the use compatible with the existing and potential uses in the vicinity…"

KCC 19.18.030
Rebuttal

The "buildings and uses of a public works, public service, or public utility nature" does not apply to industrial solar. Once again, it is intended for public utility district or phone relay buildings. Not thousands of solar panels.

2.2.1.3 Energy Overlay Zone
Rebuttal

In reference to EOZ 19.39.1, this project is clearly not sensitively sited, and it cannot be mitigated. It is sited in the middle of a growing rural residential neighborhood containing about 8,500 citizens.

19.39.8
Rebuttal

The CCR project application quotes the solar setback piece of the EOZ document, which is actually the only place in the 20 odd pages of the EOZ document that solar is discussed. CCR uses the minimum setback, but the EOZ document states "500' to 1500' from existing residential structures" then later in the paragraph, "the nature of the project may require increased setback requirements." CCR lists only the minimum setbacks for non-participating properties as shown on all of their maps. The settlement ordinance of the Klickitat County board of commissioners states 1600 feet from any non-participating residence, wind or solar.

The visual impacts assessment report was done entirely online and at a computer. According to the contractor, none of it was done onsite.

Attachment A-Planning Commission Recommendations incorporated by reference by Klickitat County Board of Commissioners 2005. https://klickitatcounty.org/DocumentCenter/View/380/05-04-Planning-Commission-Recomendation Key Element: "Whereas the Attached Planning Commission recommendation is incorporated by reference as if fully set forth therein except for sections stricken as shown…"

Additional work on the EOZ ordinance occurred in 2010 as part of the original settlement agreement. The planning commission's findings can be read in full at https://klickitatcounty.org/DocumentCenter/View/410/10-Klickitat-County-Planning-Commission-EOZ-Decision-and-Recommendation-March-2010- In summary though, the planning commission cited *seven* examples of wind studies and *zero* studies of industrial solar. Item 1.12 in that Planning Commission reconsideration stated: Policy #1: Energy development should be compatible with surrounding land uses (converting ag land to industrial site is not). Policy #3-Energy development that prioritizes wind and solar are preferred and shall be encouraged. These technologies, if sensitively sited, designed and mitigated can be sited without significant adverse environmental impacts. The CCR application is in an area where the project has not been sensitively sited in that it is in the view shed of 8500 residents and obstructs the natural urban growth of the city of Goldendale to the north west.

Stormwater
Rebuttal

At least two square miles of this project drains immediately to the head of Spring Creek immediately east of the fish hatchery. CCR cannot build big enough storm water retention to control erosion that will occur due to large-scale soil disturbance. Flooding equivalent to 1996, not the worst year recorded, may inundate the hatchery with mud and muddy water.

More study needs to be done to determine if in fact the area around the spring is its own aquifer recharge zone. It is not currently listed.

Recent DEQ action in the state of Virginia has resulted in all solar facilities without an operational stormwater plan being declared "impervious surfaces": Read: Under DEQ's new stormwater policy, DEQ will consider solar panels as unconnected impervious areas when performing

post-development water quantity calculations using the hydrologic methods specified in the VSMP Regulation at **9VAC25-870-72**. Further, DEQ will consider solar panels as impervious areas when performing post-development water quality calculations using the Virginia Runoff Reduction Method (VRRM). Reference article: https://www.williamsmullen.com/news/virginia-deq-issues-more-stringent-stormwater-management-policy-solar-projects

The general soil saturation tendency of this area is best shown by this solar contractor's backhoe taken in January of 2021 on the project site just upslope from the Goldendale Fish Hatchery. It is buried in mud up to the belly pan.

Water Resources
Rebuttal

Water for construction is stated to be coming from an existing well or surface water water rights. These will require a permit from Dept of Ecology. All water use will be considered commercial as soon as the project starts, removing the 5000 gallon per day exemption and placing it directly under DOE supervision. It is likely that some of the mentioned wells for water use do not have a legal water right for any use other than residential. The Goldendale Hatchery has documented dropping water levels since 2017 or earlier. Two other creeks, North and South Blockhouse have dropped precipitously. South Blockhouse Creek , formerly a fish bearing stream, has gone dry in 1936, 1994, and 2019-22-for three years in a row. This is more than just drought—it's water withdrawals and acquifer depletion. Commercial water removal for a project of this size can only exacerbate that.

Public Safety
Rebuttal

As previously stated, an emergency spill and emergency response plan for battery facilities should be developed and on record with Emergency Management before any construction begins. This is the only way to safeguard citizens from the outset. Also, no local fire agency has the equipment to

control a battery fire, regardless of whether there is an internal suppression system. Local fire jurisdiction are entirely volunteer with only administrative full time employees. Adding to that, the average age for volunteers at Rural 7 in particular is about 52 years old. Geography alone indicates that the response time for the first fire units on scene for fire control will be between 20 and 30 minutes.

2.2.1.5 Chapter 19.60-Adjustments, Variances, and Appeals
Rebuttal

Contrary to CCR's claim, the land use consistency review is not "consistent with a 'utility facilities necessary for public service'" conditional use. No definition of this type regarding utility facilities permitting has ever been used or permitted by Klickitat County. This project has no compatibility with surrounding land use, primarily extensive agriculture and Rural zone.

Chapter 20.16 Environmental Impact Statement
Rebuttal

Even the settlement agreement to the EOZ states that each individual project shall complete an individual EIS. Claiming this application is only subject to SEPA under EFSEC entirely contradicts the county's ordinance and practice and violates the 2010 Settlement Agreement with named parties. This opens up Klickitat County to lawsuits because of EFSEC action.

Critical Areas Ordinance
Rebuttal

2.3.3 Chapter IV Critical Fish/Wildlife Habitat Conservation Areas
Rebuttal

Important threatened species information has been redacted and kept from the public, making comment in this area impossible. Thee are ferriginous hawks in the project area, as well as bald and golden eagles in the second half of winter.

2.3.4 Chapter V Geologically Hazardous Areas
Rebuttal

The applicant concedes that NRCS soil classifications for this area show that 85% of the project area have moderately to severely erosion prone soils. As mentioned previously, in Virginia, new Industrial Solar complexes are regarded as "unconnected impervious surfaces." The application of that concept to this area indicates that soil disturbance, annual soil saturation, and impervious surfaces will significantly exaggerate the timing, occurrence, and sever nature of soil erosion in this area. The 4 square miles that drain to the immediate uplands of the Goldendale Hatchery will have the greatest negative effect.

2.3.5 Chapter VI Aquifer Recharge Areas
Rebuttal

Not only does this project endanger the critical recharge area for dozens of wells in the area, it has a direct impact on the spring that feed the Goldendale Hatchery. Fertile eggs from this trout hatchery are hatched all over the southern portion of central and western Washington. The fish hatched in Goldendale are planted from the high slopes of Mt. Adams to the sower moving waters of the Columbia

River impoundment lakes like Horsethief Lake, Spearfish, etc. Jeopardizing the critical recharge of this spring fed hatchery calls all of the previously mentioned activities into question.

Battery Storage
Rebuttal

The BESS is the single most concerning aspect of the entire application. As proposed, it will sit within 500 feet of at least 5 residential wells. It will also be less than half a mile upslope from the springs that create South Blockhouse Creek and North Block House Creek. These creeks eventually join the Little Klickitat River several miles downstream. With no adequate containment vessel, i.e. only a gravel berm to contain spills or fire residue, it is a certainty that many residential wells and several square miles of acquifer will be irreparably harmed by this Battery complex in the event of a malfunction or fire. Please see the comments under "Public Services-Police/Fire."

2.3.6 Chapter VII Frequently Flooded Areas
Rebuttal

As discussed previously, there is area that has flooded in 1996, 1981, 1964, and many times before that. The FEMA 100 year flood plain is developed for human impacts, but may not adequately address the potential ecological issues near the Goldendale Hatchery.

Overview

The Cypress Creek Renewables application regularly redefines what comprises a conditional use in land zoned extensive agriculture and general rural. Partially due to "desktop observations"--sitting in front of a computer—this project, in CCR's eyes, is just like all the other uses of the land in question. The application downgrades or ignores significant Klickitat County land use planning and land use practices in the application area. It proposes to put 63 megawatts of lithium ion batteries right across a wildlife migration corridor and upslope from two spring fed creeks.

On May 14, 1997, the Klickitat County Board of Commissioners approved a resolution instituting tighter subdivision requirements in Klickitat County. Among other things, it stated that unless roads were improved and utilities provided, the minimum lot size in extensive agriculture and general rural zones would be 80 acres (Ordinance 0O51497). There is a history of land use decision and agricultural preservation on the very land Cypress Creek seeks to turn into an industrial site. Further, the BOCC adopted a requirement in 2020 stating that any industrial solar project connecting to the Knight Road Substation would be required to use the Conditional Use Permit process, not the energy overlay zone.

Thei project is ill-suited for the proposed area and should be rejected outright for the harm it will cause to residents, real estate value, the natural environment, and a host of other aspects of quality of life in the Goldendale area.

From: EFSEC (EFSEC)
To: EFSEC mi Comments
Subject: FW: Large Scale Solar
Date: Monday, April 24, 2023 8:28:21 AM

From: Delmer Eldred <leered@gorge.net>
Sent: Saturday, April 22, 2023 8:20 AM
To: EFSEC (EFSEC) <efsec@efsec.wa.gov>
Subject: Large Scale Solar

External Email

As I understand it the EFSEC is to evaluate the placement of energy facilities. To insure the protection of the environment and concern interest of the public. Which when you look at the proposed large scale solar development in Klickitat County the destruction of thousands of acres of tillable farm land, reducing drastically the available grazing area for wildlife, the erosion that will pollute the existing streams, and the added fire danger in populated areas.

I don't know how you can honestly justify allowing these large scale solar developments with all the negative effect it will have on our community.

Delmer Eldred - Goldendale, Washington

From: Lonnie Smith
To: EFSEC mi Comments
Subject: Jobs
Date: Monday, April 24, 2023 8:02:21 AM

External Email

Will this create jobs for locals? How many and how long?
Thanks
Lonnie Smith

Sent from Yahoo Mail on Android