



# Kirkland Appraisals, LLC

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February 13, 2023

Jonathan W. Moore  
The AES Corporation  
282 Century Pl #2000  
Louisville, CO 80027

**RE: Rancho Viejo Solar Impact Study, near Santa Fe, Santa Fe County, New Mexico**

Mr. Moore

At your request, we have considered the impact of a proposed 96 MW with a 48 MWAC Battery Energy Storage System (BESS) solar farm proposed to be constructed on approximately 758.96 acres of a parent tract with 8,225 acres off NM 14 Highway, near Santa Fe, Santa Fe County, New Mexico. Specifically, I have been asked to give my professional opinion on whether the proposed solar will or will not be injurious to or diminish the use, value and enjoyment of other property in the immediate vicinity for the purposes already permitted as well as whether or not it will impede the normal and orderly development and improvements of surrounding property for uses permitted by right in the zoning districts of surrounding property.

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

This letter is a limited report of a real property appraisal consulting assignment and subject to the limiting conditions attached to this letter. My client is The AES Corporation represented to me by Jonathan W. Moore. My findings support the application. The effective date of this consultation is February 13, 2023.

## **Conclusion**

The adjoining properties have significantly greater setbacks from adjoining housing than paired sales data shows is needed to maintain property values.

The paired sales analysis shows no impact on home values due to abutting or adjoining a solar farm as well as no impact to abutting or adjacent vacant residential or agricultural land where the solar farm is properly setback and/or screened. The criteria that typically correlates with downward adjustments on property values such as noise, odor, and traffic all indicate that a solar farm is a compatible use for rural and suburban residential transition areas and that it would function in a harmonious manner with this area. In the Southwest where screening is more difficult or accomplished through visual barriers instead of landscaping, greater setbacks have been used in some cases and physical walls or slats in fencing have also been used.

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

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

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

Based on the data and analysis in this report, it is my professional opinion that the solar farm proposed at the subject property will not be injurious to or diminish the use, value and enjoyment of other property in the immediate vicinity for the purposes already permitted. It is further my opinion that the use will not impede the normal and orderly development and improvement of surrounding property for uses permitted by right in the zoning district of the surrounding property.

The data that I have researched includes new home construction as well as new subdivision development adjoining solar farms which speaks to a finding of no impact on future development potential on adjoining uses.

I note that some of the positive implications of a solar farm that have been expressed by people living next to solar farms include protection from future development of residential developments or other more intrusive uses, reduced dust, odor and chemicals from farming operations, protection from light pollution at night, it's quiet, and there is minimal traffic.

If you have any questions, please let me know.

Sincerely,



Richard C. Kirkland, Jr., MAI  
NC Certified General Appraiser #A4359  
NM Temporary Practiced Permit #REA22010-TP

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# I. Proposed Project and Adjoining Uses

## Proposed Use Description

This proposed 96 MW with a 48 MWAC Battery Energy Storage System (BESS) solar farm is proposed to be constructed on approximately 758.96 acres of a parent tract with 8,225 acres off NM 14 Highway, near Santa Fe, Santa Fe County, New Mexico.

## Adjoining Properties

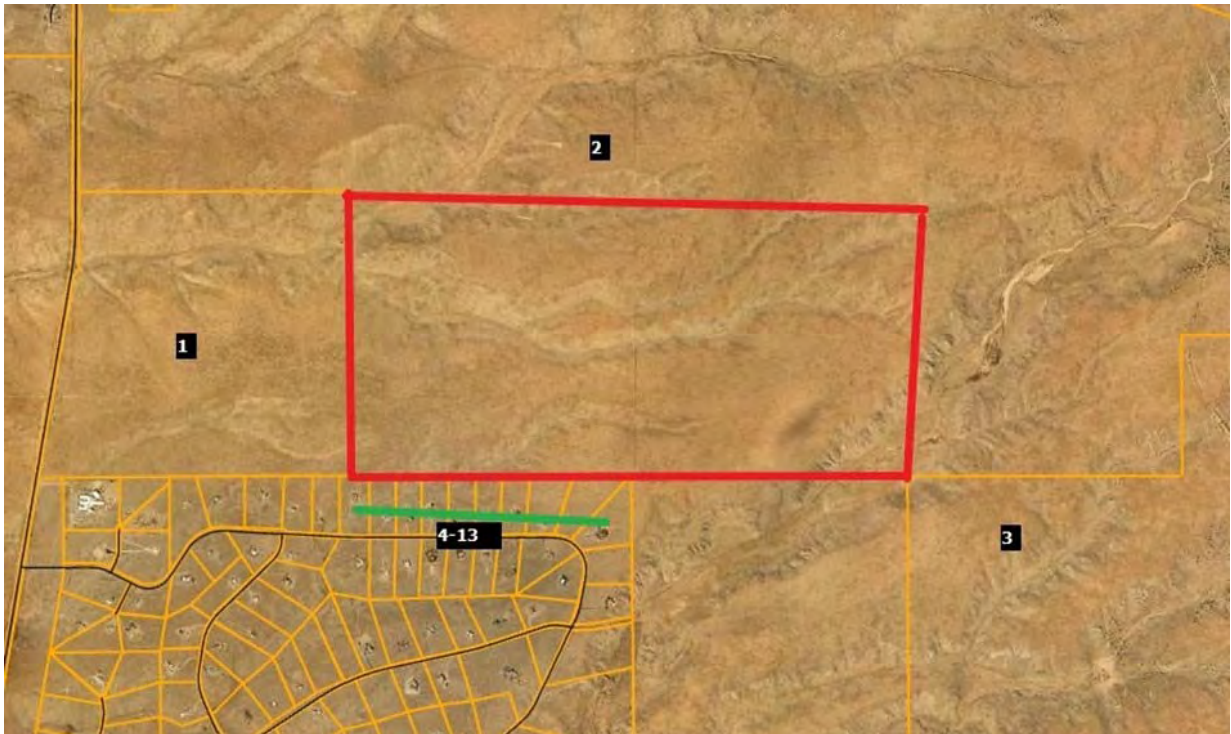
I have considered adjoining uses and included a map to identify each parcel's location. The closest adjoining home will be 2,170 feet from the closest panel. The average distance is 3,762 feet.

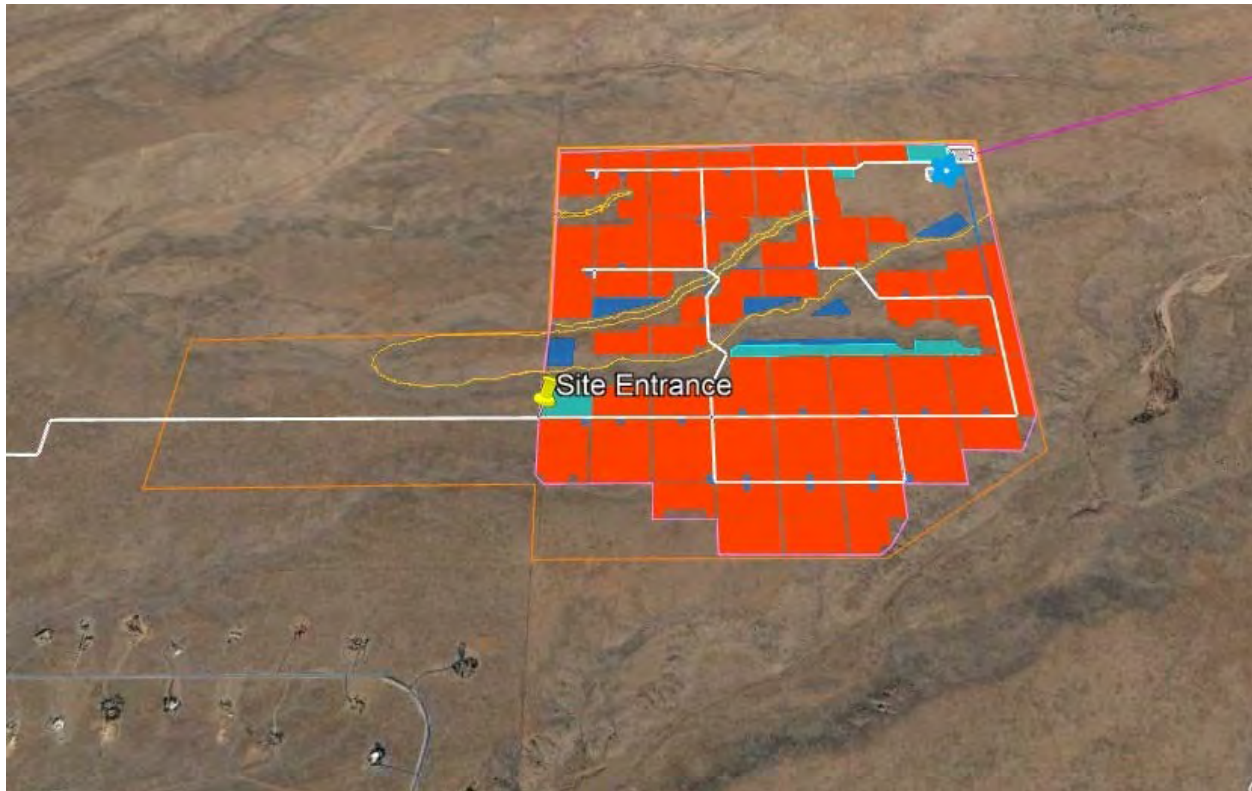
The breakdown of those uses by acreage and number of parcels is summarized below.

### Adjoining Use Breakdown

	<b>Acreage</b>	<b>Parcels</b>
Residential	1.17%	76.92%
Agricultural	98.83%	23.08%
<b>Total</b>	<b>100.00%</b>	<b>100.00%</b>

### Overall Map



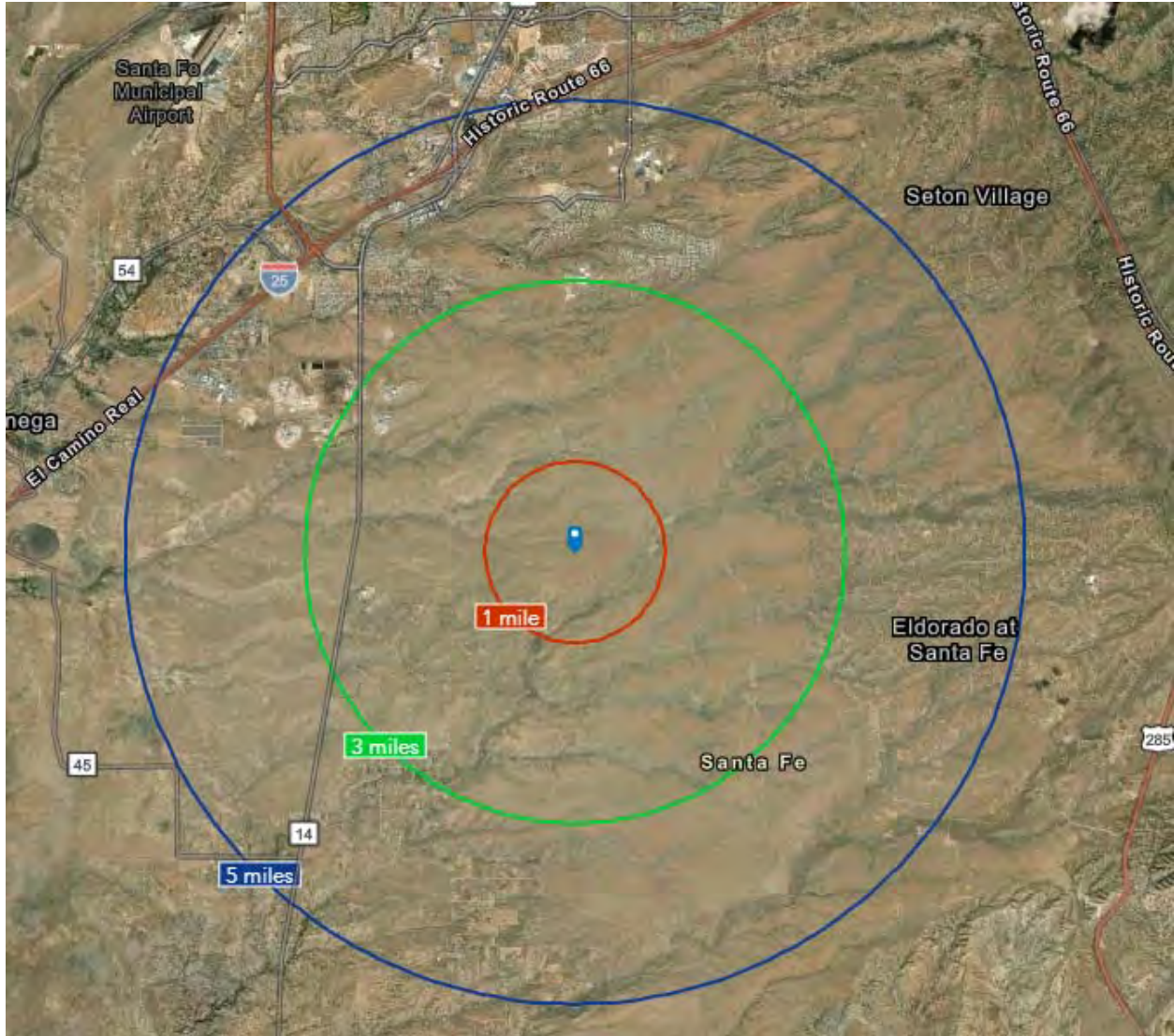


### Surrounding Uses

#	MAP ID	Owner	GIS Data		Adjoin	Adjoin	Distance (ft)
			Acres	Present Use	Acres	Parcels	Home/Panel
1	99309984	Rancho	664.13	Agricultural	5.35%	7.69%	N/A
2	992220715	Staple	8225.00	Agricultural	66.20%	7.69%	N/A
3	910009647	New Mexico	3390.00	Agricultural	27.28%	7.69%	N/A
4	950001647	Elkelenboom	18.77	Residential	0.15%	7.69%	2,170
5	950001650	Marshal	19.63	Residential	0.16%	7.69%	N/A
6	950001651	Norman	17.28	Residential	0.14%	7.69%	2,520
7	950001653	Phyfe	12.84	Residential	0.10%	7.69%	2,780
8	950001655	Ihlefeld	12.19	Residential	0.10%	7.69%	3,335
9	950001657	Brom	13.00	Residential	0.10%	7.69%	3,905
10	950001659	Willford	12.75	Residential	0.10%	7.69%	4,155
11	950001661	Cisneros	12.51	Residential	0.10%	7.69%	4,590
12	950001663	Teague	12.78	Residential	0.10%	7.69%	4,965
13	950001665	Ruben	14.21	Residential	0.11%	7.69%	5,440
<b>Total</b>			<b>12425.090</b>		<b>100.00%</b>	<b>100.00%</b>	<b>3,762</b>

### Demographics Around Subject Property

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





## Housing Profile

87508, Santa Fe, New Mexico  
Ring: 1 mile radius

Prepared by Esri  
Latitude: 35.54233  
Longitude: -106.01131

Population		Households	
2010 Total Population	31	2022 Median Household Income	\$85,825
2020 Total Population	32	2027 Median Household Income	\$100,000
2022 Total Population	32	2022-2027 Annual Rate	3.10%
2027 Total Population	31		
2022-2027 Annual Rate	-0.63%		

Housing Units by Occupancy Status and Tenure	Census 2010		2022		2027	
	Number	Percent	Number	Percent	Number	Percent
Total Housing Units	16	100.0%	16	100.0%	16	100.0%
Occupied	16	100.0%	16	100.0%	16	100.0%
Owner	13	81.2%	13	81.2%	13	81.2%
Renter	3	18.8%	3	18.8%	3	18.8%
Vacant	1	6.2%	0	0.0%	0	0.0%

Owner Occupied Housing Units by Value	2022		2027	
	Number	Percent	Number	Percent
Total	12	100.0%	12	100.0%
<\$50,000	1	8.3%	0	0.0%
\$50,000-\$99,999	0	0.0%	0	0.0%
\$100,000-\$149,999	0	0.0%	0	0.0%
\$150,000-\$199,999	0	0.0%	0	0.0%
\$200,000-\$249,999	1	8.3%	1	8.3%
\$250,000-\$299,999	1	8.3%	0	0.0%
\$300,000-\$399,999	1	8.3%	1	8.3%
\$400,000-\$499,999	3	25.0%	4	33.3%
\$500,000-\$749,999	4	33.3%	5	41.7%
\$750,000-\$999,999	1	8.3%	1	8.3%
\$1,000,000-\$1,499,999	0	0.0%	0	0.0%
\$1,500,000-\$1,999,999	0	0.0%	0	0.0%
\$2,000,000+	0	0.0%	0	0.0%
Median Value		\$466,667		\$500,000
Average Value		\$466,667		\$531,250

Census 2010 Housing Units	Number	Percent
Total	16	100.0%
In Urbanized Areas	0	0.0%
In Urban Clusters	0	0.0%
Rural Housing Units	16	100.0%

**Data Note:** Persons of Hispanic Origin may be of any race.

**Source:** Esri forecasts for 2022 and 2027. U.S. Census Bureau 2010 decennial Census data converted by Esri into 2020 geography.

February 05, 2023



## Housing Profile

87508, Santa Fe, New Mexico  
Ring: 3 mile radius

Prepared by Esri  
Latitude: 35.54233  
Longitude: -106.01131

Population		Households	
2010 Total Population	1,305	2022 Median Household Income	\$76,581
2020 Total Population	1,263	2027 Median Household Income	\$86,853
2022 Total Population	1,253	2022-2027 Annual Rate	2.55%
2027 Total Population	1,215		
2022-2027 Annual Rate	-0.61%		

Housing Units by Occupancy Status and Tenure	Census 2010		2022		2027	
	Number	Percent	Number	Percent	Number	Percent
Total Housing Units	580	100.0%	580	100.0%	580	100.0%
Occupied	522	90.0%	524	90.3%	511	88.1%
Owner	434	74.8%	426	73.4%	418	72.1%
Renter	88	15.2%	98	16.9%	93	16.0%
Vacant	58	10.0%	56	9.7%	70	12.1%

Owner Occupied Housing Units by Value	2022		2027	
	Number	Percent	Number	Percent
Total	426	100.0%	419	100.0%
<\$50,000	18	4.2%	9	2.1%
\$50,000-\$99,999	3	0.7%	1	0.2%
\$100,000-\$149,999	9	2.1%	10	2.4%
\$150,000-\$199,999	8	1.9%	4	1.0%
\$200,000-\$249,999	28	6.6%	18	4.3%
\$250,000-\$299,999	40	9.4%	28	6.7%
\$300,000-\$399,999	79	18.5%	71	16.9%
\$400,000-\$499,999	108	25.4%	127	30.3%
\$500,000-\$749,999	103	24.2%	116	27.7%
\$750,000-\$999,999	19	4.5%	25	6.0%
\$1,000,000-\$1,499,999	9	2.1%	9	2.1%
\$1,500,000-\$1,999,999	1	0.2%	0	0.0%
\$2,000,000+	1	0.2%	1	0.2%
Median Value		\$425,926		\$453,937
Average Value		\$453,052		\$486,575

Census 2010 Housing Units	Number	Percent
Total	580	100.0%
In Urbanized Areas	23	4.0%
In Urban Clusters	132	22.8%
Rural Housing Units	425	73.3%

**Data Note:** Persons of Hispanic Origin may be of any race.

**Source:** Esri forecasts for 2022 and 2027. U.S. Census Bureau 2010 decennial Census data converted by Esri into 2020 geography.

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## Housing Profile

87508, Santa Fe, New Mexico  
 Ring: 5 mile radius

Prepared by Esri  
 Latitude: 35.54233  
 Longitude: -106.01131

Population		Households	
2010 Total Population	11,926	2022 Median Household Income	\$80,999
2020 Total Population	12,792	2027 Median Household Income	\$90,986
2022 Total Population	12,815	2022-2027 Annual Rate	2.35%
2027 Total Population	13,673		
2022-2027 Annual Rate	1.30%		

Housing Units by Occupancy Status and Tenure	Census 2010		2022		2027	
	Number	Percent	Number	Percent	Number	Percent
Total Housing Units	4,729	100.0%	5,341	100.0%	5,709	100.0%
Occupied	4,361	92.2%	5,002	93.7%	5,378	94.2%
Owner	3,601	76.1%	4,179	78.2%	4,558	79.8%
Renter	760	16.1%	823	15.4%	820	14.4%
Vacant	368	7.8%	340	6.4%	330	5.8%

Owner Occupied Housing Units by Value	2022		2027	
	Number	Percent	Number	Percent
Total	4,179	100.0%	4,558	100.0%
<\$50,000	147	3.5%	72	1.6%
\$50,000-\$99,999	61	1.5%	29	0.6%
\$100,000-\$149,999	111	2.7%	74	1.6%
\$150,000-\$199,999	87	2.1%	59	1.3%
\$200,000-\$249,999	309	7.4%	251	5.5%
\$250,000-\$299,999	444	10.6%	369	8.1%
\$300,000-\$399,999	891	21.3%	906	19.9%
\$400,000-\$499,999	1,084	25.9%	1,396	30.6%
\$500,000-\$749,999	742	17.8%	967	21.2%
\$750,000-\$999,999	201	4.8%	314	6.9%
\$1,000,000-\$1,499,999	44	1.1%	45	1.0%
\$1,500,000-\$1,999,999	7	0.2%	6	0.1%
\$2,000,000+	51	1.2%	70	1.5%
Median Value		\$403,644		\$437,178
Average Value		\$442,749		\$489,288

Census 2010 Housing Units	Number	Percent
Total	4,729	100.0%
In Urbanized Areas	1,756	37.1%
In Urban Clusters	1,129	23.9%
Rural Housing Units	1,844	39.0%

**Data Note:** Persons of Hispanic Origin may be of any race.

**Source:** Esri forecasts for 2022 and 2027. U.S. Census Bureau 2010 decennial Census data converted by Esri into 2020 geography.

February 05, 2023

## **II. Methodology and Discussion of Issues**

### **Standards and Methodology**

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

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

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

### **Determining what is an External Obsolescence**

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

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

- 1) Traffic. Solar Farms are not traffic generators.
- 2) Odor. Solar farms do not produce odor.
- 3) Noise. Solar farms generate no noise concerns and are silent at night.

- 4) Environmental. Solar farms do not produce toxic or hazardous waste. Grass is maintained underneath the panels so there is minimal impervious surface area.
- 5) Appearance/Viewshed. This is the one area that potentially applies to solar farms. However, solar farms are generally required to provide significant setbacks and landscaping buffers to address that concern. Furthermore, any consideration of appearance of viewshed impacts has to be considered in comparison with currently allowed uses on that site. For example if a residential subdivision is already an allowed use, the question becomes in what way does the appearance impact adjoining property owners above and beyond the appearance of that allowed subdivision or other similar allowed uses.
- 6) Other factors. I have observed and studied many solar farms and have never observed any characteristic about such facilities that prevents or impedes neighbors from fully using their homes or farms or businesses for the use intended.

### **Relative Solar Farm Sizes**

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

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

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

### **Steps Involved in the Analysis**

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

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

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

### **III. Research on Solar Farms**

#### **A. *Appraisal Market Studies***

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

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

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

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

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

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

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

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

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

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

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

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

Mr. Beck was interviewed as part of the Christian Kalia study noted above. From that I quote “Mr. Beck concluded on no effect on moderate priced homes, and only a 5% change in his limited research of higher priced homes. His one sale that fell through is hardly a reliable sample. It also was misleading on Mr. Beck’s part to report the lower re-assessments since the primary cause of the

re-assessments were based on the County Official, who lived adjacent to the solar farm, appeal to the assessor for reductions with his own home.” In that Clay County Case study the noted lack of lot sales after announcement of the solar farm also coincided with the recession in 2008/2009 and lack of lot sales effectively defined that area during that time.

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

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

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

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

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

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

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

**Mary McClinton Clay, MAI – McCracken County Solar Project Value Impact Report, July 10, 2021**

Ms. Mary Clay, MAI reviewed a report by Kirkland Appraisals in this case and also provided a differing opinion of impact. She cites a number of other appraisal studies and interestingly finds fault with heavily researched opinions, while praising the results of poorly researched studies that found the opposing view.

Her analysis includes details from solar farms that show no impact on value, but she dismisses those.

She cites the University of Texas study noted later in this report, but she cites only isolated portions of that study to conclude the opposite of what that study specifically concludes.

She cites the University of Rhode Island study noted later in this report, but specifically excludes the conclusion of that study that in rural areas they found no impact on property value.

She cites lot sales near Spotsylvania Solar without confirming the purchase prices with brokers as indicative of market impact and has made no attempt to compare lot prices that are contemporaneous. In her 5 lot sales that she identifies, all of the lot prices decline with time from 2015 through 2019. This includes the 3 lot sales prior to the approval of the solar farm. The decrease in lot values shown in this chart are more indicative of the trend in the market, than of any impact related to the solar farm. Otherwise, how does she explain the drop in price from 2015 to 2017 prior to the solar farm approval.

She considers data at McBride Place Solar Farm and does a sale/resale analysis based on Zillow Home Value Index, which is not a reliable indication for appreciation in the market. She then adjusted her initial sales prior to the solar farm over 7 years to determine what she believes the home should have appreciated by and then compares that to an actual sale. She has run no tests or any analysis to show that the appreciation rates she is using are consistent with the market but more importantly she has not attempted to confirm any of these sales with market participants. I have spoken with brokers active in the sales that she cites and they have all indicated that the solar farm was not a negative factor in marketing or selling those homes.

She has considered lot sales at Sunshine Farms in Grandy, NC. She indicates that the lots next to the solar farm are selling for less than lots not near the solar farm, but she is actually using lot sales next to the solar farm prior to the solar farm being approved. She also ignores recent home sales adjoining this solar farm after it was built that show no impact on property value.

She also notes a couple of situations where solar developers have purchased adjoining homes and resold them or where a neighbor agreement was paid as proof of a negative impact on property value. Given that there are over 2,500 solar farms in the USA as of 2018 according to the U.S. Energy Information Administration and there are only a handful of such examples, this is clearly not an industry standard but a business decision. Furthermore, solar developers are not in the business of flipping homes and are in a position very similar to a bank that acquires a home as OREO (Other Real Estate Owned), where homes are frequently sold at discounted prices, not because of any drop in value, but because they are not a typically motivated seller. Market value requires an analysis of a typically motivated buyer and seller. So these are not good indicators of market value impacts.

The comments throughout this study are heavy in adjectives, avoids stating facts contrary to the conclusion and shows a strong selection bias.

### **Conclusion of Impact Studies**

Of the five studies noted two included actual sales data to derive an opinion of no impact on value. The two studies to conclude on a negative impact includes the Fred Beck study based on no actual sales data, and he has since indicated that with landscaping screens he would not conclude on a negative impact. The other study by Mary Clay shows improper adjustments for time, a lack of confirmation of sales comparables, and exclusion of data that does not support her position.

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

## **B. Articles**

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

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

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

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

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

More recently in August 2022, Donald Fisher, ARA, MAI and myself led a webinar on this topic for the ASFMRA discussing the issues, the university studies and specific examples of solar farms having no impact on adjoining property values.

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

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

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

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

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

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

### **C. *Broker Commentary***

In the process of working up the matched pairs used later in this report, I have collected comments from brokers who have actually sold homes adjoining solar farms indicating that the solar farm had no impact on the marketing, timing, or sales price for the adjoining homes. Comments are noted in specific examples later in this report.

## **IV. University Studies**

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

### **A. *University of Texas at Austin, May 2018*** **An Exploration of Property-Value Impacts Near Utility-Scale Solar Installations**

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

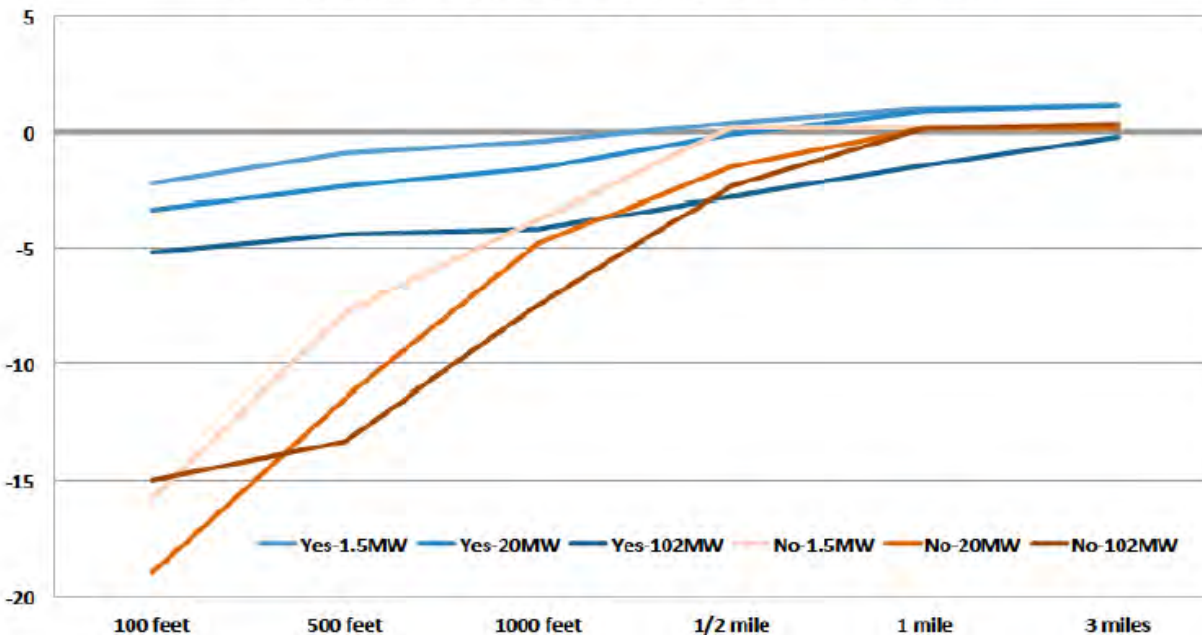
The second part is more applicable in that they conducted a survey of appraisers/assessors on their opinions of the possible impacts of proximity to a solar farm. They consider the question in terms of size of the adjoining solar farm and how close the adjoining home is to the solar farm. I am very familiar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

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



**Chart B.2 - Estimates of Property Value Impacts (%) by Size of Facility, Distance, & Respondent Type**

Have you assessed a home near a utility-scale solar installation?



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

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

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

## **B. University of Rhode Island, September 2020**

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

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

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

They further tested the robustness of that finding and even in areas up to 2,000 population per square mile they found no statistically significant data to suggest a negative impact.

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

Based on this study I have checked the population for both Santa Fe South CCD of Santa Fe County. Santa Fe South CCD has a population of 42,693 for 2022 based on HomeTownLocator which uses the US Census data and a total area of 1,377 square miles. This indicates a population density of 31 people per square mile which puts this well below the threshold indicated by the Rhode Island Study.

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

### ***Santa Fe South Division Data & Demographics (As of July 1, 2022)***

POPULATION		HOUSING	
Total Population	42,693 (100%)	Total HU (Housing Units)	20,355 (100%)
Population in Households	41,588 (97.4%)	Owner Occupied HU	15,938 (78.3%)
Population in Families	32,762 (76.7%)	Renter Occupied HU	2,211 (10.9%)
Population in Group Quarters <sup>1</sup>	1,105 (2.6%)	Vacant Housing Units	2,206 (10.8%)
Population Density	31	Median Home Value	\$407,366
Diversity Index <sup>2</sup>	73	Average Home Value	\$488,148
		Housing Affordability Index <sup>3</sup>	97

INCOME		HOUSEHOLDS	
Median Household Income	\$82,213	Total Households	18,149
Average Household Income	\$117,928	Average Household Size	2.29
% of Income for Mortgage <sup>4</sup>	26%	Family Households	11,631
Per Capita Income	\$50,176	Average Family Size	3
Wealth Index <sup>5</sup>	148		

### **C. *Georgia Institute of Technology, October 2020*** **Utility-Scale Solar Farms and Agricultural Land Values**

This study was completed by Nino Abashidze as Post-Doctoral Research Associate of Health Economics and Analytics Lab (HEAL), School of Economics, Georgia Institute of Technology. This research was started at North Carolina State University and analyzes properties near 451 utility-scale ground-mount solar installations in NC that generate at least 1 MW of electric power. A total of 1,676 land sales within 5-miles of solar farms were considered in the analysis.

This analysis concludes on Page 21 of the study “Although there are no direct effects of solar farms on nearby agricultural land values, we do find evidence that suggests construction of a solar farm

may create a small, positive, option -value for land owners that is capitalized into land prices. Specifically, after construction of a nearby solar farm, we find that agricultural land that is also located near transmission infrastructure may increase modestly in value.”

This study supports a finding of no impact on adjoining agricultural property values and in some cases could support a modest increase in value.

**D. Master’s Thesis: ECU by Zachary Dickerson July 2018**

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

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

1. Are there different aspects that affect resident satisfaction regarding solar farms?
2. Are there variations in satisfaction for residents among different geographic settings, e.g. neighborhoods adjacent to the solar farms or distances from the solar farms?
3. How can insight from both the utility and planning sectors, combined with knowledge gained from residents, fill gaps in communication and policy writing in regard to solar farms?

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

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

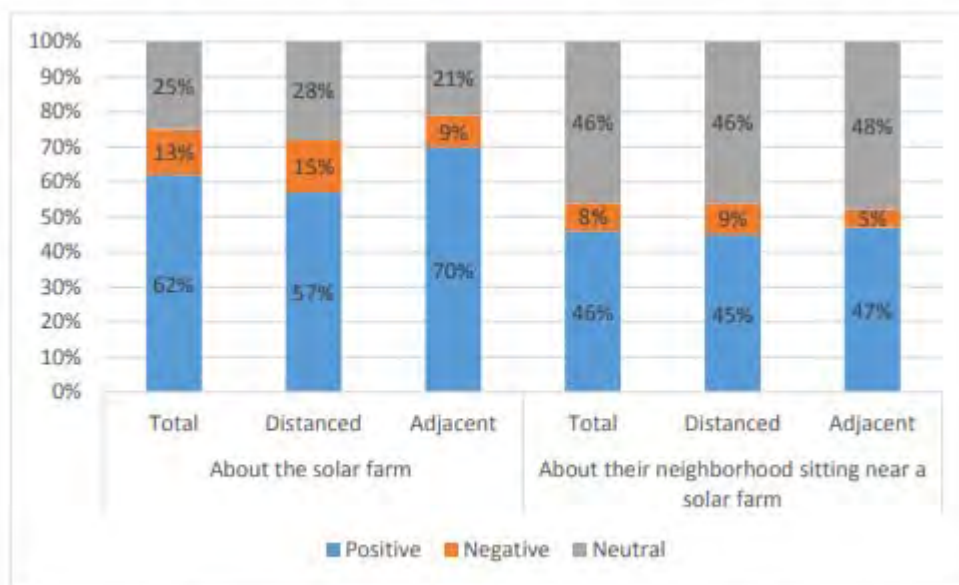


Figure 11: Residents' positive/negative word choices by geographic setting for both questions

## V. Assessor Surveys

I have attempted to contact all of the assessor departments in New Mexico to determine how local assessors are handling solar farms and adjoining property values. Not included in the chart below are responses from Guadalupe, Sandoval, and San Juan as they all indicated that they have no solar farms.

The other counties did not respond after three attempts to contact each one. This may indicate that they have no solar farms.

As can be seen in the chart below, of the 5 responses all of the responses have indicated that they make no adjustment to properties adjoining solar farms.

### **New Mexico Tax Assessors**

<b>County</b>	<b>Number of Farms in Operation</b>	<b>Change in adjacent property value</b>
Colfax	3, 1 in planning	No
Curry	1, quite a few in talks	No
Dona Ana	2 owned by city and county	No
Lincoln	1	No
Union	1	No
	Total Responses With Solar	5
	Total Responses "No"	5
	Total Responses "Yes"	0

I have completed surveys in North Carolina, Virginia, Colorado, and Mississippi as well. I have so far found no responses from any assessor that they make negative adjustments to adjoining properties. I currently have 39 responses in North Carolina, 16 responses from Virginia, 4 from Mississippi, and 15 from Colorado. Adding in the 5 responses in New Mexico, I have a total of 79 assessor responses and all 79 indicate either no negative impacts on adjoining property values, or else they did not respond to that part of the question. A total of 69 of the responses were definitively "No" with an additional 10 being "No response" to that question.

I have included the breakdown of that data on the following pages.

## NC Assessor Survey on Solar Farm Property Value Impacts

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

Responses: 39

Negative Impact on Adjoining Value = Yes: 0

Negative Impact on Adjoining Value = No: 39

## VIRGINIA Commissioner of the Revenue

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

Responses: 16

Negative Impact on Adjoining Value = Yes: 0

Negative Impact on Adjoining Value = No: 16

## MS Assessor Survey on Solar Farm Property Value Impacts

County	Assessor's Name	Number of Farms	Change in Adjacent Property Value
Desoto	Jeff Fitch	1, 1 in planning	No response
Monroe	Mitzi Presley	2 in planning	No response
Stone	Charles Williams, Jr.	1 in planning	No
Union	Tameri Dunnam	1	No

## CO Assessor Survey on Solar Farm Property Value Impacts

County	Assessor's Name	Number of Farms	Change in Adjacent Property Value
Conejos	Naomi Keys	3 or 4	No response
Denver	Keith Erffmeyer	3	No
Garfield	Jim Yellico (Vicki Riley)	No response	Classification and value could change
Kiowa	Marci Miller	0, 2 in planning	No
La Plata	Carrie Woodson	0, 1 in planning	No response
Las Animas	Jodi Amato	1 operational, 1 in planning	No
Moffat	Charles "Chuck" Cobb	0, 5 in planning	No
Montezuma	Leslie Bugg	3 approved	No
Montrose	Brad Hughes	2, 1 in planning	Maybe, but would be based on sales data
Morgan	Tim Amen	2, operational, 3 in planning	No
Pitkin	Wendy Schultz	1	No
Rio Blanco	Renae Neilson	2	No response
Saguache	Peter Peterson	1	No
San Miguel	Sarah Enders	1	Not enough data
Yuma	Cindy Taylor	1 in planning	No response

Responses: 15

Negative Impact on Adjoining Value = Yes: 0

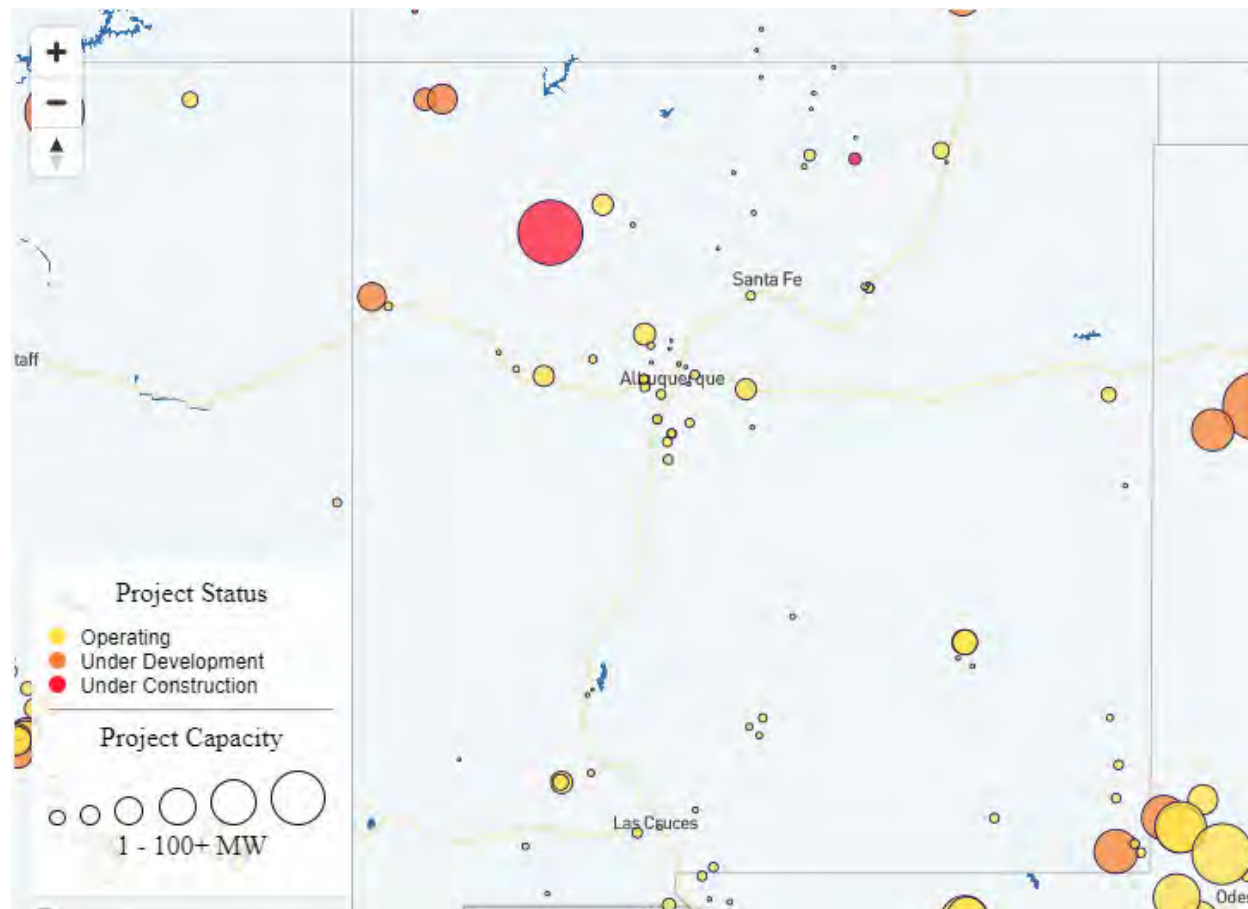
Negative Impact on Adjoining Value = No: 7

Negative Impact on Adjoining Value = No Response: 8

## VI. Summary of Solar Projects In New Mexico

I have researched the solar projects in New Mexico. I identified the solar farms through the Solar Energy Industries Association (SEIA) Major Projects List and then excluded the roof mounted facilities. I focused on larger solar farms over 5 MW.

The map for projects in New Mexico is shown below with only the circles in Yellow representing existing and operating solar farms. The Orange projects are still in the development stage, while the Red represent those in the construction stage. For this analysis on impacts on property value, I have focused on those that are in operation as the only reliable location for identifying the impacts of an existing solar farm.

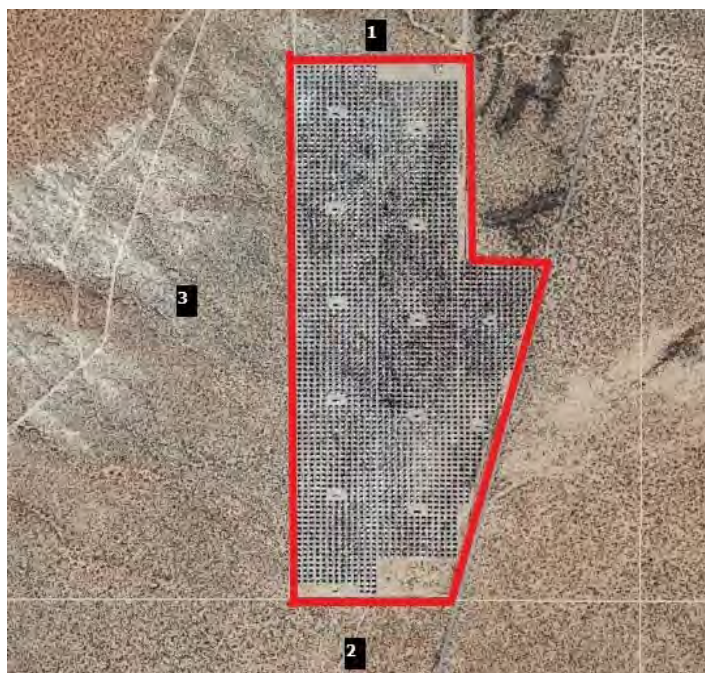


From this map I have identified 9 solar farms in New Mexico for research. The locations and breakdown of the size and mix of adjoining uses is shown below.

Solar #	Name	State	County	City	Output (MW)	Total Acres	Used Acres	Avg. Dist to home	Closest Home	Adjoining Use by Acre				
										Res	Agri	Agri/Res	Com	
923	SunE EPE2	NM	Dona Ana	Las Cruces	12	139.71	139.71	-	-	0%	100%	0%	0%	
924	SPS5 Hope	NM	Eddy	Carlsbad	10.1	136.89	136.89	-	-	10%	90%	0%	0%	
925	SPS4 Monument	NM	Lea	Hobbs	10.1	440	440	-	-	0%	0%	0%	100%	
926	Encino	NM	Sandoval	Rio Rancho	55	455	455	-	-	0%	100%	0%	0%	
927	Cimarron	NM	Colfax	Cimarron	30.6	400	400	4,098	3,290	0%	100%	0%	0%	
928	Macho Springs	NM	Luna	Nutt	55	-	-	-	-	-	-	-	-	
933	Britton	NM	Torance	Moriarty	50	535	535	911	410	8%	91%	0%	1%	
934	Roswell	NM	Chaves	Roswell	70	745.64	745.64	531	170	1%	99%	0%	0%	
935	Chaves	NM	Chaves	Roswell	70	696.05	696.05	717	205	1%	99%	0%	0%	
9														
					<b>Average</b>	40.3	443.5	443.5	1564	1019	2%	85%	0%	13%
					<b>Median</b>	50.0	447.5	447.5	814	308	1%	99%	0%	0%
					<b>High</b>	70.0	745.6	745.6	4098	3290	10%	100%	0%	100%
					<b>Low</b>	10.1	136.9	136.9	531	170	0%	0%	0%	0%

A quick summary of each solar farm identified is shown on the following pages.

### SunE EPE2 Solar, Las Cruces, Dona Ana County, NM



This solar farm is a 12 MW facility that was built in 2011 with no adjoining residential uses.



## SPS5 Hope Solar Farm,



This solar farm is 10.1 MW solar farm with nearby residential uses. The closest homes to the east are around 1,800 feet from the nearest panels. The closest homes to the north are around 2,700 feet from the nearest panels. The closest homes to the south are around 3,000 feet from the nearest panel.

I did not identify any recent adjoining home sales for analysis.

This solar farm has no screen and is visible from W. Derrick Road that runs along the southern side of the project. I was unable to find current imagery using GoogleEarth Streetview to determine visibility from the nearby homes as the solar farm was built after the most recent streetview image.

I did run a series of test images along W. Derrick Road using GoogleEarth Streetview to determine relative visibility of the site at different distances. None of these images are anything more than a screen capture of the Streetview at distances of 180 feet, 500 feet, 1,000 feet and 2,000 feet. The panels are detectable within the image at each distance shown, but even at 500 feet they are difficult to discern and blend with the rest of the terrain.



Image facing north from W. Derrick Road from Streetview at 180 feet from the nearest panel



Image facing northeast from W. Derrick Road from Streetview at 500 feet from nearest panel.



Image facing northeast from W. Derrick Road from Streetview at 1,000 feet from nearest panel



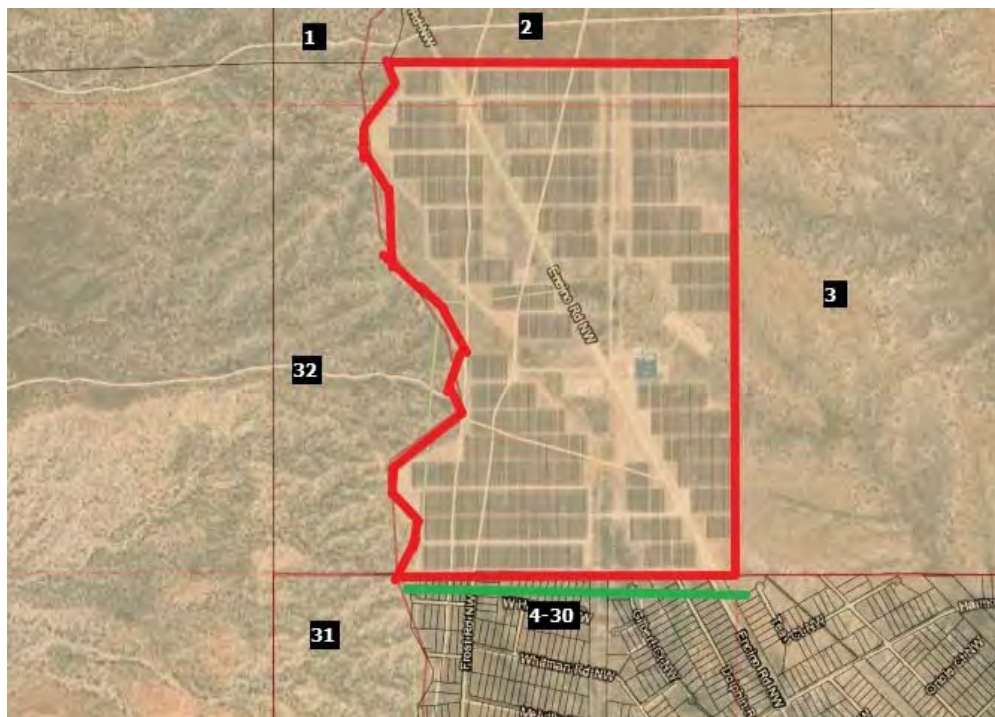
Image facing northeast from W. Derrick Road from Streetview at 2,000 feet from nearest panel.

### SPS4 Monument Solar, Hobbs, Lea County, NM



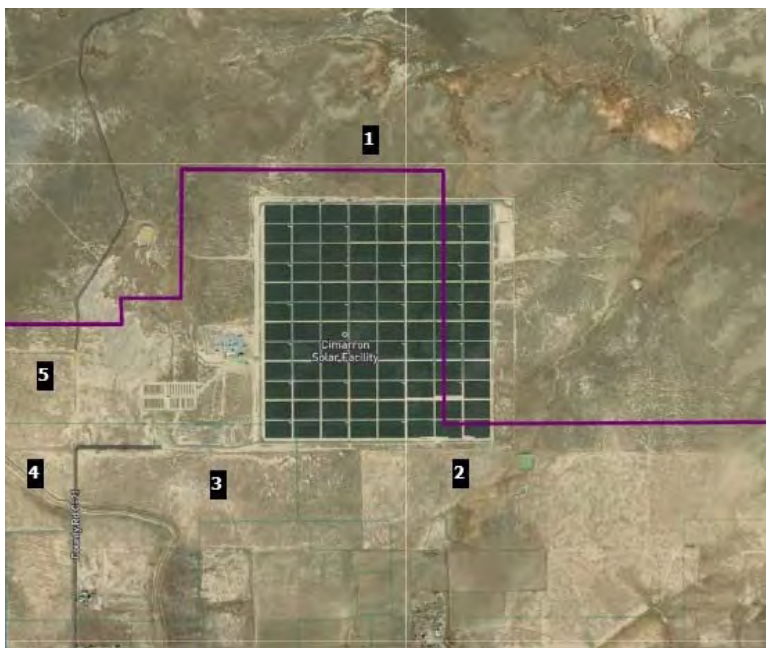
This 10.1 MW facility was built in 2012. There are no adjoining residential uses.

### Encino Solar, Rio Rancho, Sandoval County, NM



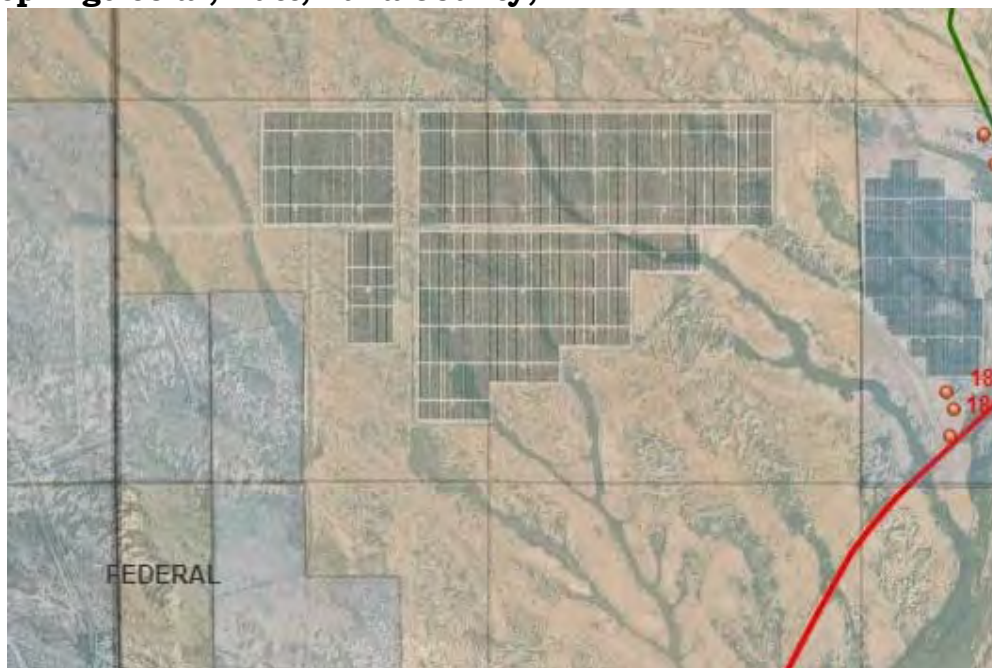
This 55 MW facility was built in 2020. The closest homes to the south are over 4,000 feet away. There is road infrastructure (dirt roads) that lead up to much closer to the site, but there is a vast amount of such dirt road infrastructure in the area with no home construction on most of it.

### Cimarron Solar, Cimarron, Colfax County, NM



This 30.6 MW facility was built in 2010. The two adjoining homes are over 3,000 feet away from the nearest solar panel and they are both part of much larger tracts.

### Macho Springs Solar, Nutt, Luna County, NM



This 55 MW solar farm was built in 2014 and has no nearby residential uses.

## Britton Solar, Moriarty, Torance County, NM



This 50 MW solar farm was built in 2019. Adjoining homes are between 400 and 1,460 feet from the nearest solar panel. The average distance is 911 feet. There is no visual screen for this solar farm.

The double wide home located at 35 Griffin Road sold on December 15, 2020. The asking price was \$54,900 for this 3 BR, 2 BA 1,792 square foot home on 2.5 acres. The images showed some roof damage in several rooms. The property was listed as “ready for renovations.” The listing broker was Ramona A Romero-Brown with Platinum Realty Group (505-362-3667) and the buyers broker was Lidia Temple with Re/Max Exclusive. According to Ms. Robero-Brown this was a bank foreclosure and not suitable for market analysis. I also attempted to contact Ms. Temple, but was unable to leave a message. This home is 770 feet from the nearest panel.

The double wide home located at 4 Britton Road sold on April 23, 2021. The asking price was \$275,000 for this 3 BR, 2 BA 2,034 square foot home on 5.05 acres. This home includes an attached garage as well as a 30x84 insulated shop building. The property is noted as completely renovated and with a modern kitchen. These unique features and recent updates make this a challenge to compare to other homes in the area. I spoke with Daniel Kniffin with the Kniffin Team, the listing broker (505-440-6878). He indicated that he received no negative feedback from the buyer or any of the parties that looked at this property related to the solar farm. He does not believe it had any impact on the marketing or the pricing of this home. I also spoke with Cheryl Marlow with Keller Williams Realty, the buyer’s broker (505-238-3272), who also indicated that the solar farm had no impact on the sales price. This home is 1,700 feet from the nearest solar panel.

The double wide home located at 24 Griffin Road sold on September 19, 2022. The asking price was \$239,900 for this 3 BR, 2 BA 1,680 s.f. home on 1.25 acres. This home includes stainless steel kitchen appliances, recent updates and a newly built detached garage. The property is noted as having many upgrades. The garage and upgrades make it challenging to use this for a paired sales

analysis. I left a message with Billy Ringo, the listing broker, with Coldwell Banker Legacy (505-730-7382). I did connect with Katey Taylor Oueis with Berkshire Hathaway Home Services who indicated that the solar farm was not a concern for her buyer and had no impact on the purchase price. She further noted that it was a strange question and that she had never heard any concerns related to solar farms before. This home is 700 feet from the nearest panel. I have included an image from the listing below to show the view from the back of this house. The solar farm is on the right hand side of the photo running roughly parallel to the line of green grass in the neighbor's yard.



## Roswell Solar, Roswell, Chaves County, NM



This 70 MW solar farm was built in 2016 at the same time as the adjoining Chaves Solar project. The closest adjoining home is 170 feet with numerous homes closer than 1,000 feet. I have provided the full breakdown of adjoining uses on the following page to show the parcels identified in the map above and the distance to each home. The average distance from panels to adjoining homes is 531 feet.



## Surrounding Uses

#	MAP ID	Owner	GIS Data		Adjoin	Adjoin	Distance (ft)
			Acres	Present Use	Acres	Parcels	Home/Panel
1	4139056439348000000	Notz	10.35	Residential	0.06%	2.17%	N/A
2	4139056508357000000	Dillard	4.77	Residential	0.03%	2.17%	522
3	4139056524407000000	Rocha	5.01	Residential	0.03%	2.17%	295
4	4139056524472000000	Eakin	5.03	Residential	0.03%	2.17%	275
5	4139057510035000000	Souza	6.45	Residential	0.04%	2.17%	570
6	4139057444037000000	Harkleroad	0.27	Residential	0.00%	2.17%	170
7	4139057500086000000	Blakeney	5.00	Residential	0.03%	2.17%	985
8	4139057500119000000	Degruchy	5.27	Residential	0.03%	2.17%	605
9	4139057501171000000	Degruchy	10.61	Residential	0.06%	2.17%	N/A
10	4139057502235000000	Ruiz	8.81	Residential	0.05%	2.17%	740
11	4139057480281000000	Sullins	0.67	Residential	0.00%	2.17%	N/A
12	4139057460282000000	Robertson	0.54	Residential	0.00%	2.17%	N/A
13	4139057445282000000	Robertson	0.76	Residential	0.00%	2.17%	N/A
14	4139057429283000000	Robertson	0.66	Residential	0.00%	2.17%	N/A
15	4139057414283000000	Robertson	0.55	Residential	0.00%	2.17%	N/A
16	4139057414301000000	Robertson	0.51	Residential	0.00%	2.17%	N/A
17	4139057414319000000	Robertson	0.51	Residential	0.00%	2.17%	N/A
18	4139057414336000000	Robertson	0.51	Residential	0.00%	2.17%	N/A
19	4139057414353000000	Robertson	0.51	Residential	0.00%	2.17%	N/A
20	4139057414370000000	Robertson	0.52	Residential	0.00%	2.17%	N/A
21	4139057415389000000	Robertson	0.63	Residential	0.00%	2.17%	N/A
22	4139057438420000000	Eakin	5.51	Residential	0.03%	2.17%	N/A
23	4139057418483000000	Ozbun	5.00	Residential	0.03%	2.17%	350
24	4139057442482000000	Waldrop	5.20	Residential	0.03%	2.17%	610
25	4139057498472000000	Dearing	12.72	Residential	0.07%	2.17%	N/A
26	4139057488500000000	Dearing	5.00	Residential	0.03%	2.17%	785
27	4144059402239000000	USA	15363.00	Agricultural	87.24%	2.17%	N/A
28	4140058033052000000	Southwestern	12.28	Utility	0.07%	2.17%	N/A
29	4140058034152000000	Waltmire	17.69	Residential	0.10%	2.17%	465
30	4140058036308000000	Chaves	29.80	Agricultural	0.17%	2.17%	N/A
31	4139058400414000000	Chaves	61.70	Agricultural	0.35%	2.17%	N/A
32	4139058217416000000	Chaves	20.10	Agricultural	0.11%	2.17%	N/A
33	4139058103395000000	Christman	42.73	Agricultural	0.24%	2.17%	N/A
34	4139058086248000000	Wilson	24.98	Agricultural	0.14%	2.17%	N/A
35	4139058085183000000	Wilson	24.93	Agricultural	0.14%	2.17%	N/A
36	4139058086117000000	Thibodeaux	24.87	Agricultural	0.14%	2.17%	N/A
37	4139058248047000000	Tenneson	5.00	Residential	0.03%	2.17%	N/A
38	4139058212049000000	Treadwell	5.00	Residential	0.03%	2.17%	N/A
39	4139058177050000000	Tabrez	5.00	Residential	0.03%	2.17%	N/A
40	4139058141052000000	Tabrez	5.00	Residential	0.03%	2.17%	N/A
41	4139058105053000000	Tabrez	5.00	Residential	0.03%	2.17%	N/A
42	4139058069055000000	Plante	5.00	Residential	0.03%	2.17%	N/A
43	4139058031061000000	Mistry	5.00	Residential	0.03%	2.17%	N/A
44	4139058017039000000	Mistry	1.23	Residential	0.01%	2.17%	N/A
45	4139057019534000000	Eakin	19.27	Residential	0.11%	2.17%	N/A
46	4138056434431000000	L T Lewis	1831.56	Agricultural	10.40%	2.17%	N/A
<b>Total</b>			<b>17610.503</b>		<b>100.00%</b>	<b>100.00%</b>	531

The home at 628 Wrangle Road sold on March 24, 2021. This single-family home built in 1990 with 3 BR, 2 BA, and 1,651 s.f. on 5.01 acres. Based on the listing information this property includes a sunroom, screened porch, raised & inground garden beds with drip irrigation, apple and pecan trees, chicken coops, 4 pens, covered trailer parking and a huge shop. I was unable to contact any broker involved in this sale. The closest solar panel to this home is 290 feet from this dwelling. The following images are from that listing and the solar panels are visible in the background just above the wooden gate on the right side of the first photo and similarly visible on the right side of the second photo.



The stacked poured concrete single-family home at 3687 E Pine Lodge Road sold on August 22, 2022. This property was listed for \$275,000 for this 2 BR, 2 BA, 1,948 s.f. home built in 1998 on 5.20 acres. The home as a single car attached garage and oversized metal detached double car garage. I was unable to contact the brokers involved with this transaction. This home is about 600 feet from the nearest panel, but the nearest site line to the panels is around 700 feet.

The brick single-family home at 416 N Red Bridge Road sold on August 20, 2021. This property was listed for \$369,000 for this 4 BR, 3 BA, 2,369 s.f. dwelling with an attached 2-car garage, detached workshop and garage built in 2005 on 5 acres. I was not able to contact the brokers involved with this transaction. This home is about 3,200 feet from the nearest solar panel.

### **Chaves Solar, Roswell, Chaves County, NM**



This 70 MW solar farm was built in 2016 at the same time as the adjoining Roswell Solar farm noted above. The closest adjoining home is 205 feet from the nearest panel with numerous homes closer than 1,000 feet. The full breakdown of adjoining homes is shown on the next page. The average distance is 717 feet. Notably, there are a number of homes located between these two solar farms as shown on parcels 14-21 in the map above.

## Surrounding Uses

#	MAP ID	Owner	GIS Data		Adjoin	Adjoin	Distance (ft)
			Acres	Present Use	Acres	Parcels	Home/Panel
1	4144059402239000000	USA	15363.98	Agricultural	95.47%	4.76%	N/A
2	4140057307522000000	Clark	4.73	Residential	0.03%	4.76%	410
3	4144059402239000000	Clark	4.53	Residential	0.03%	4.76%	445
4	4140057418474000000	McTosh	4.76	Residential	0.03%	4.76%	525
5	4140058424036000000	Salazar	5.36	Residential	0.03%	4.76%	230
6	4140058426104000000	Alanis	5.28	Residential	0.03%	4.76%	205
7	4143061533504000000	Unknown	85.57	Agricultural	0.53%	4.76%	N/A
8	4141058181234000000	Elliot	10.01	Residential	0.06%	4.76%	N/A
9	4141058314392000000	Schellinger	140.00	Agricultural	0.87%	4.76%	N/A
10	4141058189507000000	Tatter	5.00	Residential	0.03%	4.76%	N/A
11	4140059513270000000	Clark	240.00	Agricultural	1.49%	4.76%	N/A
12	4140059229210000000	Chaves	39.52	Agricultural	0.25%	4.76%	N/A
13	4140059074135000000	Ward	80.00	Agricultural	0.50%	4.76%	N/A
14	4140058074514000000	Peterson	16.50	Residential	0.10%	4.76%	1,215
15	4140058073481000000	Barraza	5.00	Residential	0.03%	4.76%	N/A
16	4140058073440000000	Carreon	21.36	Agri/Res	0.13%	4.76%	1,865
17	4140058107375000000	Hernandez	9.99	Residential	0.06%	4.76%	1,100
18	4140058106309000000	Chaves	11.16	Utility	0.07%	4.76%	N/A
19	4140058107240000000	Waltmire	9.93	Residential	0.06%	4.76%	N/A
20	4140058105141000000	Waltmire	20.00	Residential	0.12%	4.76%	575
21	4140058103041000000	Cruz	9.81	Residential	0.06%	4.76%	600
<b>Total</b>			<b>16092.491</b>		<b>100.00%</b>	<b>100.00%</b>	<b>717</b>

The double wide home at 73 Outlaw Trail sold on March 25, 2021. This property was listed for \$230,000 for this 4 BR, 2 BA, 1,848 s.f. dwelling with a detached 3-car garage/workshop workshop built in 2000 on 10 acres. I was not able to contact the brokers involved with this transaction. This home is about 3,200 feet from the nearest solar panel. This home is 1,100 feet from the nearest panel at Chaves Solar and 1,100 feet from the nearest panel at Roswell Solar. The image below is from the listing and shows panels in the background as can be seen to the left of the image.



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

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

Wherever I have looked at solar farms, I have derived a breakdown of the adjoining uses to show what adjoining uses are typical for solar farms and what uses would likely be considered consistent with a solar farm use similar to the breakdown that I've shown for the subject property on the previous page. A summary showing the results of compiling that data over hundreds of solar farms is shown later in the Scope of Research section of this report.

I also consider whether the properties adjoining a solar farm in one location have characteristics similar to the properties abutting or adjoining the proposed site so that I can make an assessment of market impact on each proposed site. Notably, in most cases solar farms are placed in areas very similar to the site in question, which is surrounded by low density residential and agricultural uses. In my over 900 studies, I have found a striking repetition of that same typical adjoining use mix in over 90% of the solar farms I have looked at. Matched pair results in multiple states are strikingly similar, and all indicate that solar farms – which generate very little traffic, and do not generate noise, dust or have other harmful effects – do not negatively impact the value of adjoining or abutting properties.

In the prior section I focused on solar farms in New Mexico with discussion on sales adjoining solar farms.

On the following pages I have considered paired sales data in the Southwestern Region of the US with specific sales analysis in Texas, Arizona, and Colorado.

Following that data, I have included a brief summary of data pulled nationally as additional support for these findings.

**A. Southwest Paired Sales Data**

**1. Picture Rocks, Tucson, Pima County**



This solar farm was built in 2012 on a 302.80-acre tract but utilizing only 182 acres. This is a 20 MW facility with residential subdivision to the south and larger lot homes to the north, south and west.

I have identified two adjoining homes in the Tierra Linda subdivision that have sold recently in close proximity to the solar farm. They are written up as matched pairs below.

**Adjoining Residential Sales After Solar Farm Approved**

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GLA	BR/BA	Park	Style	Other
14	Adjoins	12986 W Moss V	0.97	6/4/2020	\$393,900	2020	2,241	\$175.77	4/3	3-Gar	Adobe	Crtyrd
	Not	13071 W Smr Ppy	0.85	2/26/2020	\$389,409	2019	2,231	\$174.54	4/3	3-Gar	Adobe	Crtyrd
	Not	13352 W Tgr Aloe	1.07	3/31/2020	\$389,300	2015	2,555	\$152.37	4/3	3-Gar	Adobe	Crtyrd
	Not		0.97	8/2/2020	\$410,000	2018	2,688	\$152.53	4/2	3-Gar	Adobe	Crtyrd

**Adjoining Sales Adjusted**

Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
							\$393,900			1100
\$3,249		\$1,947	\$1,396				\$396,001	-1%		
\$2,132		\$9,733	-\$38,275				\$362,890	8%		
-\$2,038		\$4,100	-\$54,545	\$10,000			\$367,517	7%		
									5%	

**Adjoining Residential Sales After Solar Farm Approved**

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GLA	BR/BA	Park	Style	Other
15	Adjoins	12986 W Moss V	1.00	6/27/2019	\$350,000	2006	2,660	\$131.58	4/3.5	3-Gar	Adobe	Crtyrd
	Not	12994 W Btr Bsh	0.92	5/24/2018	\$302,000	2007	2,410	\$125.31	4/3	3-Gar	Adobe	Crtyrd
	Not	12884W Zbra Aloe	0.83	1/29/2020	\$336,500	2007	2,452	\$137.23	4/3	3-Gar	Adobe	Crtyrd
	Not	12829W Smr Ppy	0.88	6/2/2020	\$317,500	2006	2,452	\$129.49	4/3	3-Gar	Adobe	Crtyrd

Adjoining Sales Adjusted									Avg	
Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	% Diff	Distance
							\$350,000			970
\$10,154		-\$1,510	\$25,062	\$5,000			\$340,707	3%		
-\$6,125		-\$1,683	\$22,836	\$5,000			\$356,528	-2%		
-\$9,124		\$0	\$21,546	\$5,000			\$334,923	4%		
									2%	

I have also looked at a recent sale of a manufactured home in close proximity to this solar farm for an additional matched pair. This home included a 2,200 s.f. detached metal building used as a garage/workshop that I adjusted based on Marshall Swift Cost Estimating Service values for a depreciated metal building.

#### Adjoining Residential Sales After Solar Farm Approved

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GLA	BR/BA	Park	Style	Other
9	Adjoins	12705 W Emigh	2.26	1/27/2019	\$255,000	1994	2,640	\$96.59	3/2	Det 4Car	Ranch	Horse
	Not	12715 W Emigh	2.50	5/30/2019	\$210,000	2005	2,485	\$84.51	4/2	Crprt	Ranch	Horse
	Not	12020 W Camper	1.81	9/15/2019	\$200,000	2006	2,304	\$86.81	4/2	Open	Ranch	Horse
	Not	12445 W Emigh	5.00	10/2/2018	\$210,000	1999	2,400	\$87.50	4/2	Open	Ranch	Horse

Adjoining Sales Adjusted									Avg	
Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	% Diff	Distance
							\$255,000			990
-\$2,177		-\$11,550	\$10,479		\$46,000	\$0	\$252,752	1%		
-\$3,893		-\$12,000	\$23,333		\$50,000	\$0	\$257,440	-1%		
\$2,071	-\$25,000	-\$5,250	\$16,800		\$50,000	\$0	\$248,621	3%		
									1%	

These matched pairs range from 970 to 1,100 feet from the closest solar panel and shows no negative impact due to proximity to the solar farm. The average measured impacts range from +1% to +5%, which is within a typical variation for real estate and supports a conclusion of no impact.





**Adjoining Residential Sales After Solar Farm Approved**

Parcel	Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GLA	BR/BA	Park	Style
	Adjoins	14441 W Stallion	4.40	12/21/2017	\$150,000	2002	2,280	\$65.79	3/3.5	Open	Manuf
	Not	9620 N Rng Bck	4.14	3/24/2019	\$139,000	2003	2,026	\$68.61	4/3	Open	Manuf
	Not	5537 N Whitetail	1.38	9/26/2018	\$148,000	2006	2,037	\$72.66	4/3	Open	Manuf
	Not	5494 N Puma	1.38	12/6/2017	\$138,900	2000	2,044	\$67.95	4/3	Open	Manuf

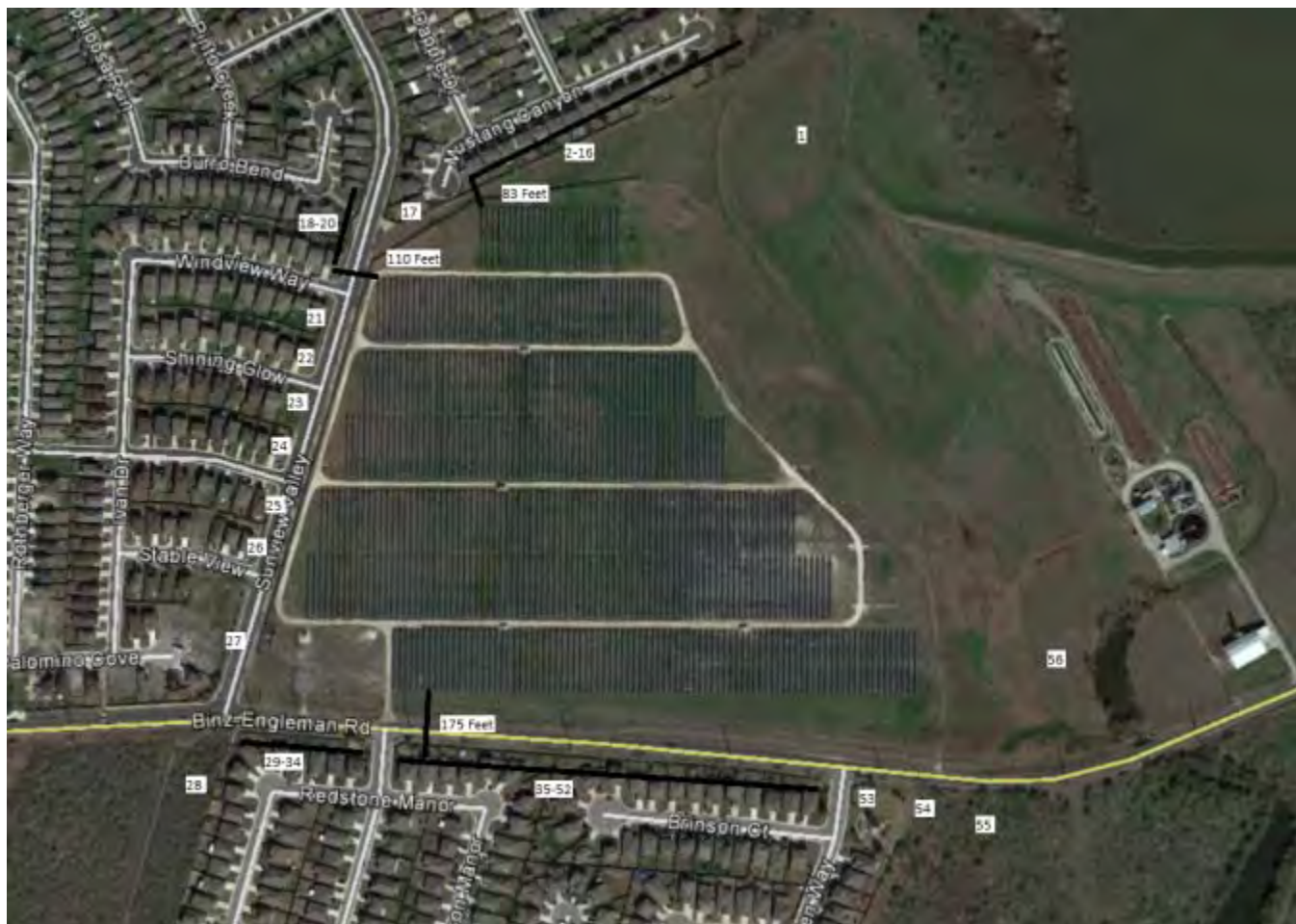
**Adjoining Sales Adjusted**

Time	Site	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
							\$150,000			1467
-\$5,365		-\$695	\$10,456				\$143,396	4%		
-\$3,480	\$5,000	-\$2,960	\$10,593				\$157,154	-5%		
\$176	\$5,000	\$1,389	\$9,622				\$155,087	-3%		
									-1%	

These matched pairs range from 1,467 to 1,697 feet from the closest solar panel and shows no negative impact due to proximity to the solar farm. The average measured impacts range from -1% to 0%, which is within a typical variation for real estate and supports a conclusion of no impact.



#### 4. Matched Pair – Alamo 2 Solar, Converse, Bexar County, TX



This project is located at 8203 Binz-Engleman Road, Converse, Texas, on 98.37 acres with a 4.4 MW output. This project is located with small lot residential development on to the north west and south. There appears to be minimal landscaping along this project. The closest home to the north is 83 feet from the solar panels, while the homes to the west are 110 feet and the homes to the south are 175 feet away from the solar panels.

This solar farm strongly shows an acceptance of nearby residential development in close proximity to solar farms as this solar farm has minimal landscaping, close proximity, small adjoining lot sizes, and the development of homes on three sides of the solar farm.

##### **Adjoining Use Breakdown**

<b>Acres</b>	<b>Parcels</b>
Residential	94.64%
Agricultural	5.36%
<b>Total</b>	<b>100.00%</b>

I have considered home sales in the three adjoining subdivisions to look at matched pair data. There are sales and resales of homes in Glenloch and Mustang Valley subdivisions to the south and west of this solar farm.

I have considered multiple matched pairs from these subdivisions to show typical appreciation and no impact on property value both before and after the solar farm was constructed in 2013. I have

looked at a number of home sales and resales in the larger subdivisions, but I have focused on those directly adjoining/facing the solar farm in the examples shown below. These are sales and resales of the homes adjoining the solar farm both before and after the solar farm project in 2013.

The comparables shown below are compared to an earlier sale prior to the solar farm announcement or construction followed by a second sale after the solar farm. The first two have solar farms in the Backyard (B), while the other has the solar farm in the Side yard (S). All of these sales show appreciation that falls within the typical annual appreciation for homes in this area over this time period.

<b>7703 Redstone Mnr (B)</b>			<b>7807 Redstone Mnr (B)</b>			<b>7734 Sundew Mist (S)</b>		
	<u>Date</u>	<u>Price</u>		<u>Date</u>	<u>Price</u>		<u>Date</u>	<u>Price</u>
Sale	10/3/2012	\$149,980	Sale	5/11/2012	\$136,266	Sale	5/23/2012	\$117,140
Sale	3/24/2016	\$166,000	Sale	8/11/2014	\$147,000	Sale	11/18/2014	\$134,000
	<b><u>Time - YRS</u></b>	<b><u>% Incr.</u></b>		<b><u>Time - YRS</u></b>	<b><u>% Incr.</u></b>		<b><u>Time - YRS</u></b>	<b><u>% Incr.</u></b>
	3.47	10.7%		2.25	7.9%		2.49	14.4%
	<b><u>Per Year</u></b>	<b><u>3.1%</u></b>		<b><u>Per Year</u></b>	<b><u>3.5%</u></b>		<b><u>Per Year</u></b>	<b><u>5.8%</u></b>
Years	3.5	<b><u>10.8%</u></b>	Years	2.5	<b><u>8.7%</u></b>	Years	2	<b><u>11.6%</u></b>

I therefore conclude that this set of matched pairs shows no impact on property value and that homes in the area are showing typical appreciation consistent with other homes not in the vicinity of solar farms.

I have also considered a number of sales and resales of adjoining homes to look at appreciation adjoining the solar farm as compared to sales and resales of nearby homes not adjoining the solar farm. This provides for a good side-by-side comparison of appreciation in these areas.

The nearby sales not adjoining the solar farm shows an average annual increase of 3.85% per year increase with a range of 0.47% up to 8.34% and a median increase of 3.64%. The homes adjoining the solar farm shows an average annual increase of 4.48% per year with a range of 2.77% to 5.45% and a median of 5.21%. The increases adjoining the solar farm are actually higher than those nearby and strongly supports the assertion of no impact on property value.

Adjoining Residential Sales After Solar Farm Built											
Solar	Address	Land (AC)	Date Sold	Sales Price	Built	GBA	\$/GBA	BR/BA	Park	% Inc.	%/Yr
Near	7926 Binson Court	0.13	7/20/2017	\$184,000	2007	2,268	\$81.13	4 bed	2 Gar		
Near	7926 Binson Court	0.13	11/27/2019	\$199,999	2007	2,268	\$88.18	4 bed	2 Gar	8.70%	3.69%
Near	7819 Caballo Canyon	0.10	9/7/2017	\$135,500	2008	1,547	\$87.59	3 bed	2 Gar		
Near	7819 Caballo Canyon	0.10	3/24/2020	\$157,500	2008	1,547	\$101.81	3 bed	2 Gar	16.24%	6.38%
Near	4730 Dapple Drive	0.13	10/7/2017	\$154,900	2007	1,656	\$93.54	3 bed	2 Gar		
Near	4730 Dapple Drive	0.13	6/11/2020	\$170,000	2007	1,656	\$102.66	3 bed	2 Gar	9.75%	3.64%
Near	4006 Giverny Ct	0.14	2/5/2018	\$169,900	2007	1,656	\$102.60	3 bed	2 Gar		
Near	4006 Giverny Ct	0.14	1/17/2020	\$180,000	2007	1,656	\$108.70	3 bed	2 Gar	5.94%	3.05%
Near	4003 Maston Manor	0.17	6/21/2018	\$165,000	2010	1,544	\$106.87	3 bed	2 Gar		
Near	4003 Maston Manor	0.17	2/14/2020	\$173,400	2010	1,544	\$112.31	3 bed	2 Gar	5.09%	3.08%
Near	4803 Pinto Creek	0.10	5/31/2018	\$150,000	2007	1,547	\$96.96	3 bed	2 Gar		
Near	4803 Pinto Creek	0.10	8/5/2020	\$162,000	2007	1,547	\$104.72	3 bed	2 Gar	8.00%	3.66%
Near	4303 Safe Harbor	0.09	1/14/2016	\$162,574	2015	1,601	\$101.55	3 bed	2 Gar		
Near	4303 Safe Harbor	0.09	3/26/2019	\$165,000	2015	1,601	\$103.06	3 bed	2 Gar	1.49%	0.47%
Near	4307 Safe Harbor	0.10	10/14/2016	\$200,475	2016	2,488	\$80.58	4 bed	2 Gar		
Near	4307 Safe Harbor	0.10	2/27/2020	\$211,000	2016	2,488	\$84.81	4 bed	2 Gar	5.25%	1.56%
Near	4338 Safe Harbor	0.09	5/5/2016	\$149,900	2014	1,353	\$110.79	3 bed	2 Gar		
Near	4338 Safe Harbor	0.09	7/10/2018	\$159,000	2014	1,353	\$117.52	3 bed	2 Gar	6.07%	2.78%
Near	7822 Sterling Manor	0.14	2/24/2017	\$160,000	2011	1,898	\$84.30	3 bed	2 Gar		
Near	7822 Sterling Manor	0.14	12/30/2019	\$198,000	2011	1,898	\$104.32	3 bed	2 Gar	23.75%	8.34%
Near	7938 Sterling Manor	0.15	7/29/2016	\$157,000	2008	1,795	\$87.47	3 bed	2 Gar		
Near	7938 Sterling Manor	0.15	7/31/2020	\$192,500	2008	1,795	\$107.24	3 bed	2 Gar	22.61%	5.64%
Adjacent	7731 Shining Glow	0.14	11/28/2018	\$174,999	2006	2,658	\$65.84	3 bed	2 Gar		
Adjacent	7731 Shining Glow	0.14	10/9/2020	\$192,000	2006	2,658	\$72.23	3 bed	2 Gar	9.71%	5.21%
Rear View	7935 Brinson Court	0.15	8/15/2017	\$187,500	2007	2,328	\$80.54	4 bed	2 Gar		
Rear View	7935 Brinson Court	0.15	1/10/2020	\$200,000	2007	2,328	\$85.91	4 bed	2 Gar	6.67%	2.77%
View	7815 Mustang Canyon	0.12	9/3/2016	\$149,900	2009	2,267	\$66.12	3 bed	2 Gar		
View	7815 Mustang Canyon	0.12	11/21/2018	\$168,000	2009	2,267	\$74.11	3 bed	2 Gar	12.07%	5.45%

I have also looked at these three recent sales that are either adjacent, have a rear view or a view of the solar farm. I have developed matched pairs for these homes as shown below.

#### Adjoining Residential Sales After Solar Farm Built

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GLA	BR/BA	Park	Style
Nearby	7731 Shining Gl	0.14	10/9/2020	\$192,000	2006	2,658	\$72.23	3/2.5	2Gar	2-story
Not	7906 Caballo	0.13	10/2/2019	\$201,000	2012	2,959	\$67.93	4/2.5	2Gar	2-story
Not	4519 Rothberger	0.10	5/31/2020	\$186,000	2006	2,773	\$67.08	3/2.5	2Gar	2-story
Not	4530 Rothberger	0.10	9/8/2019	\$167,500	2006	2,652	\$63.16	3/2.5	2Gar	2-story



**Adjoining Residential Sales After Solar Farm Built**

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GLA	BR/BA	Park	Style
Adjoins	7734 Sundew M	0.14	6/12/2018	\$158,400	2011	1,354	\$116.99	3/2	2Gar	Ranch
Not	4338 Safe Hrbr	0.10	7/25/2019	\$156,000	2014	1,413	\$110.40	3/2	2Gar	Br Rnch
Not	7730 Palomino	0.10	4/23/2018	\$154,000	2014	1,315	\$117.11	3/2	2Gar	Br Rnch
Not	7907 Horse H	0.13	1/7/2018	\$160,000	2012	1,420	\$112.68	3/2	2Gar	Br Rnch

**Adjoining Sales Adjusted**

Address	Time	YB	GLA	BR/BA	Other	Total	% Diff	Avg % Diff	Distance
7734 Sundew M						\$158,400			150
4338 Safe Hrbr	-\$5,364	-\$2,340	-\$5,211			\$143,085	10%		
7730 Palomino	\$649	-\$2,310	\$3,654			\$155,993	2%		
7907 Horse H	\$2,103	-\$800	-\$5,949			\$155,354	2%	4%	

**Adjoining Residential Sales After Solar Farm Built**

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GLA	BR/BA	Park	Style	Other
Adjoins	7731 Stable V	0.11	9/9/2019	\$189,900	2012	1,782	\$106.57	3/2.5	2Gar	2-Brick	
Not	5026 Sunview	0.11	3/12/2020	\$180,900	2013	1,782	\$101.52	3/2.5	2Gar	2-Brick	Greenbelt
Not	5082 Mustang V	0.10	2/26/2020	\$184,000	2013	2,013	\$91.41	3/2.5	2Gar	2-Brick	
Not	4003 Matson M	0.17	2/17/2020	\$173,400	2010	1,544	\$112.31	3/2	2Gar	2-Brick	

**Adjoining Sales Adjusted**

Address	Time	YB	GLA	BR/BA	Other	Total	% Diff	Avg % Diff	Distance
7731 Stable V						\$189,900			150
5026 Sunview	-\$2,820	-\$905	\$0			\$177,175	7%		
5082 Mustang V	-\$2,636	-\$920	-\$16,892			\$163,552	14%		
4003 Matson M	-\$2,353	\$1,734	\$21,383			\$194,164	-2%	6%	

The 6 matched pairs above provide a good indication of no impact for these homes adjoining the solar farm with all three having homes between 150 and 230 feet from the nearest solar panel.

The 6 matched pairs show a range of average impacts from -3% to +6% with an average of +3% and a median of +3%.

The best indicator for each matched pair is not the average, but the one requiring the least adjustment. In order this would be +5%, -2%, +1%, -1%, +2%, and +7% with an average of +2% and a median of +2%.

These data points strongly show no impact on property value due to the adjacency to the solar farm.





**Adjoining Residential Sales After Solar Farm Built**

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GLA	BR/BA	Park	Style	Other
Adjoins	275 Anna Hobbs	0.38	2/14/2020	\$160,000	1983	1,636	\$97.80	3/2	Open	Br Rnch	
Not	112 Ashley	1.11	11/21/2019	\$195,900	2006	1,526	\$128.37	4/2	2Gar	Br Rnch	
Not	825 W 3rd	0.38	8/8/2018	\$136,000	1978	1,300	\$104.62	3/2	2Gar	Br Rnch	Updated
Not	813 W 3rd	0.38	6/19/2020	\$158,250	1977	1,450	\$109.14	3/2	2Gar	Br Rnch	Updated

**Adjoining Sales Adjusted**

	Time	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
275 Anna Hobbs							\$160,000			960
112 Ashley	\$1,403	-\$22,529	\$11,297		-\$15,000		\$171,072	-7%		
825 W 3rd	\$6,361	\$3,400	\$28,121		-\$15,000		\$158,881	1%		
813 W 3rd	-\$1,680	\$4,748	\$16,240		-\$15,000		\$162,557	-2%		
									-3%	

**Adjoining Residential Sales After Solar Farm Built**

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GLA	BR/BA	Park	Style	Other
Adjoins	205 Anna Hobbs	0.38	10/22/2018	\$145,000	1981	1,636	\$88.63	4/2	Gar	Br Rnch	
Not	112 Ashley	1.11	11/21/2019	\$195,900	2006	1,526	\$128.37	4/2	2Gar	Br Rnch	
Not	825 W 3rd	0.38	8/8/2018	\$136,000	1978	1,300	\$104.62	3/2	2Gar	Br Rnch	Updated
Not	813 W 3rd	0.38	6/19/2020	\$158,250	1977	1,450	\$109.14	3/2	2Gar	Br Rnch	Updated

**Adjoining Sales Adjusted**

	Time	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
205 Anna Hobbs							\$145,000			960
112 Ashley	-\$6,521	-\$24,488	\$11,297		-\$5,000		\$171,189	-18%		
825 W 3rd	\$860	\$2,040	\$28,121		-\$5,000		\$162,020	-12%		
813 W 3rd	-\$8,081	\$3,165	\$16,240		-\$5,000		\$164,573	-13%		
									-14%	

I did not adjust the comparable sales above for the updates noted in the comparables as it is difficult to ascertain the extent of updates or the condition of the improvements at that point. I do note that the property was updated and put back on the market with a pending sale that I have shown in the adjustment below. After the updates this property is selling for \$25,000 higher than the sale from just two years ago. I consider the pending sale to be more indicative of values in the area.

**Adjoining Residential Sales After Solar Farm Built**

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GLA	BR/BA	Park	Style	Other
Adjoins	205 Anna Hobbs	0.38	Pending	\$170,000	1981	1,636	\$103.91	4/2	Gar	Br Rnch	Updated
Not	112 Ashley	1.11	11/21/2019	\$195,900	2006	1,526	\$128.37	4/2	2Gar	Br Rnch	
Not	825 W 3rd	0.38	8/8/2018	\$136,000	1978	1,300	\$104.62	3/2	2Gar	Br Rnch	Updated
Not	813 W 3rd	0.38	6/19/2020	\$158,250	1977	1,450	\$109.14	3/2	2Gar	Br Rnch	Updated

**Adjoining Sales Adjusted**

	Time	YB	GLA	BR/BA	Park	Other	Total	% Diff	Avg % Diff	Distance
205 Anna Hobbs							\$170,000			960
112 Ashley	\$5,745	-\$24,488	\$11,297		-\$5,000		\$183,454	-8%		
825 W 3rd	\$9,375	\$2,040	\$28,121		-\$5,000		\$170,536	0%		
813 W 3rd	\$1,827	\$3,165	\$16,240		-\$5,000		\$174,482	-3%		
									-4%	

**Adjoining Residential Sales After Solar Farm Built**

Solar	Address	Acres	Date Sold	Sales Price	Built	GBA	\$/GLA	BR/BA	Park	Style	Other
Adjoins	189 Anna Hobbs	0.38	6/9/2018	\$140,000	1976	1,276	\$109.72	3/2	2Gar	Br Rnch	
Not	112 Ashley	1.11	11/21/2019	\$195,900	2006	1,526	\$128.37	4/2	2Gar	Br Rnch	
Not	825 W 3rd	0.38	8/8/2018	\$136,000	1978	1,300	\$104.62	3/2	2Gar	Br Rnch	Updated
Not	813 W 3rd	0.38	6/19/2020	\$158,250	1977	1,450	\$109.14	3/2	2Gar	Br Rnch	Updated

**Adjoining Sales Adjusted**

	<b>Time</b>	<b>YB</b>	<b>GLA</b>	<b>BR/BA</b>	<b>Park</b>	<b>Other</b>	<b>Total</b>	<b>% Diff</b>	<b>Avg % Diff</b>	<b>Distance</b>
189 Anna Hobbs							\$140,000			960
112 Ashley	-\$8,749	-\$29,385	-\$25,675				\$132,091	6%		
825 W 3rd	-\$688	-\$1,360	-\$2,009				\$131,944	6%		
813 W 3rd	-\$9,882	-\$791	-\$15,192				\$132,385	5%		
									6%	

**Adjoining Residential Sales After Solar Farm Built**

<b>Solar</b>	<b>Address</b>	<b>Acres</b>	<b>Date Sold</b>	<b>Sales Price</b>	<b>Built</b>	<b>GBA</b>	<b>\$/GLA</b>	<b>BR/BA</b>	<b>Park</b>	<b>Style</b>	<b>Other</b>
Adjoins	421 Hudson	5.00	3/12/2018	\$326,531	2007	1,906	\$171.32	4/2	2Gar	Br Rnch	Wrkshp
Not	743 Liberty Hill	10.00	5/6/2018	\$317,000	1951	2,366	\$133.98	4/2.5	Det2Gr	1.5 Story	Barn
Not	12608 Chapel	9.90	4/2/2018	\$350,000	2009	1,888	\$185.38	3/2	DetGar	Ranch	Barn/Apt
Not	130 Ralynn	1.00	4/23/2018	\$339,600	2018	2,294	\$148.04	4/3	3Gar	Br Rnch	

**Adjoining Sales Adjusted**

	<b>Time</b>	<b>Site</b>	<b>YB</b>	<b>GLA</b>	<b>BR/BA</b>	<b>Park</b>	<b>Other</b>	<b>Total</b>	<b>% Diff</b>	<b>Avg % Diff</b>	<b>Distance</b>
421 Hudson								\$326,531			470
743 Liberty Hill	-\$1,469	-\$25,000	\$88,760	-\$49,305	-\$5,000			\$324,986	0%		
12608 Chapel	-\$619	-\$25,000	-\$3,500	\$2,669				\$323,550	1%		
130 Ralynn	-\$1,202	\$15,000	-\$18,678	-\$45,951	-\$10,000		\$10,000	\$288,769	12%		
										4%	

The 5 matched pairs above provide a good indication of no impact for these homes adjoining the solar farm. This excludes the first sale of 205 Anna Hobbs prior to the update as discussed above as the difference indicated in the first sale is clearly attributable to the lack of updating that home.

The 5 matched pairs show a range of average impacts from -4% to +11% with an average of +2.8% and a median of +4%.

The best indicator for each matched pair is not the average, but the one requiring the least adjustment. In order this would be +1%, -2%, -3%, +6%, and +1% with an average of +0.60% and a median of +1%.

These data points strongly show no impact on property value due to the adjacency to the solar farm.

**6. Matched Pair – Somerset Solar, Somerset, Bexar County, TX**



This 10.6 MW project has older and newer homes adjoining to the south and east as shown above.

I have considered a sale of two lots along W. Dixon Road that back up to the solar farm. These two lots total 2.4 acres and sold on August 13, 2020 for \$75,000, or \$37,500 per 1.2-acre lot.

A similar lot sold at 3750 FM 3175, Lytle, Texas on March 8, 2018 for \$37,500 for a 1-acre lot. Another similar 1-acre lot at 40 Fair Oak, Somerset sold on March 31, 2019 for \$40,000. I also looked at the July 8, 2018 sale of a 3.05-acre lot for \$70,000. This size is very similar and likely could support two home sites similar to the W. Dixon Road land sale.

These lot sales show no negative impact due to the adjacent solar farm.

**7. Grazing Yak Solar, Calhan, El Paso County, Colorado**



This project is a 35 MW facility located on a 271.93-acre tract that was built in 2019. There are windmills nearby as can be seen on Parcel 5.

I have considered the sale of Parcel 7 (30945 Washington Road, Calhan, CO) shown above which includes an older dwelling that is only 660 feet from the nearest solar panel. This property includes 46.09 acres and the dwelling was in poor condition. I spoke with Jody Heffner the broker who sold this tract who indicated that the solar farm had no impact on the purchase price and the nearby windfarm likewise had no impact. The home was difficult to compare to other homes in the area given the small size and condition.

Properties needing significant repairs are difficult to use in a paired sales analysis without good estimates of the needed repairs. I have therefore not attempted a paired sales analysis, but I have relied on the broker's comments related to the solar farm having no impact on the sales price.

**8. San Luis Valley Solar, Hooper, Alamosa County, Colorado**

This project was built in 2010 and located on a portion of a 308-acre tract for a 35 MW with the closest home at 620 feet from the closest solar panel.

I considered the current listing of Parcel 10 (8120 N County Road 106, Mosca, CO) that is 620 feet from the closest solar panel. This property has not sold and has been on the market for 40 days as of this writing. I spoke with Bill Werner with Werner Realty who is marketing this 1,546 s.f. home on 4.61 acres. He indicated that the adjoining solar farm was having no impact on the marketing price or the marketing time on the project. He indicated that there were few homes in the area to choose from, which also makes it difficult to do a paired sales analysis on this asking price.

As this has not sold, I cannot do a paired sales analysis, but I have relied on the brokers comments in this analysis.

**9. SR Jenkins Fort Lupton, Fort Lupton, Weld County, Colorado**



This project is a 13 MW facility located on a 141.89-acre tract that was built in 2016.

I have considered the 2020 sale of Parcel 5 (16230 Highway 52, Lupton, CO) as shown above. The home on this parcel is 525 feet from the closest solar panel. This was a 29.47-acre tract with a single-family home, detached small office building, and various agricultural buildings. The collection of buildings and acreage is very unique, which limits the reliability of any paired sales analysis on this transfer.

I spoke with Lisa Moen, the buyer's realtor, who indicated that the solar farm was not a concern at all for the buyer. She further noted that the buyer was her Mother-In-Law and that the solar farm has been a quiet neighbor and is still not a concern for the buyer. Ms. Moen further indicated that it would be difficult to compare this sale to other properties in the area due to the unique assemblage of buildings on the property.

So I have not completed a paired sales analysis on this sale either, but I have considered the comments by the broker in this analysis.

## **Conclusion – Southwest**

<b>Matched Pair Summary</b>					<b>Adj. Uses By Acreage</b>					<b>1 mile Radius (2020-2022 Data)</b>			
<b>Name</b>	<b>City</b>	<b>State</b>	<b>Acres</b>	<b>MW</b>	<b>Topo Shift</b>	<b>Res</b>	<b>Ag</b>	<b>Ag/Res</b>	<b>Com/Ind</b>	<b>Population</b>	<b>Med. Income</b>	<b>Avg. Housing Unit</b>	
<b>1</b>	Picture Rocks	Tucson	AZ	182	20.00	N/A	6%	88%	6%	0%	102	\$81,081	\$280,172
<b>2</b>	Avra Valley	Tucson	AZ	246	25.00	N/A	3%	94%	3%	0%	85	\$80,997	\$292,308
<b>3</b>	Sunshine	Amargosa	NV	N/A	104.00	N/A	N/A	N/A	N/A	N/A	42	\$50,000	\$106,250
<b>4</b>	Alamo II	Converse	TX	98	4.40	30	95%	5%	0%	0%	9,257	\$62,363	\$138,617
<b>5</b>	Eddy II	Eddy	TX	93	10.00	N/A	15%	25%	58%	2%	551	\$59,627	\$139,088
<b>6</b>	Somerset	Somerset	TX	128	10.60	N/A	5%	95%	0%	0%	1,293	\$41,574	\$135,490
<b>7</b>	Grazing Yak	Calhan	CO	272	35.00	N/A	0%	97%	3%	0%	41	\$80,127	\$458,929
<b>8</b>	San Luis Vly	Hooper	CO	308	35.00	N/A	5%	95%	0%	0%	12	\$60,000	\$91,667
<b>9</b>	SR Jenkins	Ft Lupton	CO	142	13.00	N/A	2%	90%	8%	0%	134	\$90,326	\$510,135
<b>Average</b>				184	28.56	30	16%	74%	10%	0%	1,280	\$67,344	\$239,184
<b>Median</b>				162	20.00	30	5%	92%	3%	0%	102	\$62,363	\$139,088
<b>High</b>				308	104.00	30	95%	97%	58%	2%	9,257	\$90,326	\$510,135
<b>Low</b>				93	4.40	30	0%	5%	0%	0%	12	\$41,574	\$91,667

The median income for the population within 1 mile of a solar farm for this set of data is \$62,363 with a median housing unit value of \$139,088. All of these comparable solar farms have homes within a 1-mile radius under \$520,000 on average, though I have matched pairs in other states over \$1,000,000 in price adjoining large solar farms. The adjoining uses show that residential and agricultural uses are the predominant adjoining uses.

Based on the similarity of adjoining uses and demographic data between these sites and the subject property, I consider it reasonable to compare these sites to the subject property. These solar farms include solar farms up to 104 MW in size.

Each of these solar farms has adjoining home sales that support a conclusion of no impact on adjoining property values.

I note that real estate is an imperfect market and both market imperfection and typical market variations commonly support a +/- 5% difference in real estate. Essentially, two identical homes sitting next to each other being sold by different sellers to different buyers will almost never sell for the exact same price. So minor differences are not indications of positive or negative shifts in the market, but just indications of typical market variation. For this reason, I consider indicators of +/- 5% to be indications of no impact on property value.

In the charts that follow I have only included the data where I completed a paired sales to exclude sales that only have broker comments.

Therefore, there are 20 identified sales adjoining solar farms that are in the chart. While some subsets of data I have in other states do show some results with negative impacts on property value, none of the data in this subset indicates a negative impact on value. There are 4 of the 20 matched pairs that suggest a positive impact due to the solar farm (impacts between +6% and +18%). That leaves 16 out of 20, or 80% of the findings supporting no impact on value. The biggest positive impact identified is just an outlier as there were few comparables in that market with which to compare and I do not put much weight on that large positive impact on value.

The aggregate of all of these differences is +2% on average and +1% on median, which strongly supports a finding of no impact on property value and not an enhancement on property value.

The following pages show greater detail on these solar farms and how the 20 matched pairs from these solar farms were established. Below I have shown those findings charted from smallest to largest to show that most of the findings are between +/-5% within typical market variation.





**Residential Dwelling Matched Pairs Adjoining Solar Farms**

Pair	Solar Farm	City	State	MW	Approx	Tax ID/Address	Date	Adj. Sale		Veg.
					Distance			Sale Price	Price	
1	Alamo II	San Antonio	TX	4.4	360	7703 Redstone Mnr	Mar-16	\$166,000		Light
2	Alamo II	San Antonio	TX	4.4	170	7703 Redstone Mnr	Oct-12	\$149,980	\$165,728	0%
						7807 Redstone Mnr	Aug-14	\$147,000		
3	Alamo II	San Antonio	TX	4.4	150	7807 Redstone Mnr	May-12	\$136,266	\$145,464	1%
						7734 Sundew Mist	Nov-14	\$134,000		
4	Picture Rocks	Tucson	AZ	20	1100	7734 Sundew Mist	May-12	\$117,140	\$125,928	6%
						12980 W Moss V	Jun-20	\$393,900		
5	Picture Rocks	Tucson	AZ	20	970	13071 W Smr Poppy	Feb-20	\$389,409	\$396,001	-1%
						12986 W Moss V	Jun-19	\$350,000		
6	Picture Rocks	Tucson	AZ	20	990	12884 W Zebra Aloe	Jan-20	\$336,500	\$356,528	-2%
						12705 W Emigh	Jan-19	\$255,000		
7	Avra Valley	Tucson	AZ	25	1697	12020 W Camper	Sep-19	\$200,000	\$257,440	-1%
						9415 N Ghost Ranch	Oct-18	\$131,000		
8	Avra Valley	Tucson	AZ	25	1467	7175 N Nelson Quich	Mar-19	\$136,000	\$131,913	-1%
						14441 W Stallion	Dec-17	\$150,000		
9	Alamo 2	Converse	TX	4.4	210	9620 N Rng Bck	Mar-19	\$139,000	\$143,396	4%
						7731 Shining Gl	Oct-20	\$192,000		
10	Alamo 2	Converse	TX	4.4	230	4519 Rothberger	May-20	\$186,000	\$181,882	5%
						7935 Brinson	Jan-20	\$200,000		
11	Alamo 2	Converse	TX	4.4	200	2926 Brinson	Nov-19	\$199,999	\$204,973	-2%
						7815 Mustang	Nov-18	\$168,000		
12	Alamo 2	Converse	TX	4.4	170	4431 Safe Harbor	Sep-19	\$165,000	\$165,601	1%
						7807 Mustang	Nov-17	\$162,000		
13	Alamo 2	Converse	TX	4.4	150	5046 Mustang	Apr-18	\$160,000	\$163,316	-1%
						7734 Sundew Mist	Jun-18	\$158,400		
14	Alamo 2	Converse	TX	4.4	150	7730 Palomino	Apr-18	\$154,000	\$155,993	2%
						7731 Stable View	Sep-19	\$189,900		
15	Eddy II	Eddy	TX	10	960	5026 Sunview	Mar-20	\$180,900	\$177,175	7%
						341 Anna Hobbs	Nov-17	\$108,000		
16	Eddy II	Eddy	TX	10	960	712 W 3rd	Aug-18	\$114,900	\$106,725	1%
						275 Anna Hobbs	Feb-20	\$160,000		
17	Eddy II	Eddy	TX	10	960	813 W 3rd	Jun-20	\$158,250	\$162,557	-2%
						205 Anna Hobbs	Pending	\$170,000		
18	Eddy II	Eddy	TX	10	960	813 W 3rd	Jun-20	\$158,250	\$174,482	-3%
						189 Anna Hobbs	Jun-18	\$140,000		
19	Eddy II	Eddy	TX	10	470	825 W 3rd	Aug-18	\$136,000	\$131,944	6%
						421 Hudson	Mar-18	\$326,531		
20	Sunshine	Amargosa	NV	104	1467	12608 Chapel	Apr-18	\$350,000	\$323,550	1%
						887 W Rogers	Aug-20	\$200,000		
						389 W Rogers	Dec-18	\$156,270	\$164,436	18%

MW	Avg. Distance	Average	Indicated Impact
15.18	690		2%
10.00	715		1%
104.00	1,697		18%
4.40	150		-3%

## B. Summary of National Data on Solar Farms

I have worked in numerous states related to solar farms and I have been tracking matched pairs in most of those states. On the following pages I provide a brief summary of those findings showing 38 solar farms over 5 MW studied with each one providing pair sale data supporting the findings of this report.

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

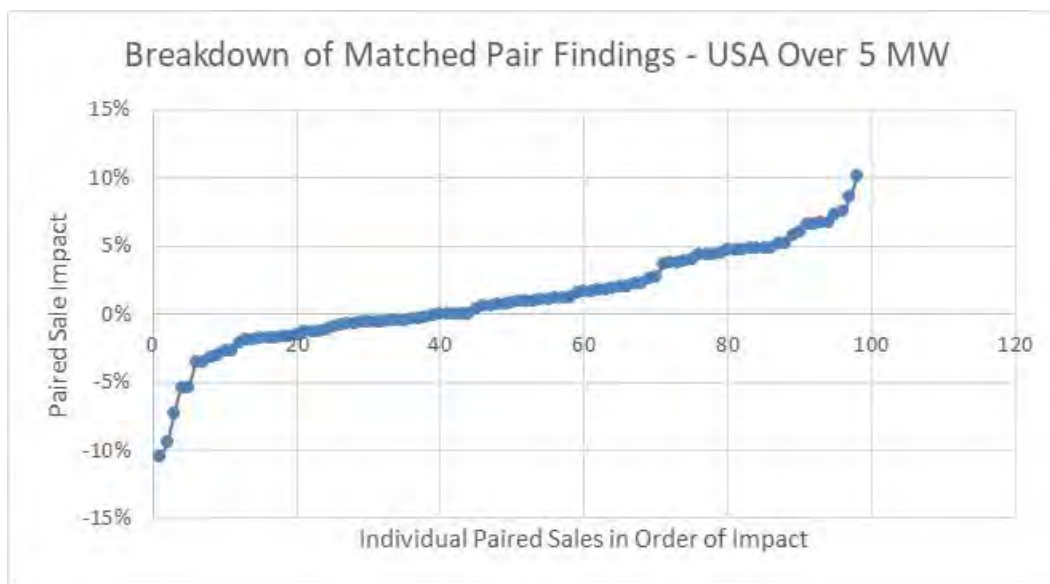
Matched Pair Summary						Adj. Uses By Acreage					1 mile Radius (2010-2020 Data)			Veg. Buffer
Name	City	State	Acres	MW	Topo Shift	Res	Ag	Ag/Res	Com/Ind	Population	Med. Income	Avg. Housing Unit		
1	AM Best	Goldsboro	NC	38	5.00	2	38%	0%	23%	39%	1,523	\$37,358	\$148,375	Light
2	Mulberry	Selmer	TN	160	5.00	60	13%	73%	10%	3%	467	\$40,936	\$171,746	Lt to Med
3	Leonard	Hughesville	MD	47	5.00	20	18%	75%	0%	6%	525	\$106,550	\$350,000	Light
4	Gastonia SC	Gastonia	NC	35	5.00	48	33%	0%	23%	44%	4,689	\$35,057	\$126,562	Light
5	Summit	Moyock	NC	2,034	80.00	4	4%	0%	94%	2%	382	\$79,114	\$281,731	Light
7	Tracy	Bailey	NC	50	5.00	10	29%	0%	71%	0%	312	\$43,940	\$99,219	Heavy
8	Manatee	Parrish	FL	1,180	75.00	20	2%	97%	1%	0%	48	\$75,000	\$291,667	Heavy
9	McBride	Midland	NC	627	75.00	140	12%	10%	78%	0%	398	\$63,678	\$256,306	Lt to Med
10	Grand Ridge	Streator	IL	160	20.00	1	8%	87%	5%	0%	96	\$70,158	\$187,037	Light
11	Dominion	Indianapolis	IN	134	8.60	20	3%	97%	0%	0%	3,774	\$61,115	\$167,515	Light
12	Mariposa	Stanley	NC	36	5.00	96	48%	0%	52%	0%	1,716	\$36,439	\$137,884	Light
13	Clarke Cnty	White Post	VA	234	20.00	70	14%	39%	46%	1%	578	\$81,022	\$374,453	Light
14	Flemington	Flemington	NJ	120	9.36	N/A	13%	50%	28%	8%	3,477	\$105,714	\$444,696	Lt to Med
15	Frenchtown	Frenchtown	NJ	139	7.90	N/A	37%	35%	29%	0%	457	\$111,562	\$515,399	Light
16	McGraw	East Windsor	NJ	95	14.00	N/A	27%	44%	0%	29%	7,684	\$78,417	\$362,428	Light
17	Tinton Falls	Tinton Falls	NJ	100	16.00	N/A	98%	0%	0%	2%	4,667	\$92,346	\$343,492	Light
18	Simon	Social Circle	GA	237	30.00	71	1%	63%	36%	0%	203	\$76,155	\$269,922	Medium
19	Candace	Princeton	NC	54	5.00	22	76%	24%	0%	0%	448	\$51,002	\$107,171	Medium
20	Walker	Barhamsville	VA	485	20.00	N/A	12%	68%	20%	0%	203	\$80,773	\$320,076	Light
21	Innov 46	Hope Mills	NC	532	78.50	0	17%	83%	0%	0%	2,247	\$58,688	\$183,435	Light
22	Innov 42	Fayetteville	NC	414	71.00	0	41%	59%	0%	0%	568	\$60,037	\$276,347	Light
23	Demille	Lapeer	MI	160	28.40	10	10%	68%	0%	22%	2,010	\$47,208	\$187,214	Light
24	Turrill	Lapeer	MI	230	19.60	10	75%	59%	0%	25%	2,390	\$46,839	\$110,361	Light
25	Sunfish	Willow Spring	NC	50	6.40	30	35%	35%	30%	0%	1,515	\$63,652	\$253,138	Light
26	Picture Rocks	Tucson	AZ	182	20.00	N/A	6%	88%	6%	0%	102	\$81,081	\$280,172	None
27	Avra Valley	Tucson	AZ	246	25.00	N/A	3%	94%	3%	0%	85	\$80,997	\$292,308	None
28	Sappony	Stony Crk	VA	322	20.00	N/A	2%	98%	0%	0%	74	\$51,410	\$155,208	Medium
29	Camden Dam	Camden	NC	50	5.00	0	17%	72%	11%	0%	403	\$84,426	\$230,288	Light
30	Grandy	Grandy	NC	121	20.00	10	55%	24%	0%	21%	949	\$50,355	\$231,408	Light
31	Champion	Pelion	SC	100	10.00	N/A	4%	70%	8%	18%	1,336	\$46,867	\$171,939	Light
32	Eddy II	Eddy	TX	93	10.00	N/A	15%	25%	58%	2%	551	\$59,627	\$139,088	Light
33	Somerset	Somerset	TX	128	10.60	N/A	5%	95%	0%	0%	1,293	\$41,574	\$135,490	Light
34	DG Amp Piqua	Piqua	OH	86	12.60	2	26%	16%	58%	0%	6,735	\$38,919	\$96,555	Light
45	Barefoot Bay	Barefoot Bay	FL	504	74.50	0	11%	87%	0%	3%	2,446	\$36,737	\$143,320	Lt to Med
36	Miami-Dade	Miami	FL	347	74.50	0	26%	74%	0%	0%	127	\$90,909	\$403,571	Light
37	Spotsylvania	Paytes	VA	3,500	617.00	160	37%	52%	11%	0%	74	\$120,861	\$483,333	Med to Hvy
38	Anderson 3&4	Anderson	IN	104	22.00	N/A	N/A	N/A	N/A	N/A	1,968	\$45,901	\$124,663	Light
<b>Average</b>				355	41.51	32	24%	52%	19%	6%	1,528	\$65,741	\$239,284	
<b>Median</b>				139	19.60	10	16%	59%	7%	0%	568	\$61,115	\$230,288	
<b>High</b>				3,500	617.00	160	98%	98%	94%	44%	7,684	\$120,861	\$515,399	
<b>Low</b>				35	5.00	0	1%	0%	0%	0%	48	\$35,057	\$96,555	

From these 38 solar farms, I have derived 98 matched pairs. The matched pairs/paired sales show no negative impact at distances as close as 105 feet between a solar panel and the nearest point on a home. The range of impacts is -10% to +10% with an average and median of +1%.

	MW	Avg. Distance	Indicated Impact	% Dif
<b>Average</b>	44.35	559	<b>Average</b>	1%
<b>Median</b>	14.00	400	<b>Median</b>	1%
<b>High</b>	617.00	2,020	<b>High</b>	10%
<b>Low</b>	2.60	105	<b>Low</b>	-10%

While the range is broad, the two charts below show the data points in range from lowest to highest. There are only 3 data points out of 98 that show a negative impact (3% of the data). There are 10 data points out of 98 that show a positive impact (10% of the data). The rest of the data points (87%) support a finding of no impact due to adjacency to a solar farm. This works out to 95 out of 98 data points supporting a finding of no impact or a positive impact or 97% of the data.

As discussed earlier in this report, I consider this data to strongly support a finding of no impact on value as most of the findings are within typical market variation and even within that, most are mildly positive findings.



### C. Larger Solar Farms

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

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

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

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

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

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

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

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

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

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



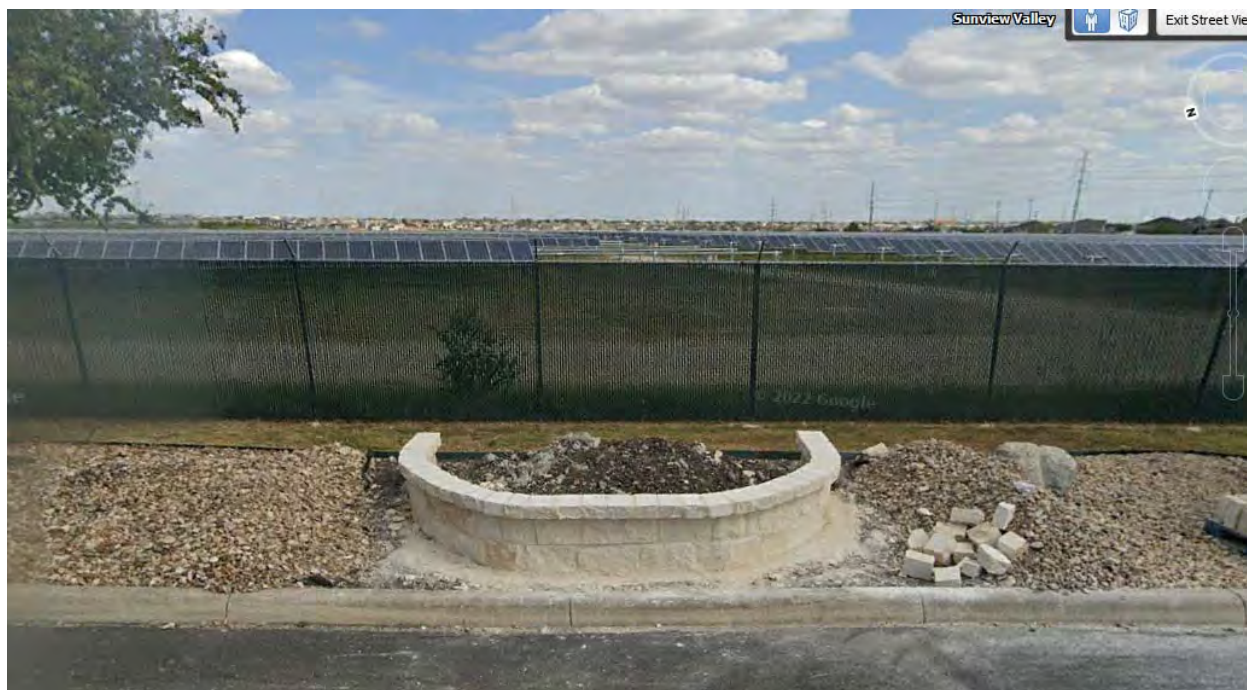
## **VIII. Distance Between Homes and Panels**

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

However, in tracking other approved solar farms, I have found that it is common for there to be homes within 100 to 150 feet of solar panels where visual barriers are possible.

As can be seen in the paired sales in this report, visual barriers are often harder to establish in the Southwest and instead larger setbacks are typically used, though some have included solid walls as visual barriers. The paired sales in the Southwest include sales data with homes as close as 970 feet to the nearest panel where there is no visual barrier with no impact on property value.

There are numerous examples of homes at Alamo 2 solar where the only visual buffer are slats in the fences that do not appear to obscure the solar farm very much and the adjoining homes here are as close as 150 feet with this minimal buffer.



Given this data the proposed 2,120 feet to the closest home at the subject property is substantially further than the data indicates is needed to protect property value.

## **IX. Topography**

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

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

The subject property only has 100 feet of difference across the solar farm which is less than what is shown in the paired sales. This coupled with the exceptionally long distance between nearby homes and panels supports a finding of no impact related to the topography.

## **X. Scope of Research**

I have researched over 1,000 solar farms and sites on which solar farms are existing and proposed in New Mexico, Texas, Arizona, Indiana, Ohio, Virginia, Illinois, Tennessee, North Carolina, Kentucky as well as other states to determine what uses are typically found in proximity with a solar farm. The data I have collected and provide in this report strongly supports the assertion that solar farms are having no negative consequences on adjoining agricultural and residential values.

Beyond these references, I have quantified the adjoining uses for a number of solar farm comparables to derive a breakdown of the adjoining uses for each solar farm. The chart below shows the breakdown of adjoining or abutting uses by total acreage.

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

**Res = Residential, Ag = Agriculture, Com = Commercial**

**Total Solar Farms Considered: 705**

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

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

**Res = Residential, Ag = Agriculture, Com = Commercial**

**Total Solar Farms Considered: 705**

Both of the above charts show a marked residential and agricultural adjoining use for most solar farms. Every single solar farm considered included an adjoining residential or residential/agricultural use.

## **XI. Specific Factors Related To Impacts on Value**

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

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

### **1. Hazardous material**

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

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

### **2. Odor**

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

### **3. Noise**

Whether discussing passive fixed solar panels, or single-axis trackers, there is no negative impact associated with noise from a solar farm. The transformer reportedly has a hum similar to an HVAC that can only be heard in close proximity to this transformer and the buffers on the property are sufficient to make emitted sounds inaudible from the adjoining properties. No sound is emitted from the facility at night.

The various solar farms that I have inspected were inaudible from the roadways.

### **4. Traffic**

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

### **5. Stigma**

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

Solar panels have no associated stigma and in smaller collections are found in yards and roofs in many residential communities. Solar farms are adjoining elementary, middle and high schools as well as churches and subdivisions. I note that one of the solar farms in this report not only adjoins a church, but is actually located on land owned by the church. Solar panels on a roof are often cited as an enhancement to the property in marketing brochures.

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

## 6. Appearance

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



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

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

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

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

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

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

In areas where landscape screening is not a viable option, slats in the fences can be used as well as further setbacks to address appearance concerns.

## **7. Conclusion**

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

## **XII. Conclusion on Solar Farm Impact on Property Value**

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

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

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

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

## **XIII. Battery Energy Storage System (BESS)**

I considered the following battery storage facilities in a variety of states for a comparison of similar battery energy storage systems (BESS) in proximity to residential uses. I have also searched these areas for recent sales to see if there is any impact on property values near these battery storage facilities, which will be addressed in the following section.

The primary use of this larger set is to show compatibility of BESS and residential uses as well as showing typical setbacks between these uses. These measured distances are from the closest point on the home to the closest piece of equipment. Where I have N/A, the facility does not have an aerial image that I can use to measure that distance. These distances were measured using GoogleEarth.

I note that the proposed distances at the subject property are very consistent with these and falls between the average and median distances for the closest homes and the average distance is much further away than these comparable projects.

### Summary of Battery Data

NC

#	Name	City/State	Acres	Capacity	Distance from	
					Closest Home	Average Distance Adjoining Home
1	Ozone Park	Queens, NY	0.35	3 MW	30	203
2	Pomona	Rockland, NY	28.5	N/A	270	1196
3	Asheville	Asheville, NC	12.36	9 MW	130	452
4	East Hampton	E. Hampton, NY	17.58	5 MW	470	733
5	Diablo	Concord, CA	11.45	200 MW	320	361
6	Prospect	W. Columbia, TX	2.3	10 MW	400	400
7	Brazoria	Brazoria, TX	17.58	9.95 MW	130	438
8	Gambit	Angleton, TX	6.24	100 MW	215	243
9	Churchtown	Pennsville, NJ	3.13	10 MW	N/A	N/A
10	West Chicago	Chicago, IL	5	19.8 MW	430	450
11	McHenry	McHenry, IL	2.75	19.8 MW	260	283
12	Plumstead	Hornerstown, NJ	14.39	19.8 MW	155	943
13	Vista	Vista, CA	0.88	40 MW	130	172
14	Chisholm	Ft Worth, TX	21.74	200 MW	840	875
15	Port Lavaca	Prt Lavaca, TX	1.44	9.9 MW	N/A	N/A
16	Magnolia	Houston, TX	0.87	9.95 MW	180	190
<b>Average</b>					283	496
<b>Median</b>					238	419
<b>High</b>					840	1,196
<b>Low</b>					30	172

### Subject Property

Name	Acres	Capacity	Distance from	
			Closest Home	Average Distance Adjoining Home
Liberty	36.7	80 MW/320 MWh	240	796

## A. **BESS Paired Sales Analysis/Market Research**

I considered the following battery storage facilities in a variety of states where I was able to identify adjoining residential home sales. These home sales were then compared to similar homes in the area that sold in the same time frame but were not in proximity to the BESS. This is called a paired sales analysis and I have used this to determine if there is any impact that could be attributed to the adjacency/proximity to the BESS.

### 1 - Ozone Park Batteries

This system is located on 99<sup>th</sup> Street in Jamaica, Queens, New York. The below image shows the battery pack parcel outlined in red with a bowling alley to the north, a school to the south and homes to the east and west as well as a church to the west. Based on aerial imagery, this site was installed in early to mid-2018.

The two closest structures are the school at 65 feet and a church at 30 feet from the batteries. The nearby homes are on the opposing blocks, but the proximity to the school does illustrate a high confidence in public safety related to the battery facility and acceptance within that community.





**Surrounding Uses**

#	Address	GIS Data		Adjoin	Adjoin	Distance (ft)
		Acres	Present Use	Acres	Parcels	Home/Battery
1	98-18 Rockaway	0.76	Bowling	11.69%	6.67%	N/A
2		0.95	Office	14.62%	6.67%	N/A
3	10735 100th St	0.06	Residential	0.92%	6.67%	245
4	10737 100th St	0.06	Residential	0.92%	6.67%	260
5	10739 100th St	0.06	Residential	0.92%	6.67%	275
6	10741 100th St	0.06	Residential	0.92%	6.67%	290
7	10743 100th St	0.06	Residential	0.92%	6.67%	305
8	10915 98th St	3.74	School	57.54%	6.67%	65
9		0.27	School	4.15%	6.67%	N/A
10	10656 98th St	0.06	Residential	0.92%	6.67%	200
11	10654 98th St	0.06	Residential	0.92%	6.67%	195
12	10650 98th St	0.06	Residential	0.92%	6.67%	190
13	10646 98th St	0.06	Residential	0.92%	6.67%	190
14	10636 98th St	0.06	Residential	0.92%	6.67%	195
15	10645 (8th St	0.18	Church	2.77%	6.67%	30
<b>Total</b>		<b>6.500</b>		<b>100.00%</b>	<b>100.00%</b>	203
						<b>Min</b> 30

The closest recent home sale is 10726 101<sup>st</sup> Street that sold on October 9, 2018, after the battery storage facility was installed. This home is 345 feet from the closest battery and has a very obstructed view of that area based on the shrubs around the battery storage site as well as a strip of landscape greenery between the two sites. The sales price was \$600,000 for this 3 BR/1.5 BA home that was built in 1930 on a 0.06-acre site.

I compared this to a similar home built in 1930 in the same style and same size that sold at 10762 101<sup>st</sup> Street on October 9, 2018 for \$590,000. This home is just down the street but further from the battery storage system and sold on the same day for \$10,000 less. The proximity to the battery does not correlate to value impact in this instance as the home further away sold for less. This second home is across the street from the three-story John Adams High School which likely accounts for the lower price for this second property compared to the first which was adjacent to the same school, but not across from the building itself.

The matched pairs support a finding of no impact on value due to proximity to the battery system.

## 2 - Pomona Batteries

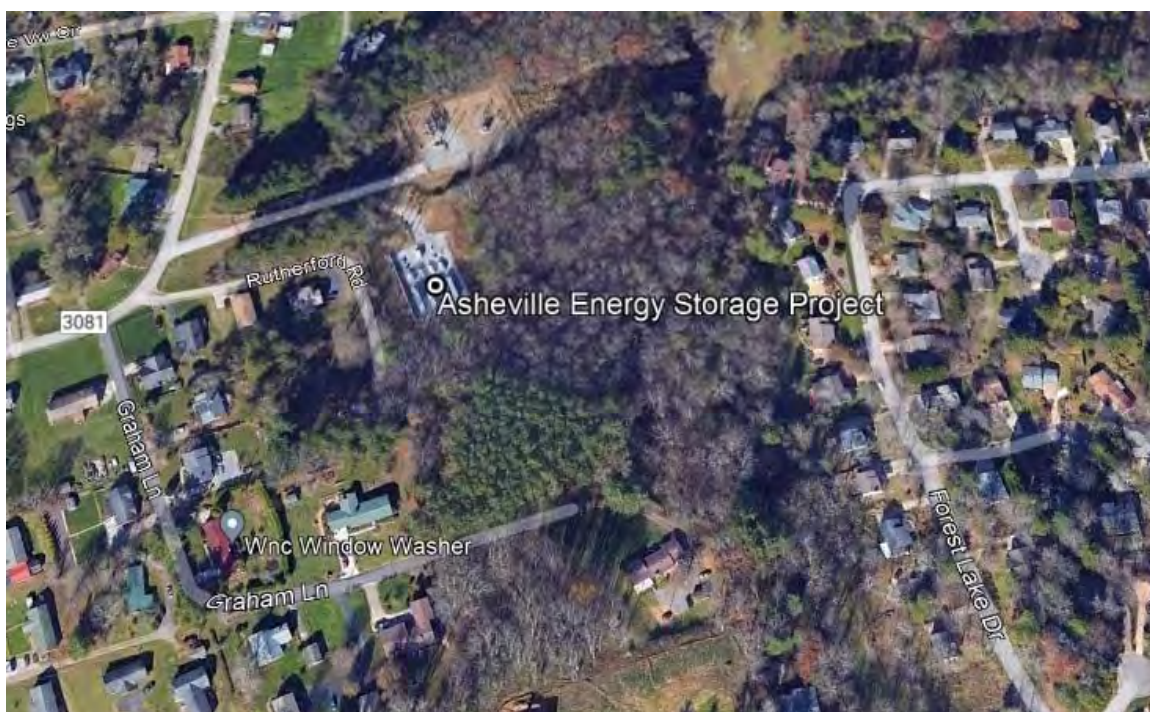
This battery storage system is located at 23 Diltz Road, Pomona, Rockland, New York. This location is more remote than the other system with greater distances separating homes from batteries, but all of the adjoining uses are residential or park. This battery site is located at the end of a road for estate-like homes on large acreage adjoining or in close proximity to Harriman State Park. There are some sales on Dritz Road adjoining the battery site and none of the broker statements identify that as a concern. But given the park, the Mahwah River exposure it is difficult to use these sales for matched pairs as there are too many unique factors and matched pairs require one unique factor.

Still, the site shows harmonious use in connection with residential uses. The closest identified home is 270 feet.



### 3 - Asheville Energy Storage System

This 9 MW battery storage system is located on a parcel with a substation built in 2020 (substation was built much earlier). This facility has significant residential development around it but no recent sales to consider.



There is a nearby home sale that is located on Tax Parcel 8047 (just below the identifier for Parcel 9). This home is 550 feet from the nearest battery equipment and most of that distance is heavily

wooded. This home has a street address of 95 Forest Lake Drive, Asheville, NC and it sold on April 26, 2022 for \$510,000 for this 4 BR/3 BA ranch with 1,931 square feet including the daylight basement area. The home also has a 2 car garage. I did not attempt a paired sale as this home has no visibility of the BESS despite the proximity and arguably has a better view with less screening to the substation, which is also closer to the home.

Similarly, new homes are being built to the south on Rangley Drive with prices ranging from \$431,000 to \$566,000. These homes include those that back up to the Parcels 11 through 14 in the adjacent parcel map.

#### 4 – East Hampton Energy Storage System

This 5 MW battery storage system is located on a parcel with a substation and a natural gas peaker plant. This makes it difficult to use for analysis given the multiple uses on this parcel, but I have included a visual of homes in the general area that have sold recently for reference. There is significant wooded acreage separating this BESS and nearby homes.



#### 5 – Diablo Energy Storage System

This 200 MW battery storage system is located on a parcel with significant adjacency to industrial uses and residential uses. For these reasons it would be difficult to measure impacts due to the other adjoining industrial uses that might also have an impact. Given that most of the adjoining uses are industrial, I have not dug further on this one.

#### 6 – Prospect Energy Storage System

This 10 MW battery storage system is located on a parcel adjoining a large substation in Brazoria, TX. The only adjoining home is 400 feet away. This home has not sold since the BESS was completed in 2019. Furthermore, this home has an unobstructed view of the substation which would make it a difficult home for impact analysis.

### 7 – Brazoria Energy Storage System

This 9.95 MW battery storage system is located on a parcel adjoining multiple homes within 150 feet of the battery equipment. There have been no recent sales since this was built in 2020.



## 8 - Gambit Energy Storage

This 102.4 MW battery storage system is located off W. Live Oak Street, Angleton, Texas. This is a new facility and placed online in June 2021. This system is a good location as there are no other externalities adjoining it to potentially impact the analysis. The substation associated with this is located to the east along N. Walker Street.



While I cannot do any analysis of impact from the most recent adjoining sales as they all occurred before this site was built, but the adjoining homes to the north are selling with new homes ranging from \$400,000 to \$600,000.

The most recent adjoining home sale to the west was 852 Marshall Road that sold on April 5, 2021 and presumably they were aware of the battery storage facility as it would have been under construction at the time of sale. This brick ranch with 3 BR, 1 BA with 1,220 s.f. of gross living area and built in 1980 on 0.40 acres sold for \$165,000, or \$135 per s.f.

I have compared that sale to 521 Catalpa Street that sold on September 11, 2020 for \$155,000 for a 3 BR, 2 BA brick ranch with 1,220 s.f. built in 1973 with a single car garage. Adjusting this price upward by 9% for growth in the market for time, 3.5% for difference in age, downward by \$6,000 for the additional bathroom, and \$4,000 for the garage, the adjusted indicated value of this home is \$164,375, which is right in line with 852 Marshall Road and supports a finding of no impact on property value.

I have also compared that sale to 521 W Mimosa Street that sold on February 26, 2021 for \$150,000 for this brick ranch with 3 BR, 1.5 BA with 1,194 s.f. built in 1976. Adjusting this sale upward by 4% for growth in the market over time, upward 2% for difference in age, and downward by \$5,000 for the additional half bathroom, I derive an adjusted indication of \$154,000. This is 7%

less than the home price at 852 Marshall Road which suggests an enhancement due to proximity to the battery storage system.

I have also compared this sale to 1164 Thomas Drive that sold on May 20, 2020 for \$187,000 for this brick ranch with 2-car garage, 3 BR, 2 BA with 1,259 s.f. and built in 1998. Adjusting this upward by 13% for growth over time, downward by 9% for difference in age of construction, downward by \$8,000 for the garage, downward \$6,000 for the additional bathroom, I derive an indicated value of \$180,480. This is a 9% difference suggesting a negative impact on property value. However, this comparable required the largest amount of adjustments and is not considered as heavily as the other two comparables. This home is 18 years newer and with better bathroom situation as a 1-bathroom house is a significant issue for most buyers.

The second comparable considered required the least adjustment and suggests a positive impact on property value. The median indication is the first comparable which shows no impact on property value. Given this data set I conclude that the best indication from these matched pairs supports a finding of no impact on property value. The home at 852 Marshall is 180 feet from the project outline shown.

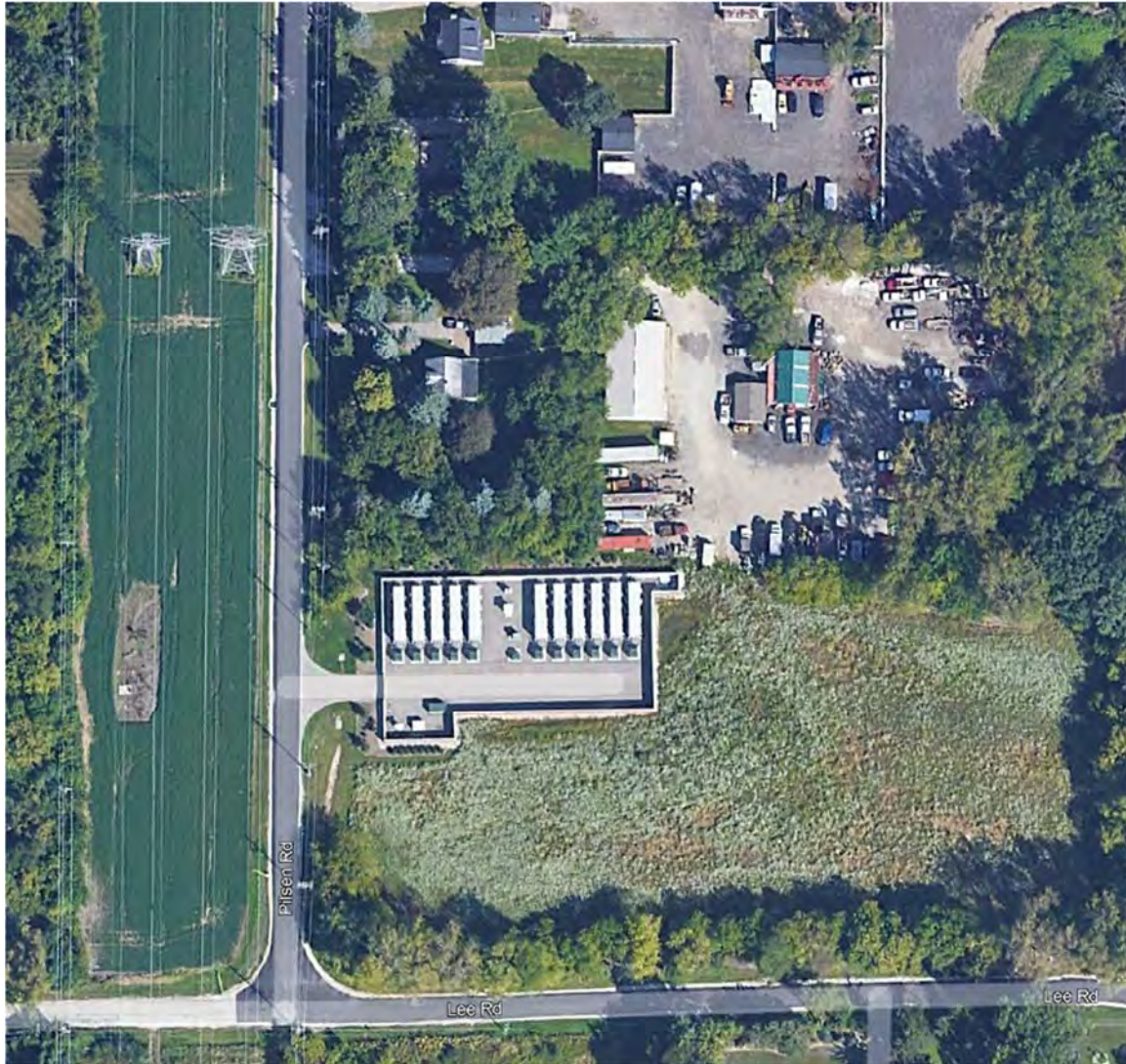
## **9 - Churchtown Battery Storage**

This 10 MW battery storage system is located off N. Broadway, Pennsville, NJ. The aerial imagery does not show this system yet so I was not able to determine distances to adjoining homes or identify any adjoining homes. Given the large substation, adjoining baseball fields and religious facilities this would be a challenging site for an impact analysis in any case.



## 10 - West Chicago Battery Storage

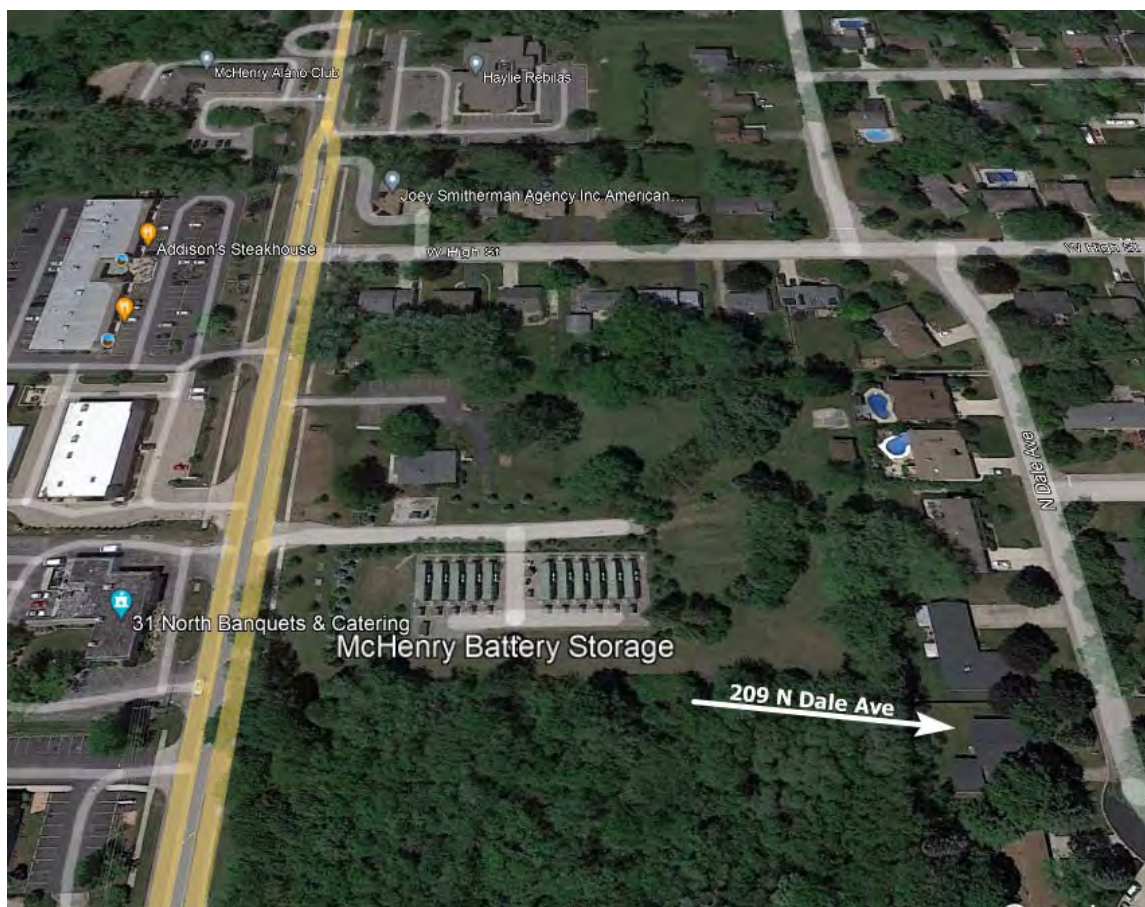
This 19.8 MW battery storage system is located off Pilsen Road, Chicago, Illinois. This facility has condominium and single family housing to the north and single family housing nearby to the south, but also adjoining an outdoor storage area and a large powerline easement. I was not able to do any analysis on this site as there have been no recent sales identified.



## 11 - McHenry Battery Storage

This 19.8 MW battery storage system is located off Illinois Highway 31, McHenry, Illinois that was built around 2016. This facility fronts on the highway but has rear adjacency to a number of houses.

There were two recent home sales along W. High Street, but they effectively adjoin the small commercial use between the battery storage facility. That complication makes it difficult to determine if the commercial use was the impact or if the commercial use buffered any impact making any finding off of analysis suspect and uncertain.



I have however considered the recent sale of 209 N Dale Avenue that adjoins the battery storage site and is 290 feet from the nearest equipment.

That home sold on June 30, 2021 for \$265,000 for a vinyl-siding ranch with 3 BR, 2.5 BA, built in 1960 with a gross living area of 1,437 square feet, or \$184.41 per s.f. The property has 5 attached garage spaces. As identified in the listing the home was completely renovated with stainless steel appliances and granite countertops. This was listed by Lynda Steidinger with Berkshire Hathaway HomeServices Starck Real Estate and the buyers agent was Ivette Rodriguez Anderson with Keller Williams.

The home directly across the street, 208 N Dale Avenue, sold on June 16, 2021 for \$275,000 for a cedar siding and stone ranch with 3 BR, 2.5 BA, built in 1961, with a gross living area of 1,446 s.f., or \$190.18 per s.f. This home also has 1,101 square feet of finished basement space that is currently used as an office but could be an additional bedroom. This home also has been updated and includes stainless steel appliances and granite counter tops.

The size difference is nominal and the additional 3-car garage bays at the 209 N Dale is considered to be balanced by the finished basement space at 208 N Dale, though the finished office space is somewhat superior to garage space. But balancing those two factors out the difference in price per square foot is 3%. This is considered negligible and attributable to the slightly superior finished basement space and not any impact relative to the battery storage facility.

I also looked at 3802 Clover Avenue, which is two blocks to the north. This stone and siding ranch with 3 BR, 2 BA, built in 1956, with a gross living area of 1,200 s.f. sold on October 21, 2021 for \$231,000 or \$192.50 per s.f. The property has been updated with a new kitchen and a new bay window and includes a partially finished basement with an additional bathroom in it and the total basement area is an additional 1,200 s.f. This is the smallest home in the neighborhood that I found and it further illustrates that the price per square foot typically goes up as the size goes down. Adjusting this gross sale price upward by \$36,498 for the smaller size based on 80% of the price per square foot for this purchase, I derive an adjusted sales price to compare to the subject property of \$267,498. I consider the basement to balance out the extra garage space at the subject. This indicates a difference of 1% from the purchase price of the 209 N Dale Avenue, which is attributable to the 4 months difference in time. I consider this comparable to further support a finding of no impact on value.

While I haven't written up the other sales in the neighborhood there are numerous recent home sales ranging from \$172,000 to \$306,000, but most of these homes are also over 2,000 square feet in size. The subject property sold for more per square foot than most of these other sales partly due to the smaller overall size, partly due to the significant renovations, and partly due to the additional garage space. Still, this shows that the 209 N Dale Avenue sale is not being impacted by the battery storage facility and has in fact been updated above what is typical for the neighborhood, though given the similar updates at 208 N Dale Avenue, this may be the trend for the area.

The two sales compared to the 209 N Dale Avenue sale supports a finding of no impact on property value due to the battery storage facility.

## 12 - Plumsted Energy Storage

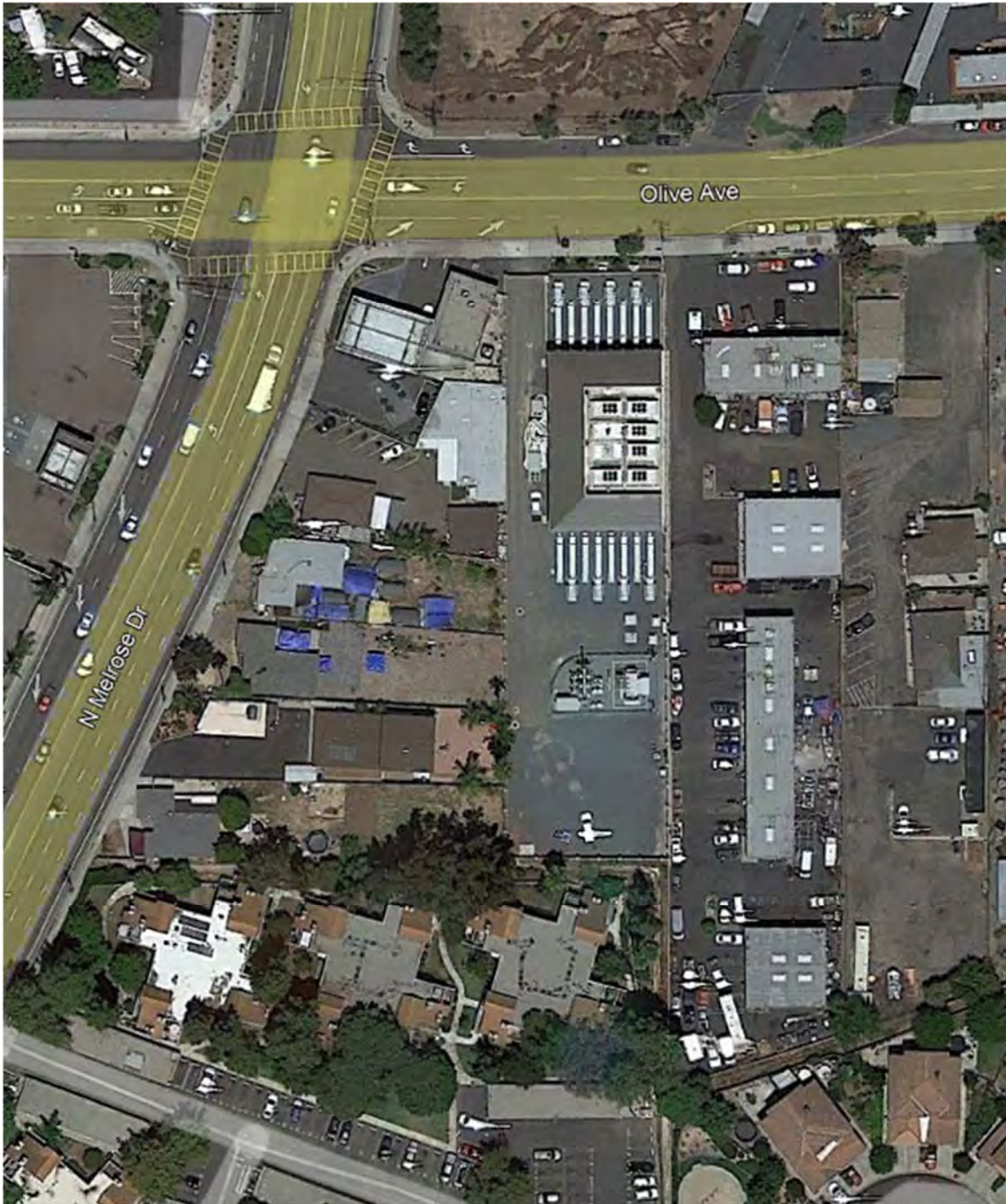
This 19.8 MW battery storage system is located on Monmouth Road, Cream Ridge, New Jersey. There is only one adjoining home as shown in the image to the south, but it is located just 148 feet from the nearest piece of equipment and 96 feet from the fence line. There were existing trees, but they were supplemented with a 12-foot wooden privacy fence with smaller evergreens between the fence and property line. The privacy fence at this location is oversized as the battery units include HVAC units on top of the battery pods that extend the height of the units greater than required at the subject property. The road frontage was not landscaped and chainlink fencing was used on the rest of the property.

The adjoining home at 797 Monmouth Road has not sold recently and no further analysis is possible at this site.



### 13 - Vista Energy Storage System

This 40 MW battery storage system is located off Olive Avenue, Vista, California. This facility has significant commercial development around it but also housing to the south as close as 115 feet from the closest equipment as shown in the aerial map below.



## 14 - Chisholm Grid Energy Storage

This 200 MW battery storage system is located at 9400 Asphalt Drive, Fort Worth, Texas. This is a new facility and in close proximity to those homes near the substation.

The property to the west of the BESS is an asphalt plant with a lot of vacant land separating the homes from the active plant. Still this complicates any analysis of this from an impact analysis standpoint. I therefore have not attempted to do so.



### 15 – Port Lavaca BESS

This 9.9 MW battery storage system is located in Port Lavaca, Texas. It was built in 2020 and is entirely surrounded by agricultural and utility uses. I have not attempted any impact analysis on this facility.

### 16 - BRP Magnolia BESS

This 9.95 MW battery storage system is located off Floyd Road, League City, near Houston, Texas. There have not been any adjoining home sales since it was built so no analysis is currently possible. The adjoining homes are between 180 and 200 feet from the BESS equipment.



### Summary

I was able to complete paired sales analysis on three of these situations with data coming from Ozone Park in NY, Gambit in TX and McHenry in IL.

The paired sales analysis identifies no impact on adjoining properties based on actual home sales adjoining similar projects.

Most of the situations identified showed homes in much closer to a BESS than would be the case for the subject property where homes will be over 2,000 feet away.

The sales data supports a finding of no impact on property value for homes ranging from 180 to 345 feet from the nearest equipment.

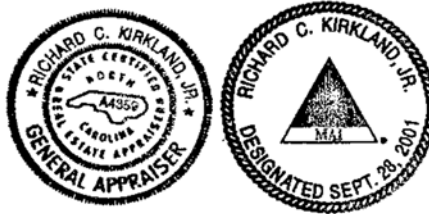
## **XIV. Certification**

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

1. The statements of fact contained in this report are true and correct;
2. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, unbiased professional analyses, opinions, and conclusions;
3. I have no present or prospective interest in the property that is the subject of this report and no personal interest with respect to the parties involved;
4. I have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment;
5. My engagement in this assignment was not contingent upon developing or reporting predetermined results;
6. My compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of the appraisal;
7. The reported analyses, opinions, and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Code of Professional Ethics and Standards of Professional Appraisal Practice of the Appraisal Institute;
8. My analyses, opinions and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Professional Appraisal Practice.
9. The use of this report is subject to the requirements of the Appraisal Institute relating to review by its duly authorized representatives;
10. I have not made a personal inspection of the property that is the subject of this report, and;
11. No one provided significant real property appraisal assistance to the person signing this certification.
12. As of the date of this report I have completed the continuing education program for Designated Members of the Appraisal Institute;
13. I have not performed services, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of this assignment. I provided an earlier draft of this report on February 8, 2023.

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

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

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





# Kirkland Appraisals, LLC

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[www.kirklandappraisals.com](http://www.kirklandappraisals.com)

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## **PROFESSIONAL EXPERIENCE**

<b>Kirkland Appraisals, LLC</b> , Raleigh, N.C. Commercial appraiser	2003 – Present
<b>Hester &amp; Company</b> , Raleigh, N.C. Commercial appraiser	1996 – 2003

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## **PROFESSIONAL AFFILIATIONS**

<b>MAI</b> (Member, Appraisal Institute) designation #11796	2001
<b>NC State Certified General Appraiser</b> # A4359	1999
<b>VA State Certified General Appraiser</b> # 4001017291	
<b>SC State Certified General Appraiser</b> # 6209	
<b>FL State Certified General Appraiser</b> # RZ3950	
<b>GA State Certified General Appraiser</b> # 321885	
<b>MI State Certified General Appraiser</b> # 1201076620	
<b>PA State Certified General Appraiser</b> # GA004598	
<b>OH State Certified General Appraiser</b> # 2021008689	
<b>IN State Certified General Appraiser</b> # CG42100052	

## **EDUCATION**

<b>Bachelor of Arts in English</b> , University of North Carolina, Chapel Hill	1993
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## **CONTINUING EDUCATION**

Uniform Standards of Professional Appraisal Practice Update	2022
Sexual Harassment Prevention Training	2021
Appraisal of Land Subject to Ground Leases	2021
Michigan Appraisal Law	2020
Uniform Standards of Professional Appraisal Practice Update	2020
Uniform Appraisal Standards for Federal Land Acquisitions (Yellow Book)	2019
The Cost Approach	2019
Income Approach Case Studies for Commercial Appraisers	2018
Introduction to Expert Witness Testimony for Appraisers	2018
Appraising Small Apartment Properties	2018
Florida Appraisal Laws and Regulations	2018
Uniform Standards of Professional Appraisal Practice Update	2018
Appraisal of REO and Foreclosure Properties	2017
Appraisal of Self Storage Facilities	2017
Land and Site Valuation	2017
NCDOT Appraisal Principles and Procedures	2017
Uniform Standards of Professional Appraisal Practice Update	2016
Forecasting Revenue	2015
Wind Turbine Effect on Value	2015
Supervisor/Trainee Class	2015

Business Practices and Ethics	2014
Subdivision Valuation	2014
Uniform Standards of Professional Appraisal Practice Update	2014
Introduction to Vineyard and Winery Valuation	2013
Appraising Rural Residential Properties	2012
Uniform Standards of Professional Appraisal Practice Update	2012
Supervisors/Trainees	2011
Rates and Ratios: Making sense of GIMs, OARs, and DCFs	2011
Advanced Internet Search Strategies	2011
Analyzing Distressed Real Estate	2011
Uniform Standards of Professional Appraisal Practice Update	2011
Business Practices and Ethics	2011
Appraisal Curriculum Overview (2 Days – General)	2009
Appraisal Review - General	2009
Uniform Standards of Professional Appraisal Practice Update	2008
Subdivision Valuation: A Comprehensive Guide	2008
Office Building Valuation: A Contemporary Perspective	2008
Valuation of Detrimental Conditions in Real Estate	2007
The Appraisal of Small Subdivisions	2007
Uniform Standards of Professional Appraisal Practice Update	2006
Evaluating Commercial Construction	2005
Conservation Easements	2005
Uniform Standards of Professional Appraisal Practice Update	2004
Condemnation Appraising	2004
Land Valuation Adjustment Procedures	2004
Supporting Capitalization Rates	2004
Uniform Standards of Professional Appraisal Practice, C	2002
Wells and Septic Systems and Wastewater Irrigation Systems	2002
Appraisals 2002	2002
Analyzing Commercial Lease Clauses	2002
Conservation Easements	2000
Preparation for Litigation	2000
Appraisal of Nonconforming Uses	2000
Advanced Applications	2000
Highest and Best Use and Market Analysis	1999
Advanced Sales Comparison and Cost Approaches	1999
Advanced Income Capitalization	1998
Valuation of Detrimental Conditions in Real Estate	1999
Report Writing and Valuation Analysis	1999
Property Tax Values and Appeals	1997
Uniform Standards of Professional Appraisal Practice, A & B	1997
Basic Income Capitalization	1996