Appendix H

Agency Correspondence

October 3, 2023

Name
Entity
Address
City, State, Zip

Re: Birch Coulee Solar Project in Renville County, Minnesota

Dear ,

Birch Coulee Solar LLC, an affiliate of AES Clean Energy, is proposing to build a 125-megawatt (MW) AC utility scale solar project referred to as the Birch Coulee Solar Project (Project). The Project would be developed within the 1,030-acre area shown in the attached figure and located north of the town of Franklin in Renville County, Minnesota (refer to attached figure). This letter is to provide you with Project information and request your early input.

Project Information

- **Project Design:** The Project will involve single-axis tracking PV arrays installed on driven piles or helical screws, inverters, trenched electrical cables, a project substation, temporary laydown areas, security fencing, and gravel access roads.

- **Grid Interconnection:** The point of interconnection would be within the Potential Development Area to the existing Franklin 115 kV substation and high voltage transmission line.

- **Project Timeline:** The Project is currently in the early design phase and field and desktop-based studies are underway with an anticipated in-service date of summer 2028.

- **Sustainable Energy Generation:** The Project's 125 MWs of renewable, solar-generated electricity will contribute to Minnesota's renewable energy goals. Investing in solar energy is a significant step towards sustainable development, domestic energy security, and preserving natural resources for future generations.

Request for early input

The Project meets the definition of a large electric generating plant and is therefore subject to the Minnesota Public Utilities Commission (PUC) siting authority (Minnesota Statute 216E.04 and Minnesota Rule 7850.2800). Copies of all correspondence received will be included with the Site Permit application for the PUC's records. Therefore, we would greatly appreciate receiving your comments in writing by November 10, 2023.

At AES, we value your local perspective and would like to include your input as we move forward with this Project. If you have comments, please contact:

MNStakeholderrelations@aes.com
or
800-579-7734.

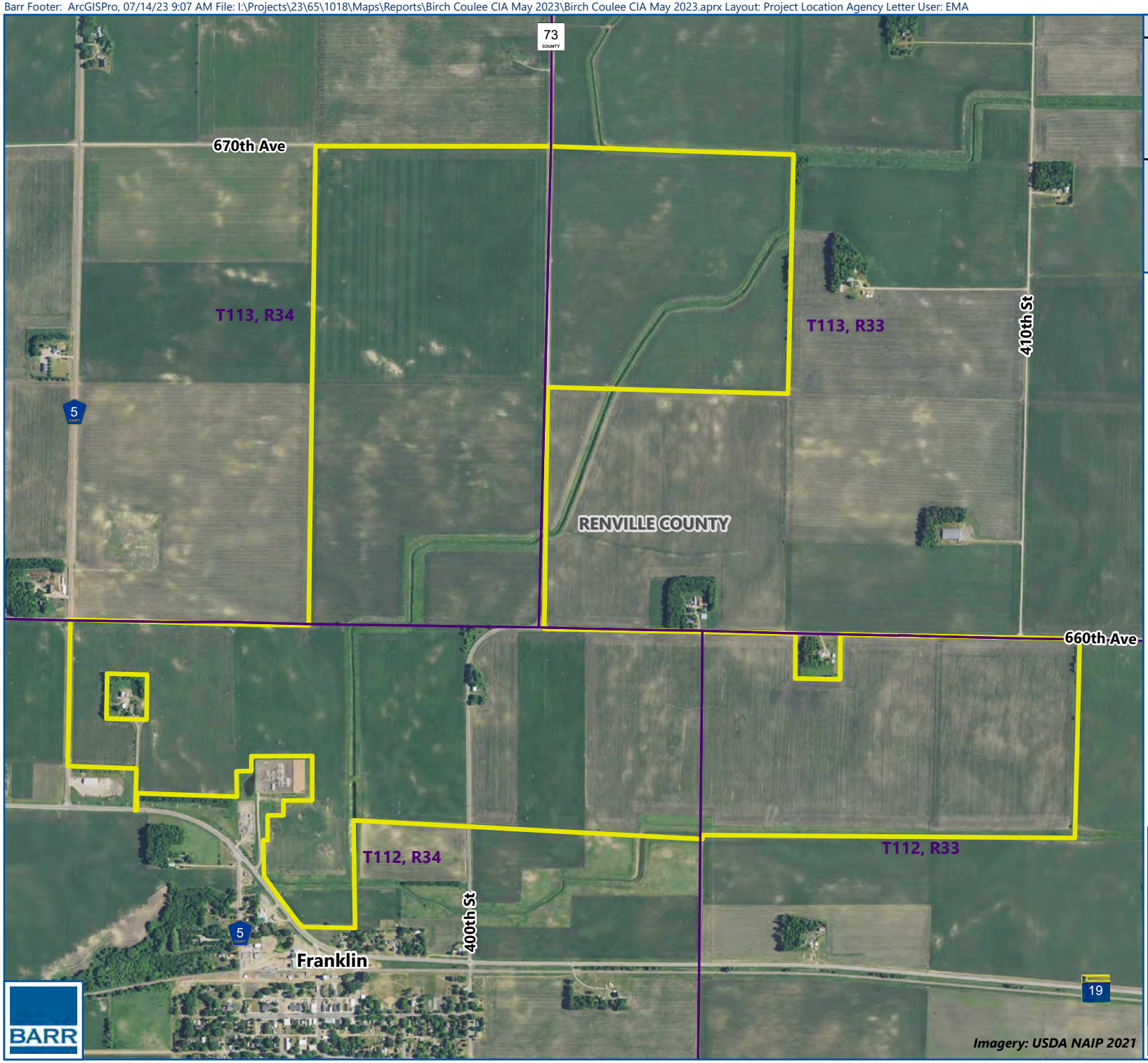
You are also welcome to join us to learn more about the Project at our upcoming open house:

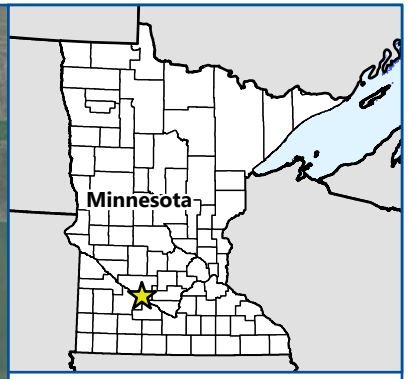
October 23, 2023 from 5:30 – 7:30 pm
Franklin Community Center
221 East 2nd Avenue, Franklin, MN 55333

Thank you for your time and consideration. We are eager to collaborate with you on this solar initiative that promises to add value to the future of energy in Renville County.

Scott Groux
Associate Developer
AES Clean Energy

Attachment: Project Location figure





Potential Development Area

Public Land Survey Township

0 750 1,500

Feet

0 0.25 0.5

Miles

PROJECT LOCATION

Birch Coulee Solar LLC
Renville County,
Minnesota

BARR

Entity	Contact Name	Contact Title	Street Address	City State Zip	Email Address
U.S. Army Corps of Engineers, St. Paul District	Chad Konickson	Chief, Regulatory Division	332 Minnesota Street, Suite E1500	Saint Paul, MN 55101	chad.konickson@usace.army.mil
U.S. Army Corps of Engineers, St. Paul District	Ryan Malterud	St. Paul Branch Chief	CEMVP-RD 180 5th Street East, Suite 700	Saint Paul, MN 55101	Ryan.M.Malterud@usace.army.mil
U.S. Fish and Wildlife Service	Dawn Marsh	Fish and Wildlife Biologist	Minnesota-Wisconsin Field Offices, 3815 American Blvd East	Bloomington, MN 55425	dawn_marsh@fws.gov
Federal Aviation Administration		Minnesota Flight Standards District Office	6020 28th Ave. S Ste. 201	Minneapolis, Minnesota 55450	
Minnesota Department of Agriculture	Stephan Roos	Ag Marketing & Development	625 Robert Street North	Saint Paul, MN 55155-2538	stephan.roos@state.mn.us
Minnesota Department of Natural Resources	Cynthia Warzecha	Energy Projects Reviewer	500 Lafayette Rd, PO Box 25	Saint Paul, MN 55155	cynthia.warzecha@state.mn.us
Department of Administration - Minnesota State Historic Preservation Office	Sarah Beimers	Environmental Review Program Manager	50 Sherburne Avenue, Suite 203	Saint Paul, MN 55155	sarah.beimers@state.mn.us
Minnesota Office of the State Archaeologist	Amanda Gronhovd	The State Archaeologist	Office of the State Archaeologist 328 W. Kellogg Blvd.	Saint Paul, MN 55102	Amanda.Gronhovd@state.mn.us
Minnesota Department of Health	David Bell	Research Scientist	625 Robert St. N., PO Box 64975	Saint Paul, MN 55164	david.bell@state.mn.us
Minnesota Department of Transportation	Stacy Kotch	Utility Transmission Route Coordinator, Database Specialist	395 John Ireland Blvd., MS 678	Saint Paul, MN 55155	Stacy.Kotch@state.mn.us
Minnesota Pollution Control Agency	Todd Smith	Engineer, Construction Stormwater	520 Lafayette Rd North, 4th Floor	Saint Paul, MN 55155	todd.smith@state.mn.us
Renville County	Lisa Herges	County Administrator	105 South 5th Street, Room 315	Olivia, MN 56277	lisah@renvillecountymn.com
Renville County Environmental Services Dept	Scott Refsland		105 South 5th Street, Suite 311	Olivia, MN 56277	scottr@renvillecountymn.com
Renville County Soil and Water Conservation District	Holly Hatlewick	District Administrator	1008 W. Lincoln Ave.	Olivia, MN 56277	hollyh@renvilleswcd.org
Hawk Creek Watershed Project	Renville County Courthouse, Lower Level		500 East DePue Avenue, Suite 104	Olivia, MN 56277	dean@hawkcreekwatershed.org heidi@hawkcreekwatershed.org jordan@hawkcreekwatershed.org
Bandon Township	Paul Simonsen	Bandon Township Clerk	67606 County Road 3	Fairfax, MN 55332	palsim32@gmail.com
Birch Cooley Township	Bill Radermacher	Birch Cooley Township Clerk	38544 County Road 2	Franklin, MN 55333	
Camp Township	Russell Boyum	Camp Township Clerk	60600 County Road 16	Fairfax, MN 55332	
City of Franklin	Trista Radermacher	City Clerk/Treasurer	320 Second Avenue East	Franklin, MN 55333	franklin@mchsi.com
Minnesota Indian Affairs Council	Shannon Geschick	Executive Director	161 Saint Anthony Ave Ste 919	Saint Paul, MN 55103	shannon.geshick@state.mn.us
Natural Resources Conservation Service	Loren Clarke and Jiselle Pfarr	Olivia Service Center	1008 Lincoln Ave W	Olivia, MN 56277	Loren.Clarke@usda.gov

October 3rd, 2023

[Addressee Name]
[Street Address]
[City, State, Zip Code]

Re: Birch Coulee Solar Project in Renville County, Minnesota
SAMPLE LETTER SENT TO TRIBES ON ATTACHED MAILING LIST

Dear [Addressee],

Birch Coulee Solar LLC, an affiliate of AES Clean Energy, is proposing to build a 125-megawatt (MW) AC utility scale solar project referred to as the Birch Coulee Solar Project (Project). The Project would be developed within the 1,030-acre area shown in the attached figure and located north of the town of Franklin in Renville County, Minnesota (refer to attached figure). This letter is to provide you with Project information and request your early input.

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At AES, we value your local perspective and would like to include your input as we move forward with this Project. If you have comments, please contact:

MNStakeholderrelations@aes.com
or
800-579-7734.

You are also welcome to join us to learn more about the Project at our upcoming tribal community open house:

October 24, 2023 from 5:00 – 7:00 pm
Franklin Community Center
221 East 2nd Avenue, Franklin, MN 55333

Thank you for your time and consideration. We are eager to collaborate with you on this solar initiative that promises to add value to the future of energy in Renville County.

Scott Groux
Associate Developer
AES Clean Energy

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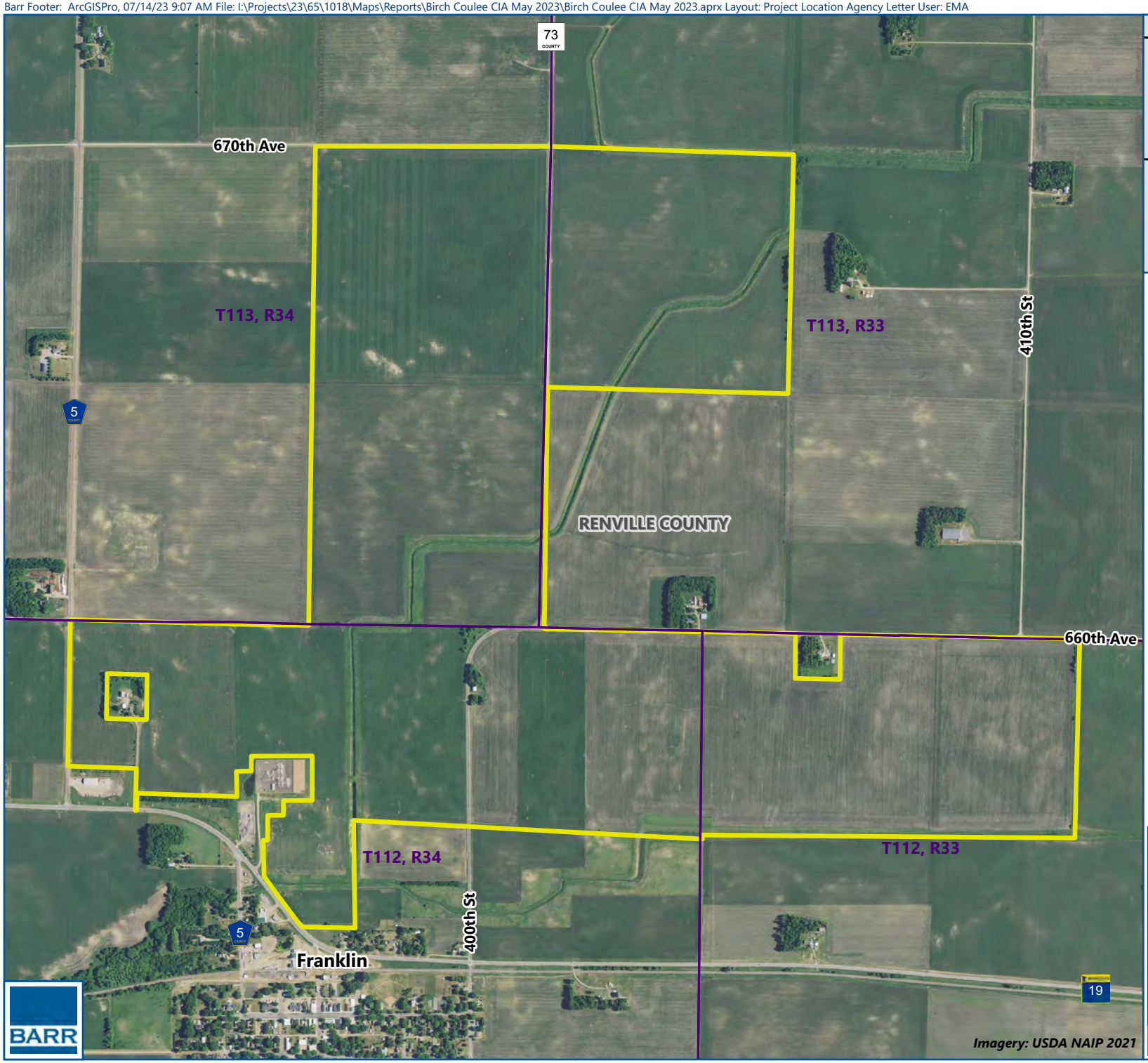
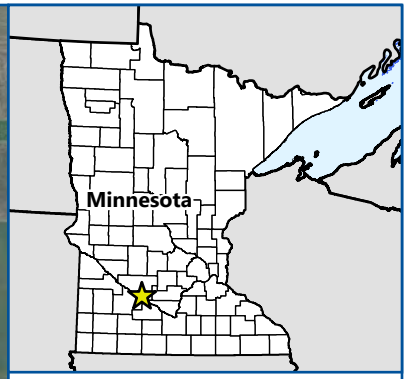




Potential Development Area

Public Land Survey Township

0 750 1,500

Feet

0 0.25 0.5

Miles

PROJECT LOCATION

Birch Coulee Solar LLC
Renville County,
Minnesota

BARR

number	Entity	Salutation	Contact Name	Contact Title	Street Address	City State Zip	Email Address
1	Apache Tribe of Oklahoma	The Honorable	Durell Cooper	Chairman	511 East Colorado	Anadarko, OK 73005	durellcooper05@gmail.com
2	Apache Tribe of Oklahoma	The Honorable	Bobby Komardley	Chairman	PO Pox 1330	Anadarko, OK 73005	bkomardley@outlook.com
3	Bois Forte Band of Chippewa - Zagaakwaandagowininiwag		Jaylen Strong	Tribal Historic Preservation Officer	Boise Forte Tribal Government, 5344 Lakeshore Dr	Nett Lake, MN 55772	jaylen.strong@boisforte-nsn.gov
5	Bois Forte Band of Chippewa - Zagaakwaandagowininiwag		Chris Holm	Interim Director Ecological Resources Program	Boise Forte Tribal Government, 5344 Lakeshore Dr	Nett Lake, MN 55772	cholm@boiseforte-nsn.gov
7	Cheyenne and Arapaho Tribes, Oklahoma		Max Bear	Tribal Historic Preservation Officer	700 Black Kettle Blvd	Concho, OK 73022	mbear@cheyenneandarapaho-nsn.gov
9	Cheyenne and Arapaho Tribes, Oklahoma	The Honorable	Reggie Wassana	Governor	100 Red Moon Circle	Concho, OK 73022	rwassana@c-a-tribes.org
6	Flandreau Santee Sioux Tribe of South Dakota		Garrie Kills-A-Hundred	Tribal Historic Preservation Officer	P.O. Box 283	Flandreau, SD 57028	garrie.killsahundred@fsst.org
8	Flandreau Santee Sioux Tribe of South Dakota	The Honorable	Anthony Reider	Chairperson	603 West Broad Ave	Flandreau, SD 57028	anthony.reider@fsst.org
9	Fond Du Lac Band of Lake Superior Chippewa- Nah-gah-chi-wa-nong		Wayne Dupuis	Environmental Program Director	1720 Big Lake Road	Cloquet, MN 55720	waynedupuis@fdlrez.com
10	Fond Du Lac Band of Lake Superior Chippewa- Nah-gah-chi-wa-nong		Evan Schroeder	Tribal Historic Preservation Officer	1720 Big Lake Road	Cloquet, MN 55720	evanschroeder@fdlrez.com
11	Fort Belknap Indian Community of the Fort Belknap		Michael Blackwolf	Tribal Historic Preservation Officer	656 Agency Main Street	Harlem, MT 59526	mblackwolf@ftbelknapp.org
12	Fort Belknap Indian Community of the Fort Belknap Reservation of Montana	The Honorable	Jeff Stiffarm	President	656 Agency Main Street	Harlem, MT 59526	jeffery.stiffarm@ftbelknap.org
13	Grand Portage Band of Ojibwe, Gichi-Onigaming	The Honorable	Robert Deschmpe	Chairman	27 Store Road P.O. Box 428	Grand Portage, MN 55605	robertdeschampe@grandportage.com
	Grand Portage Band of Ojibwe, Gichi-Onigaming		Rob Hull	Tribal Historic Preservation Officer	27 Store Road P.O. Box 428	Grand Portage, MN 55605	robhull@grandportage.com
	Iowa Tribe of Kansas and Nebraska	The Honorable	Tim Rhodd	Chairperson	3345 Thrasher Road	White Cloud, KS 66439	trhodd@iowas.org
	Iowa Tribe of Kansas and Nebraska		Lance Foster	Tribal Historic Preservation Officer	3345 Thrasher Road	White Cloud, KS 66439	lfoster@iowas.org
	Leech Lake Band of Ojibwe, Gaa-Zagaskwaabiganikaag		Amy Burnette	Tribal Historic Preservation Officer	190 Sailstar Drive NW	Cass Lake, MN 56633	amy.burnette@llojibwe.net
	Leech Lake Band of Ojibwe, Gaa-Zagaskwaabiganikaag		Ben Benoit	Environmental Director	190 Sailstar Drive NW	Cass Lake, MN 56633	Ben.benoit@llojibwe.net
	Lower Sioux Indian Community of Minnesota, Caŋsayapi		Cheyanne St. John	Tribal Historic Preservation Officer	P.O. Box 308, 39527 Res. Hwy 1	Morton, MN 56270	cheyanne.stjohn@lowersioux.com
	Lower Sioux Indian Community of Minnesota, Caŋsayapi		Deb Dirlam	Director, Environmental Program	P.O. Box 308, 39527 Res. Hwy 1	Morton, MN 56270	deb.dirlam@lowersioux.com
	Menominee Indian Tribe of Wisconsin		David Grignon	Tribal Historic Preservation Officer	P.O. Box 910	Keshena, WI 54135	dgrignon@mitw.org
	Menominee Indian Tribe of Wisconsin	The Honorable	Gena Kakkak	Chairwoman	W2908 Tribal Office Loop	Keshena, WI 54135	chairman@mitw.org
	Mille Lacs Band of Ojibwe, Misi-zaaga'igani Anishinaabeg		Kelly Applegate	Commissioner of Natural Resources	43408 Oodena Drive	Onamia, MN 56359	kelly.applegate@millelacsband.com
	Mille Lacs Band of Ojibwe, Misi-zaaga'igani Anishinaabeg		Terry Kemper	Tribal Historic Preservation Officer	43408 Oodena Drive	Onamia, MN 56359	terry.kemper@millelacsband.com
	Minnesota Chippewa Tribe		Gary Frazer	Executive Director	15542 State 371 NW, P.O. Box 217	Cass Lake, MN 56633	gfrazer@mnchippewatribe.org
	Minnesota Chippewa Tribe		Michael Northbird	Environmental Program Manager, EPA/GAP Coordinator	15542 State 371 NW, P.O. Box 217	Cass Lake, MN 56633	mnorthbird@mnchippewatribe.org
	Prairie Island Indian community in the State of Minnesota, Tinta Wita	The Honorable	Johnny Johnson	President	5636 Strugeon Lake Road	Welch, MN 55089	sbartell@piic.org
	Prairie Island Indian community in the State of Minnesota, Tinta Wita		Noah White III	Tribal Historic Preservation Officer	5636 Strugeon Lake Road	Welch, MN 55089	noah.white@piic.org
	Red Lake Band of Chippewa, Mis-Qua-Saga-Eh-Ganing		Kade Ferris	Tribal Historic Preservation Officer	15761 High School Drive, P.O. Box 279	Red Lake, MN 56671	kade.ferris@relakenation.org
	Red Lake Band of Chippewa, Mis-Qua-Saga-Eh-Ganing		John LeBlanc, Director	Environmental Program	15761 High School Drive, P.O. Box 279	Red Lake, MN 56671	jleblanc@redlakenation.org
	Santee Sioux Nation, Nebraska	The Honorable	Alonzo Denney	Chairman	108 Spirit Lake Ave W	Niobrara, NE 68760	alonzo.denney@ssndakota.com
	Santee Sioux Nation, Nebraska		Misty Fazier	Tribal Historic Preservation Officer	425 Fazier Ave. N. Suite 2	Niobrara, NE 68760	ssn.thpo@gmail.com
	Shakopee Mdewakanton Sioux Community, Mdewakanton		Leonard Wabasha	Director of Cultural Resources	2330 Sioux Trail NW	Prior Lake, MN 55372	leonard.wabasha@shakopeedakota.org
	Shakopee Mdewakanton Sioux Community, Mdewakanton		Scott Walz	Natural Resource Manager	2330 Sioux Trail NW	Prior Lake, MN 55372	scott.walz@shakopeedakota.org
	Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota		Dianne Desrosiers	Tribal Historic Preservation Officer	P.O. Box 907	Sisseton, SD 57262	dianned@swo-nsn.gov
	Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota	The Honorable	J. Garret Renville	Tribal Chairman	12554 Bia Highway 711,	Agency Village, SD 57262	chairman@swo-nsn.gov
	Spirit Lake Tribe, North Dakota		Susie Fox	Interim Director THPO	P.O. Box 198	Fort Totten, ND 58335	sfox@gondtc.com
	Spirit Lake Tribe, North Dakota	The Honorable	Douglas Yankton, Sr.	Chairperson	816 - 3rd Avenue North	Fort Totten, ND 58335	douglasy@spiritlakenation.com
	Upper Sioux Community, Pezihutazizi Oyate	The Honorable	Kevin Jensvold	Chairman	5722 Travers Lane	Granite Falls, MN 56241	kevinj@uppersiouxcommunity-nsn.gov
	Upper Sioux Community, Pezihutazizi Oyate		Samantha Odegard	Tribal Historic Preservation Officer	P.O. Box 147, 5722 Travers Lane	Granite Falls, MN 56241	samanthao@uppersiouxcommunity-nsn.gov
	White Earth Band of Ojibwe, Gaa-waabaabiganikaag		Jaime Arsenault	Tribal Historic Preservation Officer	PO Box 393, 102 3rd Street East	Mahnomen, MN 565567	jaime.arsenault@whiteearth.com
	White Earth Band of Ojibwe, Gaa-waabaabiganikaag		Monica Hedstrom	Director White Earth Natural Resources	PO Box 393, 102 3rd Street East	Mahnomen, MN 565567	monica.hedstrom@whiteearth-nsn.gov

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. PAUL DISTRICT
332 MINNESOTA STREET, SUITE E1500
ST. PAUL, MN 55101-1323

10/13/2023

Regulatory File No. MVP-2023-01158-MJG

THIS IS NOT A PERMIT

Scott Groux
2180 S 1300 E
Suite 500
salt lake city, UT 84106

To: Scott Groux:

We have received your submittal described below. You may contact the Project Manager with questions regarding the evaluation process. The Project Manager may request additional information necessary to evaluate your submittal.

File Number: MVP-2023-01158-MJG

Applicant: Scott Groux

Project Name: Birch Coulee Solar Project

Project Location: Section 1 of Township 112 N, Range 34 W, Renville County, Minnesota (Latitude: 44.5466791097893; Longitude: -94.880819349858)

Received Date: 10/10/2023

Project Manager: Mallory Gross
(651) 290-5363
Mallory.J.Gross@usace.army.mil

Additional information about the St. Paul District Regulatory Program can be found on our web site at http://www.mvp.usace.army.mil/missions/regulatory.

Please note that initiating work in waters of the United States prior to receiving Department of the Army authorization could constitute a violation of Federal law. If you have any questions, please contact the Project Manager.

Thank you.

U.S. Army Corps of Engineers
St. Paul District
Regulatory Branch

From: Gross, Mallory J CIV (USA) <Mallory.J.Gross@usace.army.mil>
Sent: Friday, June 14, 2024 8:25 AM
To: Lauren Colwell <lauren.colwell@AES.COM>
Cc: mdanzl@barr.com <mdanzl@barr.com>
Subject: MVP-2023-01158-MJG (Birch Coulee Solar Project)

Good morning,

The Corps of Engineers St. Paul District Regulatory Division (the Corps) recently received a request for a wetland delineation concurrence and approved jurisdictional determination for the Birch Coulee Solar Project. It appears a delineation concurrence and jurisdictional determination is not necessary from the Corps at this time. We suggest moving forward without further coordination with our office and complete your project planning. Once project planning is complete, and if there are proposed impacts to aquatic resources that are certain to occur as a result of the activity, coordinate with us at that time, as necessary.

If your project will have impacts to aquatic resources, please submit a permit application, and we will identify the aquatic resources that are subject to Corps regulation and determine if a Corps permit authorization is required. You may also request a pre-application meeting to discuss your project prior to submitting permit application. You can find more information on our permit program and our joint application here: https://www.mvp.usace.army.mil/Missions/Regulatory/Permitting-Process-Procedures/

Please note this recommendation is only pertaining to the Corps process and does NOT indicate whether a review is required from the state or local authorities. In addition, a delineation concurrence will not address the jurisdictional status of the aquatic resources on the property; only the boundaries of the delineated aquatic resources (including wetlands, tributaries, lakes, etc.) will be evaluated for accuracy. If you do determine a delineation concurrence is needed from our office at this time, we will review your request. Our response time will vary depending upon the District's workload, requested permit actions, site location, and weather conditions (if a site visit is determined to be necessary).

Our office is committed to efficient, helpful service. In this spirit we are focusing on processes that allow for more efficient project reviews. If we do not receive a response from you within 3 business days we will assume nothing further is needed from our office.

Sincerely,

Mallory Gross
Regulatory Specialist, South Branch, Regulatory Division
Saint Paul District, U.S. Army Corps of Engineers
332 Minnesota Street, Suite E1500
St. Paul, Minnesota 55101
Office Phone: 651-290-5363
Cell Phone: 952-254-9319

Information on the Corps of Engineers Regulatory Program can be found at: https://www.mvp.usace.army.mil/missions/regulatory

In Minnesota and Wisconsin, requests for action (pre-application consultations, permit applications, requests for jurisdictional determinations, and mitigation bank proposals) should be sent directly to the following email: (in MN) usace_requests_mn@usace.army.mil (in WI) usace_requests_wi@usace.army.mil. Please include the county name in the subject line of the email (e.g. Washington County). These changes will improve efficiency, reduce costs and reduce the environmental footprint. Additional information can be found in our public notice located here: http://www.mvp.usace.army.mil/Missions/Regulatory.aspx

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

October 20, 2023

Veronica Parsell
Senior Cultural Resources Specialist
Barr Engineering

RE: Birch Coulee Solar Project
Renville County
SHPO Number: 2023-2896

Dear Veronica Parsell:

Thank you for the opportunity to review and comment on the above referenced project. Information received on August 30, 2023, has been reviewed pursuant to the responsibilities given the State Historic Preservation Office by the Minnesota Historic Sites Act (138.665-666).

According to your correspondence, Birch Coulee Solar LLC, an affiliate of AES Clean Energy, is proposing to construct a 125 MW AC utility scale solar project in Renville County. The proposed project will be developed within a 1,030-acre area north of the town of Franklin (Potential Development Area) on privately owned lands. The proposed project includes the installation of solar arrays, inverters, trenched electrical lines, a project substation, temporary laydown areas, fencing and gravel access roads. The point of interconnection will be within the Potential Development Area to the existing Franklin 115 KV substation and high voltage transmission line.

We have reviewed the submitted letter report, *Phase Ia Literature Review for the Birch Coulee Solar Energy Project, Renville County, Minnesota* (August 10, 2023) as prepared by In Situ Archaeological Consulting. In our opinion, the predictive model is sound, and we agree with the proposed Phase I survey strategy. The targeted field methodology approach with traditional survey of the high and moderate probability areas, and a sample strategy (larger survey intervals) for the low probability areas, is appropriate for the setting.

Based on the documentation provided, it does not appear that there are any properties listed in the National or State Registers of Historic Places located within the proposed project area.

Please note that this comment letter does not address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36 CFR § 800. If this project is considered for federal financial assistance, or requires a federal permit or license, then review and consultation with our office will need to be initiated by the lead federal agency. Be advised that comments and recommendations provided by our office for this state-level review may differ from findings and determinations made by the federal agency as part of review and consultation under Section 106.

If you have any questions regarding our review of this project, please contact me at 651-201-3285 or kelly.graggjohnson@state.mn.us.

Sincerely,

Kelly Gragg-Johnson

Kelly Gragg-Johnson
Environmental Review Program Specialist

Birch Coulee Solar Project

Community Open House
hosted by AES Clean Energy

Monday, October 23rd
from 5:30-7:30
at the
Franklin Community Center
221 E 2nd Ave Franklin, MN

Please join AES team members to learn more about a new solar project in Renville County!

Light food and drinks will be provided.

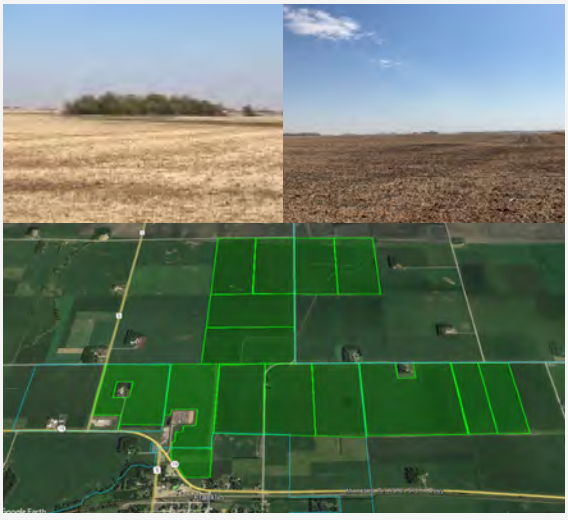
The AES Corporation
2180 S. 1300 E., Ste 600, Salt Lake City, UT 84106

Birch Coulee solar

AES' Birch Coulee solar project in Renville County, Minnesota will be the first project AES brings to the Land of 10,000 Lakes. The project will quietly capture energy from the sun to power the lives and businesses of Minnesotans. This project will generate low-cost electricity while reducing carbon emissions, creating economic benefits for local communities, and diversifying farm income for landowners and agricultural producers.

AES is an industry leader focused on accelerating the future of energy. AES owns and operates more than 540 utility-scale and community solar, wind and energy storage facilities across 24 states in the US.

We're committed to the safety of our communities and people, protecting the local environment and ensuring the projects we bring to Minnesota deliver positive economic impacts that improve lives and build stronger communities. The State of Minnesota has committed to a fully renewable energy sector by 2040 and AES is dedicated to helping the state achieve this ambitious goal.



Project overview:

- 125 MW total solar capacity
- Enough renewable energy to power nearly 28,000 Minnesota homes
- Economic benefits: job creation and new local tax revenue

Project details:

- Located on 1,000 acres of privately owned land in Renville County, Minnesota
- Target Operational Date: Fall 2028

Working all together for future generations:

- At AES, we pride ourselves on building strong relationships with local communities, customers, state agencies, educators, elected officials and other key stakeholders to determine how we can best work together to support sustainable social and economic development.

Partnering with communities:

- In Michigan, AES funded a Youth Entrepreneur Incubator for local schools to give students the opportunity to understand business and finance through the workings of their own businesses. Additionally AES helped fund a robotics club and an Underwater Remote Operated Vehicles course for students.
- In Missouri, AES helped fund a program aimed at preparing children for future careers in STEM. AES also helped fund a program focused on helping girls from 14-17 be successful in life after high school.
- In Massachusetts, AES worked with the US Department of Energy Solar Technology Office to create a dual-use solar project that also accommodates cattle grazing and crops. Dual use opportunities are important to AES as we look at how to evolve solar facility design to boost agricultural production opportunities.

For more information contact:
Phone: 800-579-7734 | Email: mnstakeholderrelations@aes.com

Lauren Colwell

From: Byron, Haley (DNR) <Haley.Byron@state.mn.us>
Sent: Monday, November 6, 2023 10:15 AM
To: Lauren Colwell
Cc: Warzecha, Cynthia (DNR)
Subject: RE: MNDNR Early Coordination Request - Birch Coulee Solar Project
Attachments: Erosion_InvasiveSpecies_StandardGuidance_20230110.pdf

Good Morning Lauren,

DNR staff have reviewed the proposed project location and do not have any significant concerns. There will most likely be a native perennial vegetation requirement as part of the PUC permit, and beginning early coordination on that front would be beneficial. DNR staff is available to assist with seed mix selection and planting plans. Please review the DNR's Prairie Establishment & Maintenance Technical Guidance for Solar Projects. The document is being revised, and a mid-diversity category is being added to allow for more flexibility.

Seed Mix Specifications:

High Diversity Upland[1] pollinator- or habitat-friendly) seed mixes:

- A minimum seeding rate of 40 seeds/sq. ft.[1]
- At least 40% of the total seeding rate should be composed of perennial forbs.
- 7 or more native grass/sedge species with at least 2 species of bunchgrass.
- 20 or more native forbs with at least 3 species in each bloom period: Early (April-May), Mid (June-August), and Late (August-October).
- Include species from each group: cool-season grasses; warm-season grasses; sedges/rushes; legume; and non-legume forbs
- Include species from different plant families to support the widest diversity of pollinator species and enhance the health of the planting
- Plant species under panel arrays should have a maximum height of 4 feet and should include shade-tolerant species for fixed panel sites.[2]

Mid-Diversity Upland[1] seed mixes:

- A minimum seeding rate of 40 seeds/sq. ft.[2]
- At least 30% of the total seeding rate should be composed of perennial forbs.
- 5 or more native grass/sedge species with at least 2 species of bunchgrass.
- 10-15 or more native forbs with at least 2 species in each bloom period: Early (April-May), Mid (June-August), and Late (August-October).

[1] Wetland seed mixes should not be common on solar sites because wetland soils are not ideal for panel construction. If a wetland mix needs to be used, the developer should follow the same guidelines as for upland mixes. The forb seeding percentage may be lower because sedges and rushes play an important role in these seed mixes and will lower the overall seeding rate in the forb category.
[2]Site conditions (wet vs. dry), soil types, species selected, time of planting, weather, and other factors can affect seeding rates and seed mix design. Please work with a native seed company to ensure proper seeding rate and seed mixes are used.
[3] Fixed panel sites have more shade under the panels than rotating panel sites. For these sites it is recommended to use at least two different seed mixes: shade-tolerant for under the panel and sun-tolerant for in between the rows and edge areas.

Design Considerations and Impact Minimization
For additional information on below recommendations, see DNR Commercial Solar Siting Guidance

- Perimeter Fencing: 8ft woven wire fence, topped with two strands of smooth, high tensile wire. Deer egress gates should not outlet onto roadways.
- Wildlife Friendly Erosion and Invasive Species Control: see attachment DNR Standard Guidance
- Facility lighting: Shielded, downward-facing lights that follow MnDOT's approved products for luminaries, which limit the maximum nominal color temperatures for LEDs to 4000K.
- Avian Flight Diverters: If a high voltage transmission line is needed to connect the project to the grid flight diverters may be required.
- Dust Control: avoid chemical dust suppressants containing chloride.

Please reach out with any questions you may have. We are happy to work with you to develop a project that meets your goals and helps protect Minnesota's natural resources.

Best,

Haley Byron
Regional Environmental Assessment Ecologist | Southern Region EWR

Minnesota Department of Natural Resources
117 Rogers Street
Mankato, MN 56001
Office: 507-389-8813
Cell: 507-910-8963
Email: haley.byron@state.mn.us
mndnr.gov

DEPARTMENT OF NATURAL RESOURCES

From: Lauren Colwell <lauren.colwell@AES.COM>
Sent: Tuesday, October 17, 2023 4:31 PM
To: Byron, Haley (DNR) <Haley.Byron@state.mn.us>
Cc: Warzecha, Cynthia (DNR) <cynthia.warzecha@state.mn.us>; Minnesota Stakeholder Relations <MNstakeholderrelations@aes.com>
Subject: RE: MNDNR Early Coordination Request - Birch Coulee Solar Project

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Good afternoon Haley,

Thank you for reaching out regarding the Birch Coulee Solar Project in Renville County. As the Permitting Project Manager for the project, I will serve as your main point of contact going forward, and I look forward to coordinating with you.

As you requested in your email below, I attached the results of the Natural Heritage Review and a KMZ file that shows the project boundary. Please let me know if the KMZ file will work for your purposes or if you would prefer a different format. We are currently working on finalizing the internal layout of the project within the overall project boundary.

Please feel free to contact me with any additional questions.

Thank you,
Lauren

Lauren Colwell
Project Manager, Permitting – MISO
AES Clean Energy | The AES Corporation

From: Byron, Haley (DNR) <Haley.Byron@state.mn.us>
Sent: Wednesday, October 11, 2023 10:59 AM
To: Minnesota Stakeholder Relations <MNstakeholderrelations@aes.com>
Cc: Warzecha, Cynthia (DNR) <cynthia.warzecha@state.mn.us>
Subject: MNDNR Early Coordination Request - Birch Coulee Solar Project

Greetings,

I am the primary MNDNR contact for pre-application early coordination activities. Once your application is submitted to the Public Utilities Commission Cynthia Warzecha will become your primary contact. We work closely with each other through the entire process to ensure a smooth transition. To assist with our review please provide GIS-compatible shapefiles of the proposed Birch Coulee Solar project. If the Natural Heritage Review has been completed, please provide the results of the review along with the shapefiles. As you continue with the development of the project I encourage you to reference the DNR's Commercial Solar Siting Guidance.

Please reach out with any questions you may have. Thank you!

Haley Byron
Regional Environmental Assessment Ecologist | Southern Region EWR

Minnesota Department of Natural Resources
117 Rogers Street
Mankato, MN 56001
Office: 507-389-8813
Cell: 507-910-8963
Email: haley.byron@state.mn.us
mndnr.gov

[1] Wetland seed mixes should not be common on solar sites because wetland soils are not ideal for panel construction. If a wetland mix needs to be used, the developer should follow the same guidelines as for upland mixes. The forb seeding percentage may be lower because sedges and rushes play an important role in these seed mixes and will lower the overall seeding rate in the forb category.

[1] Site conditions (wet vs. dry), soil types, species selected, time of planting, weather, and other factors can affect seeding rates and seed mix design. Please work with a native seed company to ensure proper seeding rate and seed mixes are used.

[2] Fixed panel sites have more shade under the panels than rotating panel sites. For these sites it is recommended to use at least two different seed mixes: shade-tolerant for under the panel and sun-tolerant for in between the rows and edge areas.

From: Marsh, Dawn S
To: Minnesota Stakeholder Relations
Subject: Birch Coulee Solar Project Early Coordination
Date: Wednesday, November 8, 2023 12:42:58 PM

Good afternoon,

Thank you for the opportunity to comment on the proposed Birch Coulee Solar Project site location and project in Renville County, Minnesota. Meeting the growing demand for renewable energy production in Minnesota will require careful planning of new facilities. Appropriate siting of renewable energy facilities is one of the best methods available to minimize the potential for wildlife impacts. We welcome the opportunity to work with you in project planning.

Regulatory Framework and Planning Resources

Federal laws specify that the U.S. Fish and Wildlife Service (Service) has a management responsibility for a variety of wildlife resources and plays a role in advising other Federal and State agencies in their review of permit applications and project planning. These laws include the Endangered Species Act (ESA; 87 Stat. 884; 16 U.S.C. 1531 *et seq*.), the Clean Water Act section 404(j) (CWA; as amended; 33 U.S.C. 1251 *et seq*.), the Fish and Wildlife Coordination Act (FWCA; 48 Stat. 401; 16 U.S.C. 661 *et seq*.), Migratory Bird Treaty Act (MBTA; 16 U.S.C. 703 *et seq*.), and the Bald and Golden Eagle Protection Act (Eagle Act; 16 U.S.C. 668 *et seq*.).

We have several online tools and resources that can assist you with project planning. Our **Information for Planning and Consultation (IPaC)** website allows you to see if threatened or endangered species, designated critical habitat, migratory birds, and/or other natural resources may occur in or near your project. IPaC allows you to download an official ESA species list. Additionally, depending on the project location and the species that may be present, you may be able to use an available assisted determination key (DKey) in IPaC to help evaluate potential impacts on resources managed by the Service. This may include identifying recommendations for protecting and enhancing wildlife populations. In some circumstances, by confirming you will implement specific measures for your project, you may receive an automated concurrence from IPaC that your project is consistent with a "no effect" or "not likely to affect" determination for ESA listed species (using a determination key in IPaC to generate a "Consistency Letter"). Available DKeys for projects in Minnesota include the Minnesota-Wisconsin Federal Endangered Species Determination Key, which covers all ESA listed species and critical habitats in Minnesota and Wisconsin and the Northern Long-Eared Bat Assisted Determination Key.

If your project will require Federal funding or permitting, but you did not receive an automated "Consistency Letter" from IPAC for your project (either because you chose not to use a DKey or you received a “may affect” determination which means the project is outside the scope of the determination key), please see our ESA Section 7 Technical Assistance website for additional resources on project planning. This website provides additional step-by-step instructions for Federal agencies, their applicants, and designated non-Federal

representatives to meet their section 7 obligations. If your project is not federally funded or permitted, but the project is reasonably certain to result in the take of endangered or threatened species, please contact our office for more information about ESA permits.

Impacts to Eagles

Bald eagles, golden eagles, and their nests are protected under the Eagle Act. The Eagle Act prohibits, except when authorized by a permit, the taking of bald and golden eagles and defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." The Eagle Act's implementing regulations define disturb as "…to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

Our National Bald Eagle Management Guidelines are intended to help people protect eagle nests and avoid "disturbance" of eagles as required by the Eagle Act. We have also developed guidance to help determine if you may need an incidental take permit for bald eagles if disturbance cannot be avoided. If your project may impact a bald eagle nest, or you anticipate that you will be unable to avoid disturbing bald eagles, please contact us regarding the Eagle Act permit process.

Site Selection and Layout Recommendations:

1. Select a site with the least wildlife value practicable. Sites such as vehicle parking areas (using elevated solar panels), commercial roof tops, brownfields, industrial developments, or municipal solid waste landfills may provide adequate space for a solar development and have no impact to existing wildlife habitat. Additionally, developing solar with compatible forms of agriculture (e.g., "dual-use farming") may allow for continued crop production or grazing by using elevated solar panels and minimize the potential for additional loss of wildlife habitat.

2. If low wildlife value sites are not feasible, we suggest avoiding or minimizing to the greatest degree the conversion of forested areas, native grasslands, and wetlands. These areas provide important habitat for a variety of species and help protect water quality.

3. Plan the site to help ensure bat habitat is adequately protected by minimizing the removal of forested habitat and protecting forested hedgerows or other forested corridors connecting areas of suitable bat habitat.

4. For other threatened or endangered species identified in the official IPaC Species List, determine if their habitat is present in the project action area. If suitable habitat is present, plan to avoid impacts to listed species' habitat. If habitat impacts cannot be avoided, we suggest conducting appropriate surveys to confirm species presence.

5. Identify bald eagle nests that are within or near the project site to help inform project layout. Bald eagle nests are large (4-6 feet in diameter and 3 feet deep, on average) and therefore noticeable, especially when in deciduous trees after leaf drop.

6. Plan the site to provide habitat for pollinators. Many pollinators are declining, including species that pollinate key agricultural crops and help maintain natural plant

communities. Planting a diverse group of native plants around and under solar panels will help support the nutritional needs of Minnesota's pollinators. We recommend a mix of flowering trees, shrubs, and herbaceous plants so that something is always in bloom and pollen is available during the active periods of pollinators (mid-March to mid-October).

7. Incorporate a water source (e.g., ephemeral pool or low area) to provide additional resources for pollinators and bats.

Project Construction Recommendations:

1. When removing potential wildlife habitat is necessary, avoid spring and summer (March 15-August 15) when feasible to help prevent the loss of nests, non-mobile young, and help wildlife populations maintain productivity.

2. Consider voluntary mitigation in addition to any required mitigation to offset the loss of forested areas, wetlands, or native grasslands.

3. Use construction techniques and materials (wildlife friendly erosion control materials) that are not likely to cause additional harm to wildlife.

4. Implement measures to reduce the chances that equipment will exacerbate the spread of invasive species into natural habitats (e.g., cleaning equipment prior to accessing the site, post-site restoration monitoring, and invasive plant treatments, as necessary).

5. Any above ground electrical transmission lines or other equipment should follow the Avian Power Line Interaction Committee guidelines for minimizing avian electrocution and collision risk.

Operational Recommendations:

1. Require technicians and other staff that visit the project area to report any wildlife mortalities or injuries they observe, specifically birds and bats. Although we do not anticipate significant potential for wildlife impacts from solar facility operations in Minnesota, there have been reports of birds mistaking solar panels for a water surface in certain conditions as well birds killed along transmission lines and other electrical equipment. These can be reported to the Service's Injury and Mortality Reporting System.

2. Incorporate wildlife friendly mowing practices (e.g., timing of mowing to benefit pollinators). Additional information can be found in the Service's Conservation Guidance for the Rusty Patched Bumble Bee document.

Thank you for the opportunity to comment on the proposed Birch Coulee Solar Project. Should you have any questions or concerns, or if the status of any species that may be present in the project area changes, please do not hesitate to contact me via email (Dawn_Marsh@fws.gov) or phone (612-283-8054).

Dawn

Dawn Marsh (she/her/hers) | Fish and Wildlife Biologist

U.S. Fish & Wildlife Service | Minnesota-Wisconsin Field Office
3815 American Blvd. E., Bloomington, MN 55425
Mobile: (612) 283-8054

From: Russell Boyum
To: Minnesota Stakeholder Relations
Subject: Birch Coulee solar
Date: Monday, November 13, 2023 7:00:34 PM

Good Day,

We would like to discuss things more in depth regarding the proposed project. Would it be possible for someone to come to one of our township meetings? Our next meeting is scheduled for Dec 4 at 4:30pm.

Thanks,
Russell Boyum
Clerk, Camp Township

From:	Minnesota Stakeholder Relations
To:	Reynolds, John (MIAC); Minnesota Stakeholder Relations
Cc:	Cerda, Melissa (MIAC)
Subject:	RE: MIAC Review: Birch Coulee Solar Project in Renville Co., 10-17-23
Date:	Thursday, December 7, 2023 11:01:11 AM
Attachments:	image002.png image003.png image004.png

Mr. Reynolds,

Thank you for your follow-up email below and comments provided on October 17. As you noted in your comment, the Birch Coulee Solar Project (Project) is located in an area with the potential for sensitive cultural sites; as such, the Birch Coulee Solar, LLC team initially reached out via phone and email to the four tribes located closest to the Project area in early September 2023. We also provided an opportunity to meet with tribes on October 24, 2023 in an open house format; however, no tribes were able to attend. Based on our conversations and due to proximity to the Project area, we have been engaging primarily with the Lower Sioux Indian Community and Upper Sioux Community Tribal Historic Preservation Officers (THPOs) since September.

Most recently, in coordination with the Lower Sioux and Upper Sioux THPOs, we completed a cultural survey of the Project area in late November 2023. Alongside the archaeological team, tribal cultural specialists from both tribal communities completed a Traditional Cultural Resources Survey (TCRS) of the area to identify sites for avoidance or monitoring during construction. We anticipate submitting the archaeological survey report with the Minnesota PUC Site Permit application materials in early 2024 and will continue to coordinate with the Tribes on potential avoidance areas and/or mitigation measures.

Please feel free to reach out to me if you have any additional questions or would like to discuss the Birch Coulee Solar Project.

Thank you,
Lauren

Lauren Colwell
Project Manager, Permitting – MISO
AES Clean Energy | The AES Corporation

From: Reynolds, John (MIAC) <John.Reynolds@state.mn.us>
Sent: Monday, December 4, 2023 1:30 PM
To: Minnesota Stakeholder Relations <MNstakeholderrelations@aes.com>

Cc: Cerda, Melissa (MIAC) <melissa.cerda@state.mn.us>
Subject: RE: MIAC Review: Birch Coulee Solar Project in Renville Co., 10-17-23

To whom it may concern,

The Minnesota Indian Affairs Council Cultural Resource Office provided response the Birch Coulee Solar Project on 10/17/23. Has this response been accounted for, are there remaining questions, and can Birch Coulee Solar, LLC., and AES continue to consult with MIAC throughout the project's duration? Please reply with any remaining questions.

Thank you.

John Reynolds
Cultural Resources Manager
Minnesota Indian Affairs Council
161 St. Anthony Avenue, Ste. 940
Saint Paul, MN 55103

C: 651-724-3325
O: 651-724-3325
E: John.Reynolds@state.mn.us
mn.gov/indianaffairs

From: Reynolds, John (MIAC)
Sent: Tuesday, October 17, 2023 12:19 PM
To: mnstakeholderrelations@aes.com
Cc: Cerda, Melissa (MIAC) <melissa.cerda@state.mn.us>; Goetsch, Dylan (MIAC) <Dylan.Goetsch@state.mn.us>
Subject: MIAC Review: Birch Coulee Solar Project in Renville Co., 10-17-23

Hello,

The Minnesota Indian Affairs Council (MIAC) has reviewed the provided materials for the proposed Birch Coulee Solar Project. The project's proposed location intersects with, and is near several state archaeological sites, and is within an area likely to contain cultural resources. MIAC recommends: further research and cultural resource management fieldwork with monitoring, and tribal consultation to regional Tribal Historic Preservation Offices. For any questions regarding this review, please do not hesitate to contact MIAC's Cultural Resource Office.

Thank you.

Lauren Colwell

From: Seth Sparks <Seth.Sparks@renvillecountymn.gov>
Sent: Sunday, March 10, 2024 9:55 AM
To: Lauren Colwell
Subject: RE: Drain Tile - AES Birch Coulee Solar Project

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Lauren,

Yes certainly that would be option, if a 40 foot corridor is maintained that would allow access a permit could be granted without any change to the drainage system. This would require a little exploratory digging to verify some of the locations as I don't have any GPS locations of the tile that we would like to be onsite for.

Let me know if you have any further questions.

Thanks,

Seth Sparks
Drainage Systems Manager

Public Works/Dranage Department
Government Services Center
105 South 5th Street Suite 319
Olivia, MN 56277

Direct: 320-523-3746 | Cell: 320-905-4780
Office: 320-523-3759
Email: Seth.Sparks@renvillecountymn.gov
Web: www.renvillecountymn.gov
(Note new email and website address)

Renville COUNTY

From: Lauren Colwell <lauren.colwell@AES.COM>
Sent: Friday, March 8, 2024 4:16 PM
To: Seth Sparks <Seth.Sparks@renvillecountymn.gov>
Subject: RE: Drain Tile - AES Birch Coulee Solar Project

Hi Seth,

I hope you are doing well and enjoying this early spring. I wanted to follow up on our conversation back in January regarding the existing county drain tile within the project area of the proposed Birch Coulee Solar project located north of Franklin.

During our call, we discussed two options of petitioning to 1) re-route the main drain tile outside the project boundary and 2) abandoning the lateral lines at the project boundary. To make sure I understand the full range of potential options, is there a third possible scenario where the drain tile could remain property of the county within the project area if we maintain 40-foot setbacks on each side of the drain tile per county ordinance and allow access to the project site for inspections and maintenance of the drain tile?

Thank you again for your time and assistance in this early stage of project planning. Please let me know if you have any questions.

Have a great weekend,
Lauren

Lauren Colwell
Project Manager, Permitting – MISO
AES Clean Energy | The AES Corporation

From: Seth Sparks <Seth.Sparks@renvillecountymn.gov>
Sent: Thursday, January 4, 2024 1:00 PM
To: Lauren Colwell <lauren.colwell@AES.COM>
Cc: Scott Groux <scott.groux@aes.com>
Subject: RE: Drain Tile - AES Birch Coulee Solar Project

Certainly.

Seth Sparks
Drainage Systems Manager

Public Works/Dranage Department
Government Services Center
105 South 5th Street Suite 319
Olivia, MN 56277

Direct: 320-523-3746 | Cell: 320-905-4780
Office: 320-523-3759
Email: Seth.Sparks@renvillecountymn.gov
Web: www.renvillecountymn.gov
(Note new email and website address)

From: Lauren Colwell <lauren.colwell@AES.COM>
Sent: Thursday, January 4, 2024 11:40 AM

To: Seth Sparks <Seth.Sparks@renvillecountymn.gov>
Cc: Scott Groux <scott.groux@aes.com>
Subject: RE: Drain Tile - AES Birch Coulee Solar Project

EXTERNAL - STOP & THINK before opening links or attachments!

Hi Seth,

Thanks for getting back to me yesterday. One update on our end: We learned this morning that unfortunately we will need to delay our trip until early February.

In lieu of meeting in person, could we set up a call with you on Monday at 1pm if that time still works for you? We'd appreciate hearing your thoughts on the project area that I sent yesterday and further guidance on options for re-routing or abandoning the existing drain tile.

Thank you,
Lauren

Lauren Colwell
Project Manager, Permitting – MISO
AES Clean Energy | The AES Corporation

From: Seth Sparks <Seth.Sparks@renvillecountymn.gov>
Sent: Wednesday, January 3, 2024 2:04 PM
To: Lauren Colwell <lauren.colwell@AES.COM>
Cc: Scott Groux <scott.groux@aes.com>
Subject: RE: Drain Tile - AES Birch Coulee Solar Project

Yes I would be available, how does 1 sound?

Seth Sparks
Drainage Systems Manager

Public Works/Dranage Department
Government Services Center
105 South 5th Street Suite 319
Olivia, MN 56277

Direct: 320-523-3746 | Cell: 320-905-4780
Office: 320-523-3759
Email: Seth.Sparks@renvillecountymn.gov
Web: www.renvillecountymn.gov
(Note new email and website address)

Renville COUNTY

From: Lauren Colwell <lauren.colwell@AES.COM>
Sent: Wednesday, January 3, 2024 12:41 PM
To: Seth Sparks <Seth.Sparks@renvillecountymn.gov>
Cc: Scott Groux <scott.groux@aes.com>
Subject: Drain Tile - AES Birch Coulee Solar Project

Mr. Sparks,

I hope you had a nice holiday and happy New Year. Thank you again for your time a few weeks ago when we discussed the existing public drain tile within the footprint of a proposed solar project located north of Franklin. To follow up on our conversation, I attached a KMZ showing the land available for the solar project. As we discussed, according to the county's public ditch viewer, lateral lines and a main drain tile line cross a few of these parcels.

The project developer (Scott Groux, cc-ed) and I are planning a day trip to Olivia and Franklin next Monday, January 8. Would you be available in the early afternoon for a meeting to discuss the potential options for the drain tile and petition procedures with us in more detail?

Please let us know if there's a good time for you to meet on Monday afternoon; if not, we would be happy to set up a call with you at your convenience. In the meantime, please feel free to reach out if you have any questions about the project area.

Thank you,
Lauren Colwell

Lauren Colwell
Project Manager, Permitting – MISO
AES Clean Energy | The AES Corporation
4200 Innslake Drive, Suite 302 | Glen Allen, VA 23060
lauren.colwell@aes.com
Mobile: 612-986-5422

aes

Lauren Colwell

From: Lauren Colwell
Sent: Friday, March 15, 2024 3:18 PM
To: Reynolds, John (MIAC)
Cc: Cerda, Melissa (MIAC); Minnesota Stakeholder Relations
Subject: RE: MIAC Review: Birch Coulee Solar Project in Renville Co., 10-17-23
Attachments: Cultural Report-Birch Coulee Solar-03.15.2024.pdf

Good afternoon Mr. Reynolds,

Per your request in December 2023, a copy of the Phase I Archaeological Investigation Report for the proposed Birch Coulee Solar Project (Project) in Renville County is attached. As noted in our previous correspondence below, we completed the archaeological survey for the Project in partnership with the Lower Sioux and Upper Sioux THPOs in late November 2023.

Following completion of the survey and coordination with the Lower Sioux THPO regarding the areas of tribal concern identified during the survey, we provided the draft archaeological report to the Lower Sioux and Upper Sioux THPOs for review and comment in early February 2024. The THPOs reviewed and provided feedback in early March 2024, and their comments were incorporated into the attached report. We anticipate submitting the attached report to the Minnesota PUC with the Site Permit application in April 2024, and we will continue coordinating with the Lower Sioux and Upper Sioux THPOs as the Project progresses.

Please let me know if you have any questions regarding the Project or the attached report.

Thank you,
Lauren

Lauren Colwell
Project Manager, Permitting – MISO
AES Clean Energy | The AES Corporation

From: Reynolds, John (MIAC) <John.Reynolds@state.mn.us>
Sent: Thursday, December 7, 2023 11:28 AM
To: Minnesota Stakeholder Relations <MNstakeholderrelations@aes.com>
Cc: Cerda, Melissa (MIAC) <melissa.cerda@state.mn.us>
Subject: RE: MIAC Review: Birch Coulee Solar Project in Renville Co., 10-17-23

Hello,

Thank you for the timely project update of the Birch Coulee Solar Project. For the review process, our office requests a copy of the archaeological survey report. For any remaining questions or project updates, please do not hesitate to reply.

Thanks again.

John Reynolds
Cultural Resources Manager
Minnesota Indian Affairs Council
161 St. Anthony Avenue, Ste. 940
Saint Paul, MN 55103

O: 651-539-2200
C: 651-724-3325
E: John.Reynolds@state.mn.us
mn.gov/indianaffairs

From: Minnesota Stakeholder Relations <MNstakeholderrelations@aes.com>
Sent: Thursday, December 7, 2023 11:01 AM
To: Reynolds, John (MIAC) <John.Reynolds@state.mn.us>; Minnesota Stakeholder Relations <MNstakeholderrelations@aes.com>
Cc: Cerda, Melissa (MIAC) <melissa.cerda@state.mn.us>
Subject: RE: MIAC Review: Birch Coulee Solar Project in Renville Co., 10-17-23

Mr. Reynolds,

Thank you for your follow-up email below and comments provided on October 17. As you noted in your comment, the Birch Coulee Solar Project (Project) is located in an area with the potential for sensitive cultural sites; as such, the Birch Coulee Solar, LLC team initially reached out via phone and email to the four tribes located closest to the Project area in early September 2023. We also provided an opportunity to meet with tribes on October 24, 2023 in an open house format; however, no tribes were able to attend. Based on our conversations and due to proximity to the Project area, we have been engaging primarily with the Lower Sioux Indian Community and Upper Sioux Community Tribal Historic Preservation Officers (THPOs) since September.

Most recently, in coordination with the Lower Sioux and Upper Sioux THPOs, we completed a cultural survey of the Project area in late November 2023. Alongside the archaeological team, tribal cultural specialists from both tribal communities completed a Traditional Cultural Resources Survey (TCRS) of the area to identify sites for avoidance or monitoring during construction. We anticipate submitting the archaeological survey report with the Minnesota PUC Site Permit application materials in early 2024 and will continue to coordinate with the Tribes on potential avoidance areas and/or mitigation measures.

Please feel free to reach out to me if you have any additional questions or would like to discuss the Birch Coulee Solar Project.

Thank you,
Lauren

Lauren Colwell
Project Manager, Permitting – MISO
AES Clean Energy | The AES Corporation

From: Reynolds, John (MIAC) <John.Reynolds@state.mn.us>
Sent: Monday, December 4, 2023 1:30 PM
To: Minnesota Stakeholder Relations <MNstakeholderrelations@aes.com>
Cc: Cerda, Melissa (MIAC) <melissa.cerda@state.mn.us>
Subject: RE: MIAC Review: Birch Coulee Solar Project in Renville Co., 10-17-23

To whom it may concern,

The Minnesota Indian Affairs Council Cultural Resource Office provided response the Birch Coulee Solar Project on 10/17/23. Has this response been accounted for, are there remaining questions, and can Birch Coulee Solar, LLC., and AES continue to consult with MIAC throughout the project's duration? Please reply with any remaining questions.

Thank you.

John Reynolds
Cultural Resources Manager
Minnesota Indian Affairs Council
161 St. Anthony Avenue, Ste. 940
Saint Paul, MN 55103

C: 651-724-3325
O: 651-724-3325
E: John.Reynolds@state.mn.us
mn.gov/indianaffairs

From: Reynolds, John (MIAC)
Sent: Tuesday, October 17, 2023 12:19 PM
To: mnstakeholderrelations@aes.com
Cc: Cerda, Melissa (MIAC) <melissa.cerda@state.mn.us>; Goetsch, Dylan (MIAC) <Dylan.Goetsch@state.mn.us>
Subject: MIAC Review: Birch Coulee Solar Project in Renville Co., 10-17-23

Hello,

The Minnesota Indian Affairs Council (MIAC) has reviewed the provided materials for the proposed Birch Coulee Solar Project. The project's proposed location intersects with, and is near several state archaeological sites, and is within an area likely to contain cultural resources. MIAC recommends: further research and cultural resource management fieldwork with monitoring, and tribal consultation to regional Tribal Historic Preservation Offices. For any questions regarding this review, please do not hesitate to contact MIAC's Cultural Resource Office.

Thank you.

MINUTES OF THE
REGULAR FRANKLIN CITY COUNCIL MEETING
Monday, April 8, 2024

A Regular Meeting of the Franklin City Council was held on Monday, April 8, 2024, at 7:00 p.m. in the Franklin Community Center. Council members present were: C. Gruendemann, W. Lund, D. Schneider, R. Kokesch and M. Mumme. Staff Department Heads present were: Radermacher, K. Kokesch and D. Menk. Guests present were: R. Handy, S. Traulich, D. Menk, J. Vogel, B. Ortloff, S. Groux, F. Krawczel.

At 7:00 p.m., Mayor Gruendemann called the meeting to order. Roll called showed R. Kokesch to arrive late. The pledge of allegiance was recited.

Mayor Gruendemann called for approval of the minutes of the regular council meeting on March 11, 2024. Mumme motioned to approve the minutes as presented, Second by Lund, RCV-5 Yes, 0 No.

Mayor Gruendemann called for approval of the consent agenda: bills were presented in the amount of $77,612.65, Cash receipts for February were $29198.13; there were 5 past due utility accounts; no new zoning permit issued. **Lund motioned to approve the consent agenda as presented, second by Mumme, RCV-5 Yes, 0 No.**

J. Vogel addressed the council first asking to view the plans for the 2nd ave project to share with contractors in hopes of helping find the lowest price to get the work completed. R. Kokesch informed Vogel of their ability to place a bid on the project once the bidding process becomes open. Vogel asked questions about details of the project and input his opinions on looping the water mains as he stated that the water quality would not be improved due to connecting new pipes with old pipes. S. Traulich with Bolton and Menk shared information on why it would not decrease water quality and how it is looked at from a different perspective. Water is always being tested and treated to ensure it is safe to drink. The plans to loop the dead end water mains on 2nd and 3rd Ave will allow for increased water pressure, better water quality as well as providing individual water shut off valves for each property. Vogel talked about some of the plans he has for his property located west of 2nd and 3rd Ave- including walking trails, butterfly sanctuary, shade trees, wild flowers, community garden, etc. Due to the extent of his plans for his property and the fact that there is a platted street and alley for the city going through it, he hopes to have the city vacate those to allow him ease of achieving his vision. The council suggest he make a formal request and the planning and zoning committee be called together for review.

Groux and Krawczel from AES energy presented plans for a large solar garden to be located north of town. A small portion of the solar garden is proposed to be within the city limits with the rest to be mostly north and east of the city limits. Groux stated that there are no plans to have battery storage facilities and they plan to begin construction in 2027 and to be ready to distribute energy in in 2028. Land owners in the proposed area have been in contact with AES and are on board with the plans; land agreements are still to be negotiated with apx. 768 acres anticipated to be committed to the project. R. Kokesch asked if they plan to address the residents of the area that are not on board with the plans and are moving because of it. Groux stated that AES strives to better the community, but it is not always possible to please everyone. AES will hold public hearings in the permitting process but are being proactive by keeping communication open. Council asked questions about other things that may be affected including county field tiling, affects on the City water supply. AES has no plans to affect the field tiling or the area where the city water supply is. AES stated that the southern most parcel of land is planned to be a staging and set up area during the construction phase and will be restored as close to its original state as possible. AES addressed the fact that the staging area is not necessarily always pretty to look at for folks driving through the city and they will be asking for feedback from the city council as well as other members of the community for how they would like to improve the aesthetics of this area for better visuals when driving by. AES also plans to have permanent staging areas set up for future maintenance. Woven wire fencing with mid-level cover vegetation within the solar garden is proposed. There are no plans to plant trees as landowners do not want the burden of cleaning up sticks withing the fenced solar garden area. Land agreement contracts with property owners are proposed to be 35-year contracts. AES touched on tax benefits and that the city will benefit since the parcel within city limits will be taxed as commercial property and will increase the tax capacity, which is being reported as a benefit to the city taxpayers. During the construction phase, it is expected that there will be approximately 300 workers that will be brought to the area staying in hotels and campgrounds as well as bringing in business to the locals bars and restaurants. AES strives to keep communications open and transparent and will strive to be beneficial to the community.

Traulich with Bolton and Menk reported on the various things they are assisting Franklin with; he anticipates word on the small cities grant in June; work on the PFA loans are wrapping up and will soon be submitted; another public hearing will need to held in July so the council will need to pass a Resolution in June; the grant for the ravine project will soon be submitted; the lead and copper inventory project will be completed in the beginning of May-the GIS mapping program is set up and ready. Traulich has met with Radermacher and K. Kokesch to plan the appointments and details out for completion of the inventory. Traulich reported communication with the county of future plans to improve CR 5; as there is still an old city water main from 1920 between 5th Ave and 3rd Ave, he asked if council would plan to replace the old water main with new during this time that the county improves the road, making note that the county is not planning this in the near future and will be down the road. Council would like to plan to make city improvements at the same time but are not yet ready to put a cost estimate together.

Deputy Ortloff spoke with the council about the city blight process and suggested beginning the process earlier than in the past. Plans to identify blighted properties and send out an initial letter once identified and hand out violations after city wide cleanup week to allow property owners a method to rid their properties of garbage. The council is completely on board and prefers to Radermacher as the person of contact with the sheriffs department for these properties. The Sheriff's department will be holding an ATV safety and training class in May at the Franklin Community Center and the County Public works shop in Franklin. Council reminded Ortloff of the councils request to enforce all ATVs and golf carts be permitted through the county as well as ensuring that no children under 16 years of age or younger are not using golf carts and ATVs as a means of transportation around the city all summer.

Department heads reported: Menk reported a recent grass fire call. The Fire Department will be hosting a natural disaster training in May and invite and city council members or city staff to attend so that all will know their rolls in the chance of a natural disaster. Council held a discussion with Menk on well checks and screenings for Fire Department and first responders. K. Kokesch reported the tree at the Lions park was removed. The individual that used his equipment originally planned to provide this service for free but is asking for $575 due to the process taking longer than expected, council approved. Kokesch will be flushing hydrants soon. Kokesch request that the council assist in helping inform residents the importance of pulling their garbage and recycle bins back to their house after getting emptied as it hinders street cleaning throughout the year. Kokesch reported a recent lift station pump failure over the weekend and a replacement will need to be purchased. Kokesch reported getting awarded by the MPCA for Franklin's treatment of the City's wastewater. Radermacher reported getting accepted into the Clerk's institute with a discount on

tuition and will be gone for the entire week of May 6-10. R. Kokesch requested the website be updated or removed. Radermacher reported having it updated; with quick review of the website during the meeting it showed that the newsletter updates did not take.

Lund motioned to accept the resignation of K. Joehnck from the MRU department, Second by Mummer, RCV- 5 Yes, 0 No.

The public safety aid given to the City in December of 2023 was discussed $21,443 was given to the City of Franklin. Menk made a wish list for the fire department, Radermacher reported that park cameras ($4088.75) are a qualified expense, and other departments have safety needs but did not bring a fourth a wish list. The fire departments needs included: turn out gear for a member who was recently on military leave but is back in town($4473), a gas/O2 sensor replacement ($1519), washer($7950) and dryer ($9899), and more lockers ($3759). **R. Kokesch motioned to approve the expenses of the Lion's park cameras, turn out gear of one fire dept. member, and the gas monitoring sensor replacement, Second by Mumme, RCV- 5 Yes, 0 No.**

Council discussed setting up the park equipment and expressed they want it to be up by graduation for utilization to begin before school is out for the season. There was discussion on who will be able to head the project; Mayor Gruendemann is willing to assist in leading the project however, stated he will not be available until mid-May at the earliest. The council plans to ask for volunteers from the community to help in construction. R. Kokesch will help in making plans and finding helpers.

Discussion was held on 2024 summer mowing and spring/fall park clean up. McGown submitted a quote to mow all the areas that are currently being maintained by the city. The council also looked at a quote for a new mower. Discussion included talk about hiring a part-time public works assistant in anticipation of K. Kokesch's eventual retirement. The council requested that the job description be sent to them for the public works assistant. Once the job description is set, the part time summer help job will be posted. **R. Kokesch motioned to approve spring park clean up, Second by Mumme, RCV- 4 Yes, 0 No.** Mower quote was looked at. With trade in of the old mower, the new John Deer mower will cost $17,063. Other mowers were demoed over the last year or two but K. Kokesch expressed that the John Deer mower meets all of the needs of the city mowing. **R. Kokesch motioned to approve the purchase of a new mower, Second by Mumme, RCV- 4 Yes, 0 No.**

R. Kokesch motioned to approve mosquito spraying for 8 Biweekly treatments for $399 per treatment, Second by Mumme, RCV- 4 Yes, 0 No.

Two dust control bids were received: SW Dust control and SW Transfer. Bids were identical with their pricing and coverage. Council discussed changing from their previous treatment company of SW Dust and switch to SW Transfer as it is a local company from Franklin beginning this service. **R. Kokesch motioned to approve dust treatment for the 2024 season to be completed by South West Transfer, Second by Mumme, RCV- 4 Yes, 0 No.**

R. Kokesch motioned to approve the liquor license renewals for the Longbranch and the Depot, Second by Mumme, RCV- 4 Yes, 0 No.

Mumme motioned to approve port-a-potty rental for the boat landing for the 2024 season, Second by R. Kokesch, RCV- 4 Yes, 0 No.

Council approved purchasing paint to have the inside of the community center. Painting is to be completed by Cedar Mountain.

At 9:15 P.M., Gruendemann motioned for adjournment, Second by R. Kokesch, RCV-4 Yes, 0 No. The next regular meeting will be June 10, 2024, at 7:00 p.m. at City Hall.

Respectfully Submitted by
Trista Radermacher, City Clerk/Treasurer

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

May 3, 2024

Veronica Parsell
Senior Cultural Resources Specialist
Barr Engineering
VParsell@barr.com

RE: Birch Coulee Solar Project
Renville County
SHPO Number: 2023-2896

Dear Veronica Parsell:

Thank you for continuing consultation on the above referenced project. Information received on March 15, 2024, has been reviewed pursuant to the responsibilities given the State Historic Preservation Office by the Minnesota Historic Sites Act (138.665-666).

According to your correspondence, Birch Coulee Solar LLC, an affiliate of AES Clean Energy, is proposing to construct a 125-megawatt AC utility scale solar project in Renville County. The proposed project will be developed within a 1,030-acre area north of the town of Franklin (Potential Development Area) on privately owned lands. The proposed project includes the installation of solar arrays, inverters, trenched electrical lines, a project substation, temporary laydown areas, fencing and gravel access roads. The point of interconnection will be within the Potential Development Area to the existing Franklin 115 KV substation and high voltage transmission line.

We have reviewed the submitted report *Phase I Archaeological Investigation for the Birch Coulee Solar Project, Renville County, Minnesota* (March 12, 2024) as prepared by In Situ Archaeological Consulting. Based on the results of the investigations, we conclude that there is no evidence of **21RN0038** preserved within the proposed project area. Therefore, there will be no impact to this archaeological site. We understand that three areas of tribal concern were identified within the project area. Considering these do not represent archaeological sites (as documented in the report), we have no comment regarding the project's effects to these areas. We recommend continuing consultation the Lower Sioux Community and the Upper Sioux Community regarding effects of the proposed project on these areas.

Based on the documentation provided, we have determined that there are **no properties** listed in the National or State Registers of Historic Places that will be affected by the proposed project.

Please note that this comment letter does not address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36 CFR § 800. If this project is considered for federal financial assistance, or requires a federal permit or license, then review and consultation with our office will need to be initiated by the lead federal agency. Be advised that comments and recommendations provided by our office for this state-level review may differ from findings and determinations made by the federal agency as part of review and consultation under Section 106.

If you have any questions regarding our review of this project, please contact Kelly Gragg-Johnson, Environmental Review Program Specialist, at 651-201-3285 or kelly.graggjohnson@state.mn.us.

Sincerely,

Amy Spong
Deputy State Historic Preservation Officer

Property Values and Utility-Scale Solar Facilities

Research shows that there is no evidence that solar projects have adversely impacted neighboring properties.

Background

The utility-scale solar industry has seen significant growth over the past decade and demand for clean energy continues to grow as utility companies increase their investment in solar energy to meet customer demand, keep electricity prices affordable, and diversify their energy portfolio. The solar industry drives economic development, especially in rural communities, and can benefit all property owners through tax payments for roads, schools, and community services. In 2020, utility-scale solar projects contributed **$750 million in state and local taxes and land-lease payments** to property owners and have invested **nearly $116 billion total in projects nationwide.**[1] The industry also supports **120,000 jobs** across all 50 states.

Utility-scale solar is the fastest growing source of renewable energy in the United States with 12 gigawatts (GW) of capacity added to the grid in 2020 and 15.5 GW of capacity added in 2021.[2] According to the U.S. Energy Information Administration (EIA), solar power will account for nearly half of new U.S. electric generating capacity in 2022 with an expected growth by 21.5 GW in 2022.[3] There is generally broad support across the United States to increase solar capacity. However, as utility-scale solar installations require large tracts of land, some communities have raised concerns a nearby solar facility may impact local property values. Real world experience has demonstrated this to not be true.

HOME VALUE ASSESSMENT: In 2018, graduate students at the University of Texas at Austin explored the impacts of property values near 956 utility-scale solar installations completed in 2016 or earlier across the United States. The researchers, in partnership with Lawrence Berkeley National Laboratory[4], surveyed approximately 400 property value assessors nationwide, asking if the assessor believed there was an impact on home prices near these sites, the scale and direction of those impacts, and the source of those impacts.

The results indicate that most assessors who responded to the survey believe that **"proximity to a solar installation has either no impact or a positive impact on home values."** The study found that the respondents believe that some features of solar facilities may be associated with positive impacts, such as a location on land that previously had an unappealing use, or the presence of trees or other visual barriers around the array.[5] Furthermore, as the expected lifetime of a solar facility is at least thirty years, residents have assurance the nearby land will not be redeveloped for an unfavorable use.

1 American Clean Power Association. 2021. Utility-scale Solar Power Facts. Accessed at https://cleanpower.org/facts/solar-power/

2 U.S. Energy Information Administration (EIA). 2022. Accessed at https://www.eia.gov/todayinenergy/detail.php?id=50818

3 Ibid.

4 Al-Hamoodah, Leila; Koppa, Kavita; Schieve, Eugenie; Reeves, D. Cale; Hoen, Ben; Seel, Joachim; and Rai, Varun. 2018. An Exploration of Property-Value Impacts Near Utility-Scale Solar Installations. Policy Research Project (PRP), LBJ School of Public Affairs, The University of Texas at Austin, May 2018. of Texas at Austin, May 2018. Accessed at https://emp.lbl.gov/sites/default/files/property-value_impacts_near_utility-scale_solar_installations.pdf.

5 Al-Hamoodah et al. 2018.

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AGRICULTURAL LAND: Similar results were found in a 2020 study on the effect of solar farms on agricultural land values in North Carolina, while also finding evidence that a solar farm may increase those agricultural land values. Published by Dr. Nino Abashidze at the School of Economics, Georgia Institute of Technology, and titled "Utility Scale Solar Farms and Agricultural Land Values," the study examined 451 solar farms in North Carolina.

The study found **"no direct negative or positive spillover effect of a solar farm construction on nearby agricultural land values.** 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 landowners 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."

Other property value studies that find no evidence of decreased property values after construction of a solar farm:

- **MINNESOTA:** In 2017, the Chisago County (Minnesota) Assessor's Office conducted their own study on property pricesadjacent to and in the close vicinity of a 1,000 acre North Star solar farm in Minnesota. John Keefe, the Chisago County Assessor, concluded that the North Star solar farm had **"no adverse impact" on property values**. Almost all of the [Test Area] properties sold were at a price above the assessed value. He further stated that, "It seems conclusive that valuation has not suffered."[6]
- **NORTH CAROLINA:** In 2018, Kirkland Appraisals, LLC studied the value of properties adjacent to solar farms in North Carolina.[7] Kirkland's analyses strongly support the compatibility of solar farms with adjoining agriculture and residential uses and conclude that there was **no negative or positive impact in home values due to proximity of a solar farm**.
- **VIRGINIA:** Christian P. Kaila & Associates studied the value of properties adjacent to solar farms in Virginia.[8] The analysis concluded that adjacent property value (for both residential and agricultural property), was **not adversely affected by construction and operation of solar facilities**.
- Donald Fisher, ARA who has served six years as Chair of the American Society of Farm Managers and Rural Appraisers, and has prepared several market studies examining the impact of solar on residential values was quoted in a press release dated February 15, 2021 stating, "Most of the locations were in either suburban or rural areas, and all of these studies found either a neutral impact or, ironically, a positive impact, where values on properties after the installation of solar farms went up higher than time trends."
- CohnReznick, LLP has studied sale prices of single-family homes and agricultural land properties adjacent to solar farms in over 15 states, using appropriate Paired Sales methodology[9], as well as Before/After resale (appreciation rate) analysis, and concluded that the **solar farms did not adversely affect property values in either the short or long term**.
  - Their research also includes reviewing published studies prepared by academia, as well as other appraisers, and conducting interviews with county assessors and local real estate professionals, who have experience with properties transacting near existing solar facilities in their respective communities. The consensus is that solar farms in their areas had not impacted property values.

The utility-scale solar industry recognizes the importance of engaging with the host community to balance economic, environmental, safety, and social concerns when developing and operating their projects. In their siting and application process, successful solar developers have prioritized being a good neighbor and a long-termpartner with host communities.

6 Chisago County Press: County Board Real Estate Update Shows No "Solar Effects" (11/03/2017).
7 Kirkland, Richard C. 2018. Culpeper Solar Impact Study. Kirkland Appraisals, March 7, 2018.
8 Christian P. Kaila & Associates. 2020. Property Impact Analysis of Round Hill Solar, Proposed Solar Power Plant Augusta County, Virginia. June 2020.
9 Bell, Randall, PhD, MAI. Real Estate Damages. Third ed. Chicago, IL: Appraisal Institute, 2016. (Page 33).

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Photo credit: AES

STUDY OF RESIDENTIAL MARKET TRENDS SURROUNDING SIX UTILITY-SCALE SOLAR PROJECTS IN TEXAS

Erin M. Kiella, PhD; Jennifer N. Pitts, MAI, CRE; & Chris Yost-Bremm, PhD

Summary of Findings

- A market trend analysis of various utility-scale solar projects across a diverse geographic study area in Texas showed no evidence of negative market impacts for nearby residential properties. The analysis showed a robust and competitive market still exists for these nearby residential properties once solar projects begin development and after they are operational.

- Six utility-scale solar projects at various stages of development and operation in four Texas counties were considered.

- Sale metrics– price per interior square foot, sale to list price ratios, and days on market– in subject areas were compared to control area sales located further from solar projects. Results showed the subject areas trended similarly to the control areas.

- Study results were consistent across varying locations, residential markets, and for varying project stages.

- Market interviews with local market experts and agents associated with sales proximate to solar projects also confirmed the market trend results.

- Conclusions and findings from the body of published literature were also reviewed and summarized.

STUDY OF RESIDENTIAL MARKET TRENDS SURROUNDING SIX UTILITY-SCALE SOLAR PROJECTS IN TEXAS

Erin M. Kiella, PhD; Jennifer N. Pitts. MAI. CRE; & Chris Yost-Bremm, PhD

Abstract

The rapid growth of utility-scale solar project installations, as well as the increase in project sizes both in the United States and particularly in Texas, has caused concern about potential impact from projects on proximate property values. The research available on the potential impact, if any, remains limited. The research performed here is an analysis of market trends surrounding Texas utility-scale solar projects in Tom Green, Bell, Lamar, and Bee Counties to understand how surrounding real estate markets may be affected when located near utility-scale solar projects. Key market indicators – sale price per interior square foot, sale to list price ratios, and days on market—for subject areas are compared to control areas of similar residential properties located further from the utility-scale solar projects. The study analysis shows market indicators for the subject areas trend similarly to control areas. These results indicate residential real estate markets, overall, are unaffected when located in proximity to a utility-scale solar project. There is potential for individual sales to be affected by the proximity to a utility-scale solar project, but overall, a robust and competitive market still exists for these properties. Several of the sales were confirmed through discussion with agents associated with the sales. Additionally, local market experts were surveyed to understand how the market was reacting to the development and operation of solar projects. These conversations confirmed the market trend results that overall, real estate markets have not been impacted by the development and operation of utility-scale solar project. Conclusions and findings from the body of published literature were also reviewed and summarized.

What is a typical utility-scale solar project?

Although there is no uniform definition for a utility-scale solar project, the industry tends to use two defining features to classify such projects—size and energy use. The Solar Energy Industries Association ("SEIA") defines "utility-scale" as solar projects generating over one megawatt ("MW") of solar energy. The National Renewable Energy Laboratory defines a project as "utility-scale" if it generates more than five MWs of solar energy. Utility-scale projects also typically sell electricity directly to the grid as opposed to supplying electricity to an individual facility.

Developers of utility-scale solar projects typically plan for at least 100 MW of electricity production, which requires approximately 800 to 1,000 acres of land. Leasing land for these projects is preferred by most developers. In some cases, developers purchase the land where a

substation is located. Developers are interested in land with access to transmission lines and with a topography that is flat to slightly sloping, ideally with a south-facing slope.[1]

Twenty-to-thirty-year leases with a fixed-rate lease structure are typical, as opposed to production-based rental agreements. Leases will have two lease rate structures based on the phase of the project—development and operation phases. Development phases are shorter, typically three to five years, with the operational phase typically lasting 20 to 30 years. The lease rates for the operational phase are allocated by decades (i.e., rate 1 for years 1-10, rate 2 for years 11-20, rate 3 for years 21-30) and include inflation adjustments. Leases also typically include options to extend the lease, with a rate identified for each extension. In addition to standard lease rates, transmission and access easements are included for the development phase. One-time payments for these easements are based on the land usage (i.e., length of road developed, or underground cable installed). If a substation facility or operations and maintenance ("O&M") facilities (O&M building, parking lot, equipment and storage yard, and other ancillary facilities) are installed, the tenant pays an annual payment per acre of the property occupied by such facilities during the operational phase. The area where the solar panels are located, known as the "Solar Panel Area" ("SPA"), is likely to be fenced off. The lease includes a waiver stating that the landlord waives their right to ingress and egress to, on, and over that portion of their property. Setbacks and setback requirement waivers are also typically included allowing facilities to be located anywhere on the property, including near the property line boundaries.

The tenant typically has the superior rights to use of the land. They have the right to transfer, convey, sublease, or assign the lease or any interest without the consent of the landlord. The landlord also has the right to assign and/ or transfer their interest in the lease or the underlying real property without the consent of the tenant.

If any land is designated under the United States Department of Agriculture's Conservation Reserve Program ("CRP"), the landlord must work with the tenant to remove the designation for purposes of construction, operation, or maintenance of the project. Typically, the tenant bears the cost of removing the land from the CRP designation and reimburses the landlord for any penalties or reinstated taxes as a result of the removal, but the tenant does not pay any foregone future program payments the landlord would have received. Typically, the tenant has no water rights unless otherwise agreed upon. If the landlord experiences any increase in ad valorem property taxes, assessed for the property after the operation date of the solar project, the tenant typically reimburses the landlord.

It is not uncommon for several projects to exist on a single site. In these instances, each project has a separate lease with the landlord. The leases may have the same terms but exist for each individual project. Projects may also extend over multiple properties; therefore, a project may extend across adjacent landowners' properties.

Texas state law requires the decommissioning process of a solar project to be bonded in a manner acceptable to the landlord. Doing so eliminates the potential for a landowner to be left with

[1] Lease structure and ideal solar project characteristics were summarized from leases used by the market and discussions with market experts.

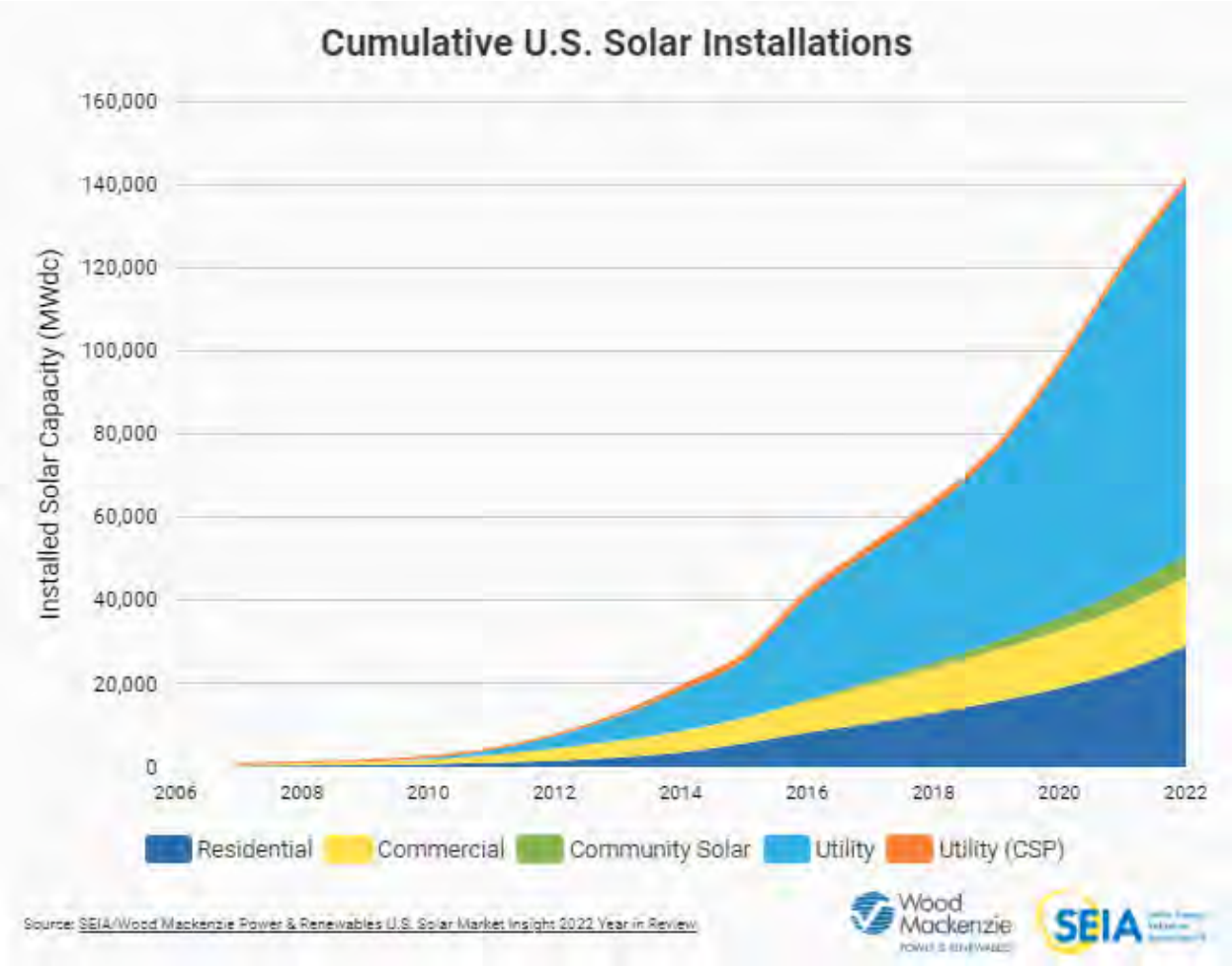
decommissioned solar panels on their property. The decommissioning process must also be referenced in the lease. The language states the tenant must restore the surface of the SPA, as is reasonably practicable, to its original condition at the inception of the lease. Damages resulting from the removal of the tenant's improvements must also be repaired to the extent reasonably practicable. The lease language may also state a timeframe (i.e., restoration must occur within a year). The level of restoration may also be dictated by city, county, or state level ordinance.

Solar production in the United States and Texas

As of 2022, there is approximately 135.7 gigawatts ("GW") of solar power capacity installed in the United States, translating to enough electricity generation to power 23 million homes. Solar installation and production in the United States continues to grow rapidly. In 2010, solar accounted for only 0.1% of the United States' electrical generation. In 2022, it accounted for 4.5%. Solar has also outpaced other energy generating sources in new electric capacity additions. In the third quarter of 2022, solar accounted for 46% of all new electric capacity added to the grid, with solar installations growing 33% annually, over the last decade.[2]

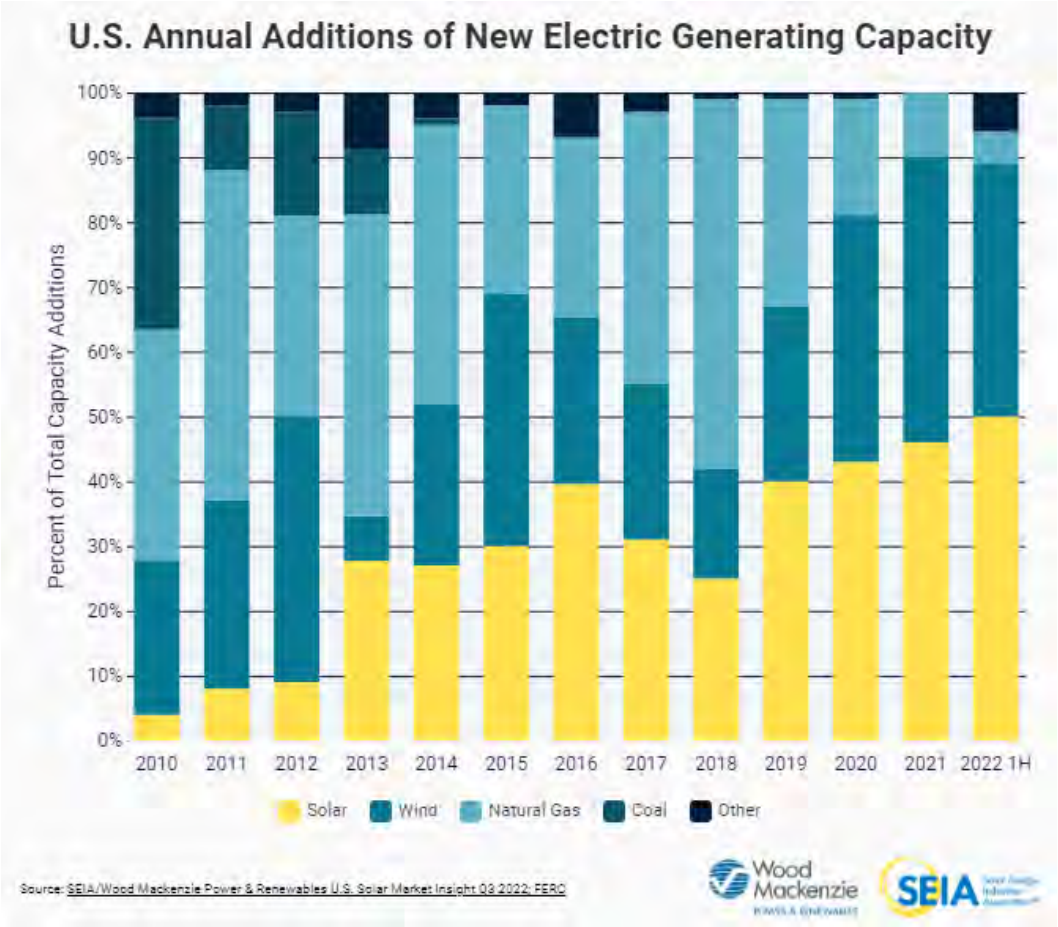
[2] https://www.seia.org/solar-industry-research-data

Figure 1. Cumulative U.S. solar installations[3]



[3] https://www.seia.org/solar-industry-research-data

Figure 2. U.S. annual additions of new electric generating capacity[4]



Texas has 16,173 MW of installed solar (11.9% of the installed solar in the United States) and ranks second in the United States for installed solar electricity capacity (ranking number 1 in 2021). This translates to enough electricity to power over 1.8 million homes and represents 4.7% of the state's electricity usage. Texas currently has 614 companies operating in the solar industry (96 manufacturers, 160 installers/ developers, and 358 other types of companies engaged in solar production). The state has 197 installations, with the industry recording approximately $19.1 billion in investment. In 2021, solar contributed 10,346 jobs to the Texas economy.[5]

[4] https://www.seia.org/solar-industry-research-data
[5] https://www.seia.org/state-solar-policy/texas-solar

Figure 3. SEIA's major solar projects list[6]

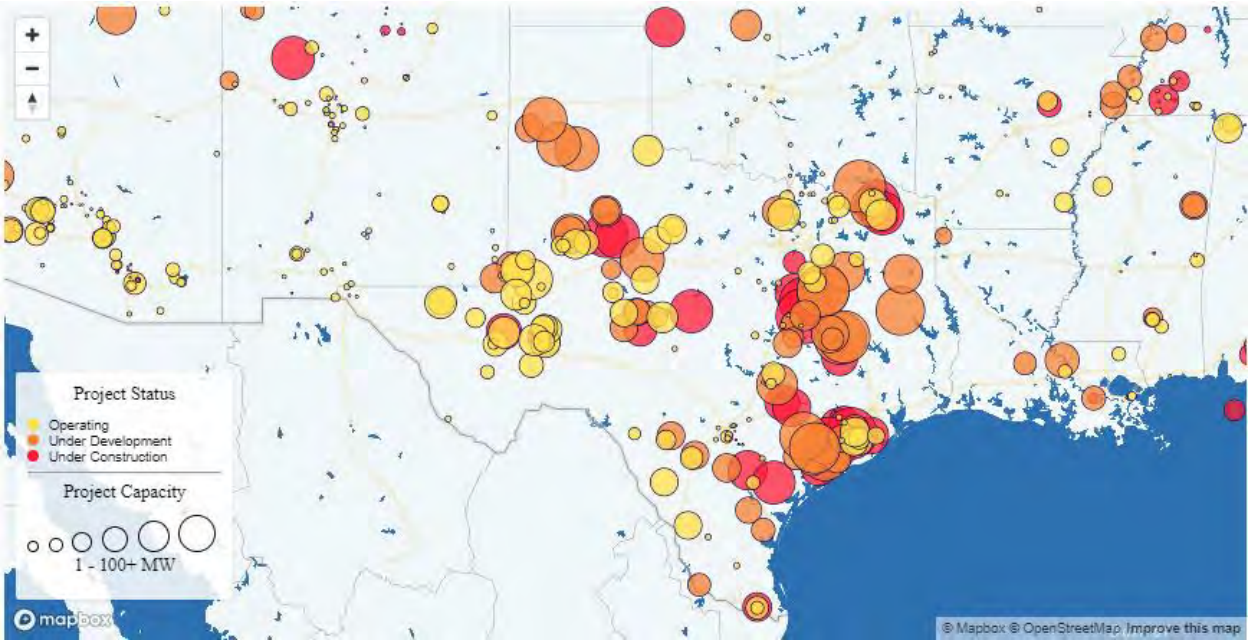
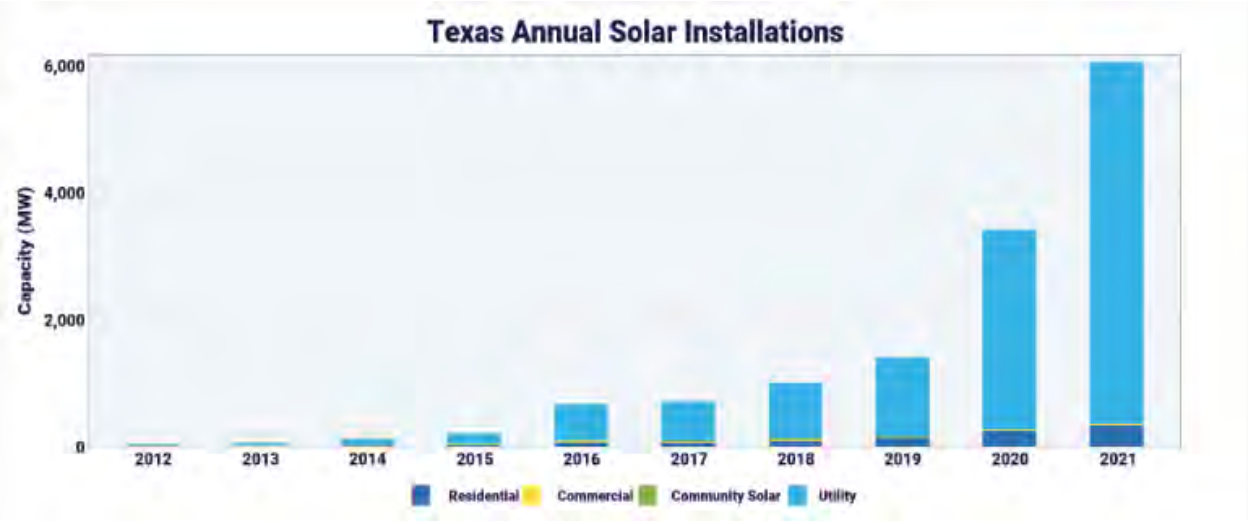


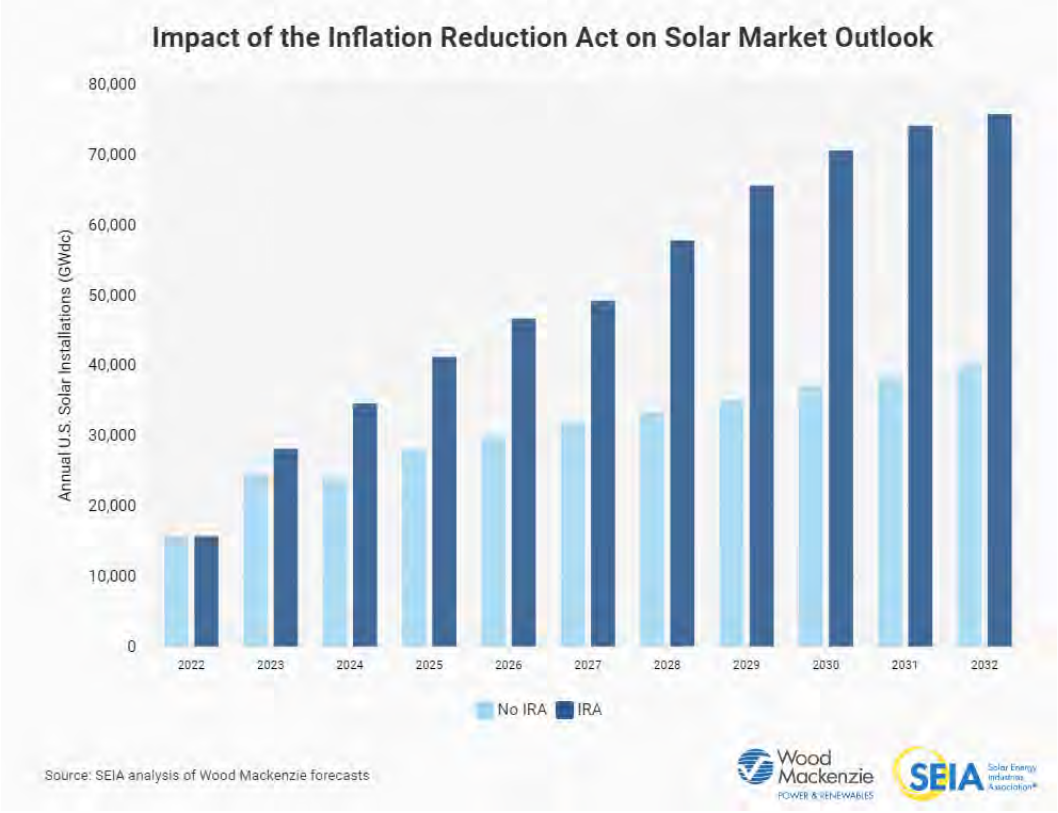
Figure 4. Texas annual solar installations[7]



[6] https://www.seia.org/research-resources/major-solar-projects-list
[7] https://www.seia.org/state-solar-policy/texas-solar

Over the last decade, costs associated with solar production and installation have declined by more than 60%. Solar prices are proving as competitive as other forms of energy generation as well.[8] These favorable market conditions and supportive public policies promote solar installations in new markets. The investment and production tax incentives provided by the Inflation Reduction Act ("IRA") will infuse $200 billion in new investment over the next decade and as a result is expected to increase solar deployment by at least 69% as compared to pre-IRA projections. The United States is expected to have nearly 682 GW of total solar capacity installed in the next decade, five times the amount currently installed.[9] Texas is expected to rank first in installed solar capacity growing 36,092 MW over the next five years.[10]

Figure 5. Impact of the Inflation Reduction Act on solar market outlook[11]



[8] https://www.seia.org/solar-industry-research-data
[9] https://www.seia.org/research-resources/impact-inflation-reduction-act
[10] https://www.seia.org/state-solar-policy/texas-solar
[11] https://www.seia.org/research-resources/impact-inflation-reduction-act

Perspectives from published studies

Research on the impact of utility-scale solar projects on surrounding property values is limited. Relevant published literature revealed the public, in general, supports the development of large-scale solar, yet when specific projects are proposed they are occasionally met with local opposition. Solar panels can affect the visual landscape and reflect sunlight.[12] Surveys responses have found that the visibility of a project and its size and/or installed capacity may affect public perception surrounding a proposed solar project.[13]

To determine if utility-scale solar projects have an impact on the value of surrounding real estate, the academic literature reviewed relies on statistical methods, such as regression analysis, to study relatively large groups of properties. Regression analysis is a common approach and can be useful in identifying and quantifying average effects across a study area. The average value estimated by a statistical model such as regression analysis does not represent an actual value of diminution for any individual property. Real estate is a highly individualized asset and as a result, effects from something such as utility-scale solar could vary across properties and property types, and at various distances or viewsheds. Although statistical methods are designed to identify and control for certain differences in property and sale characteristics, they are not capable of accounting for all the influences and nuances present in real estate markets and in individual transactions. The larger the geographic area and the wider the variation in property characteristics, the less representative an average effect will be of each individual home within the study area. For example, the average impacts derived from a study of newly constructed single-family residential properties in a five-mile radius of a solar project will yield more representative output than a study of residential properties located across an entire state. As a result, careful consideration must be given when considering the application and interpretation of the results from these models.

A search of academic journals revealed three published articles studying the impact of utility-scale solar projects on surrounding property values. A statistical study of the effect of both wind turbines and solar farms on house prices in the Netherlands was conducted in 2021 using a difference-in-differences approach in which the sales prices of houses near solar farms were compared to the sales prices of houses further away. The study examined 12,650 sales in the Netherlands from 2009 to 2019 surrounding 107 solar farms and concluded that solar farms can result in a decrease in house prices within 1 kilometer by an average of 2.6%.[14]

A recent study conducted by the Lawrence Berkeley National Lab also used a statistical difference-in-differences methodology to analyze 1.8 million residential transactions near over 1,500 large-scale photovoltaic projects (LSPVPs) in six states. The study concluded the effects of large-scale solar projects cannot be generalized, as any potential effects depend on many factors particular to

[12] M.I. Droes, H.R.A. Koster, "Wind turbines, solar farms, and house prices." *Energy Policy,* 2021: 1-11.
[13] P. Roddis, S. Carver, M. Dallimer, P. Norman, G. Ziv. "The role of community acceptance in planning outcomes for onshore wind and solar farms: An energy justice analysis," *Applied Energy*, 2018, 353-364, and J.E. Carlisle, D. Solan, S.L. Kane, J. Joe. "Utility-scale solar and public attitudes toward siting: A critical examination of proximity," *Land Use Policy,* 2016, 491-501.
[14] M.I. Droes, H.R.A. Koster, "Wind turbines, solar farms, and house prices." *Energy Policy,* 2021: 1-11.

individual projects or locations and found that these factors are not uniform across different projects or in different locations. Meaning a result found in one location cannot be applied or used to understand potential affects in another location. Three of the states studied showed no statistically significant impact from LSPVPs, while three states indicated a reduction in sale price for homes only within 0.5-mile of a LSPVP when compared to homes 2-4 miles away. Combining data from all six states yielded an average sale price reduction of 1.5% for homes within 0.5-mile of an LSPVP.[15]

A study published in 2023 used hedonic regression analysis to analyze the impact of solar projects on residential property prices in England and Wales and found an average 5.4% reduction in house prices for homes located less than 750 meters, or approximately 0.5-mile, from operational solar farms.[16]

Market trends analysis of specific utility-scale solar projects in Texas[17]

Six utility-scale solar projects in four Texas counties were identified for the purpose of analyzing and understanding potential effects of utility-scale solar projects on single-family residential property values. The market trend analysis tracks data on single-family residential real estate transactions involving properties in proximity to solar projects in Tom Green, Bell, Lamar, and Bee Counties. With sufficient data, this type of analysis helps us understand overall market patterns and correlates potentially shifting market conditions with specific points in time, such as the date of tax abatement approval for a utility-scale solar project or the date construction begins (an after period). Indicators of shifting market conditions include data on historical sales prices, the ratio between sale prices and listing prices, and changes in exposure time (i.e., the amount of time the

[15] For illustrative purposes, a 1.5% reduction of a $350,000 home would be $5,250 or yield a value of $344,750.
[16] D. Maddison, R. Ogier, A. Beltran. "The Disamenity Impact of Solar Farms: A Hedonic Analysis," *Land Economics*, 2023: 1-16.
[17] An analysis of market trends provides an overall picture of market activity. It is not sufficient to identify or quantify potential diminution in value at any one specific property or group of properties. Real estate is a unique asset and subject to individualized influences. Real estate markets, unlike the markets for other goods and services, have never been considered truly efficient because of the unique characteristics of each piece of real estate and the unique perceptions and level of knowledge of each buyer and seller (TARE, 15th edition, page 114). Market trends analyze overall patterns in a market, but these trends do not capture specific differences in property characteristics present at individual homes within each market, or unique sale conditions that may have impacted the sale price in certain transactions. While the trend analysis provides us insight on any potential market-wide effect, further analysis is required to identify and quantify diminution in value, if any, at the individual property level. TARE discusses the recognized and generally accepted specialized techniques used to identify and quantify diminution in value due to environmental contamination at the individual property level. These methodologies also apply when quantifying any impact to an individual property due to the presence of other types of potentially adverse influences, such as utility-scale solar, wind turbines, or high-voltage transmission lines. These recognized techniques include paired sales analysis, case study analysis, multiple regression analysis, and analysis of income and yield capitalization rates for income-producing properties (TARE, 15th edition, page 188).

property is on the market before it sells, "days on market"). The analysis performed here considers data on these three factors.[18]

For each solar project area identified, one or more control areas are identified to serve as baseline comparisons to identify any divergences in the two markets. Sales trends in the real estate market surrounding the utility-scale solar project, the "subject area," are compared to sales trends in a "control area" of generally similar properties located near but not proximate to the utility-scale solar project.[19] Ideally, the market data of a subject and control property will historically trend similarly. This allows us to consider the markets in the after period and identify if any divergences in the subject market trends exist. This could be in the form of the market demanding lower sales prices for adjacent or proximate properties, longer marketing time or days on market ("DOM"), or larger differences between the original listing price and the ultimate sales price. If a divergence is identified in the subject and control area data that correlates to pertinent dates associated with the utility-scale solar project (e.g., date of tax abatement approval, date construction begins), the divergence serves as an indicator of a potential market reaction to the presence of the utility-scale solar project. The presence of a divergence does not alone prove causation and requires more investigation to determine why it occurred. Real estate sale prices and other indicators are subject to normal market fluctuations and are influenced by several contributing factors. Although a market trend analysis tracks market metrics and identifies shifting market patterns correlated with the date of a specific activity (e.g., the construction of a proximate utility-scale solar facility), the analysis does not sufficiently identify the causality of any such market shift. The identification of a dip or divergence requires additional research to determine the cause of the market shift. Additional research may include interviews with market participants and paired sales analyses of individual sales.

The study areas considered in this research were selected with key real estate market features in mind. Project location in an area of competing land use was a key criterion. Projects located near and amongst residential properties or where land use is being converted from an alternative use are most likely to see an effect if one exists. For example, many solar projects have been developed in West Texas surrounded by vacant land or land with similar industrial uses such as oil and gas production or agricultural use. These projects are also often located miles from residential homes. As the land use of these properties is consistent or not conflicting with surrounding land use, one can logically presume proximate land values are likely to be unaffected. As a result, the analysis here focuses on projects where the surrounding areas have contrasting land use types or where land use has been converted for the project (i.e., solar acreage previously used as rural residential).[20] Projects of significant size, 100 MW or greater, were also selected as these have the most significant potential viewshed impacts and drastically alter an areas landscape.

[18] TARE, 15th edition, page 389.
[19] Identifying control properties near subject properties helps alleviate the potential for locational market differences that could preclude comparability.
[20] This is consistent with the body of literature reviewed stating any potential impact on the value of surrounding real estate would be expected to be highest in areas with residential development.

Furthermore, rural and urban residential markets are unique, with different market participants and different value considerations.[21] To understand how a utility-scale solar project may affect each market, projects located both in rural and urban areas, and in various geographic locations throughout the state of Texas, were considered. For example, projects near planned developments (smaller tract properties with homogenous builder(s) and floor plans) are considered as well as projects near more rural residential properties (larger tract properties with unique builders and property features). The varying projects chosen help us to understand how the perceptions of these different market participants, and their unique perceptions, may impact the sales of residential properties near a utility-scale solar projects.

Solar projects that are either operational or under development/ construction are considered in this research. Markets surrounding projects in these stages are most likely to have full knowledge of the projects. Projects only in the planning phase also have the potential to not come to fruition, and many in the market may be unaware of a project's potential. Therefore, the information about a potential project may not have fully saturated the market. Markets may also react differently during the construction phase and the operational stages, therefore considering projects at each stage was important.

Operational or projects under development, with a capacity of 100 MW or greater, surrounded by a sufficient number of residential properties, and located both in rural and urban areas were considered for this research. Six utility-scale solar projects in four Texas counties were identified fulfilling the market and locational characteristic requirements discussed. Market trends analysis was performed for these six projects.

Table 1. List of solar projects considered by county

Tom Green County	Bell County	Lamar County	Bee County
Rambler Solar Concho Valley Solar	Five Wells Solar	Impact Solar Samson Solar	Sparta Solar

[21] For this reason, in a sales comparison analysis, it would be inappropriate to use a property located in an urban center as a comparable sale to a property located in a remote rural location.

Figure 6. Map of utility scale solar projects considered in the analysis

Tom Green County – Rambler Solar and Concho Valley Solar

Two utility-scale solar projects in Tom Green County, located on the Edwards Plateau in West Texas, were analyzed for the purpose of identifying market impacts to single-family residential homes located proximate to these projects. These two projects, Rambler Solar and Concho Valley Solar, were chosen due to their location near the county seat of San Angelo and proximity to residential developments.

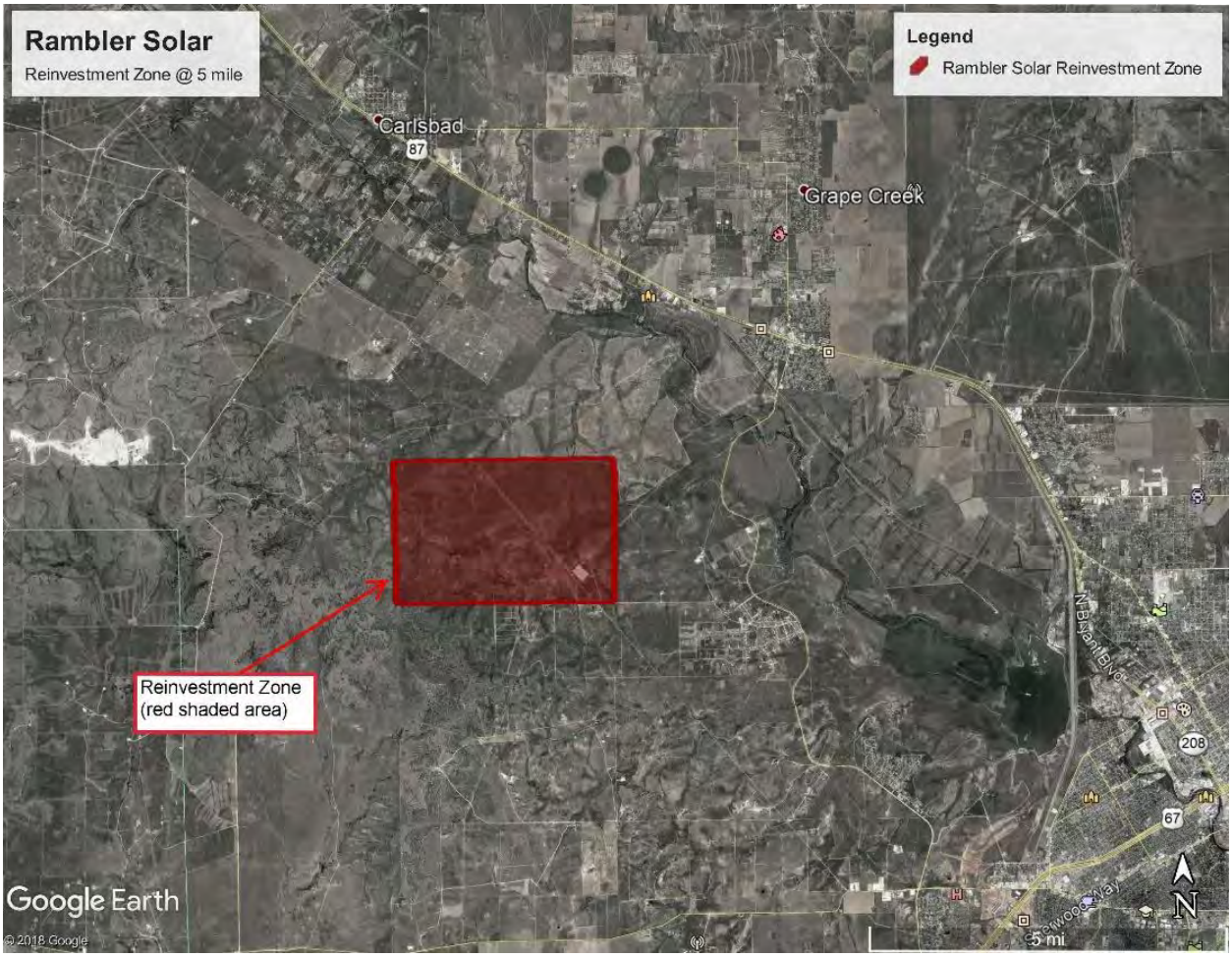
Rambler Solar

Rambler Solar is a 200 MW solar facility located at 8999 Jeremiah Lane, northwest of San Angelo. The facility spans approximately 1,700 acres and contains over 733,000 high-efficiency solar panels (bifacial models). The Rambler Solar facility can power approximately the equivalent of 40,000 homes when operating at full capacity. It was the first solar project in Tom Green County and Duke Energy Renewables' fourth solar generation facility in Texas. A tax abatement application was submitted in January 2019 for the project. Duke Energy acquired the Rambler Solar project from Recurrent Energy in September 2019, and commercial operation began in July 2020.

Figure 7. Aerial photo of Rambler Solar Project[22]

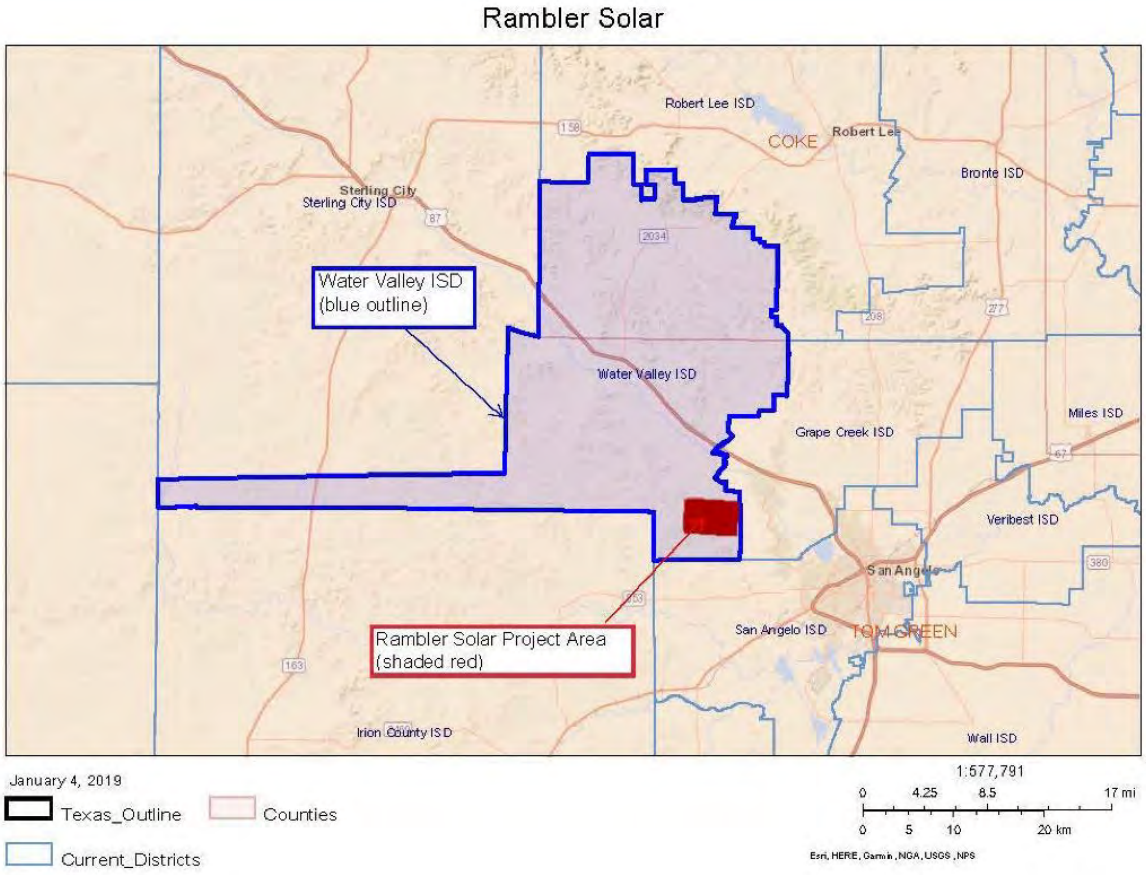
[22] Photo by Duke Energy

Figure 8. Aerial Map depicting the location of Rambler Solar Reinvestment Zone[23]



[23] Figure taken from the Application for Appraised Value Limitation to Water Valley Independent School District.

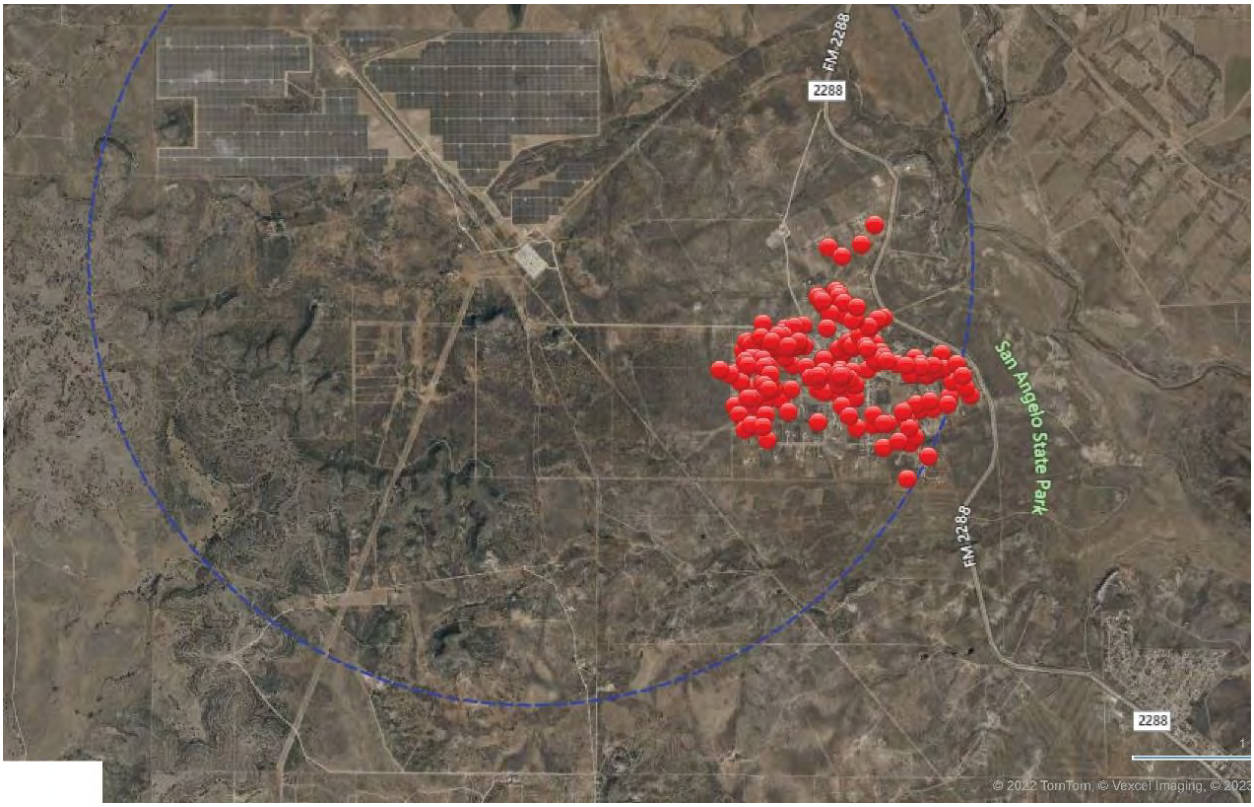
Figure 9. Location of Rambler Solar Project and Water Valley Independent School District[24]



Buffalo Heights, located approximately 1.5 miles to the southeast of Rambler Solar, is the closest residential development. The planned residential community, first developed in 2008, is located about ten miles northwest of San Angelo. These homes, built from 2009 to the present, have relatively large lot sizes (on average one acre) and range in size from approximately 1,400 to 3,500 square feet. Data was pulled on sales within a three-mile radius of the entrance to the Rambler Solar facility. As can be seen in Figure 9 below, the majority of these sales are located within the Buffalo Heights development.

[24] Figure taken from the Application for Appraised Value Limitation to Water Valley Independent School District.

Figure 10. Sales from July 2020 to March 2023 within a three-mile radius of the Rambler Solar facility entrance



For the purpose of comparison, several control communities were selected. These communities are single-family residential developments similar to Buffalo Heights but not located in proximity to a utility-scale solar project.[25] Data was collected on control area sales in the area south of San Angelo and north of Christoval (including the residential developments Oak Mountain Estates, The Haciendas at Christoval, Stonewall Reserve, and Pecan Creek), as well as the area north of Wall and to the east of San Angelo (including the residential developments Iron Horse and Stonewall Range). These areas were selected based on their general similarity to the subject sales in Buffalo Heights; specifically, larger lot sizes, a majority of homes with relatively newer construction (post-2000), and similar approximate distance to the city of San Angelo. Data on all sales transacting through the Navica Multiple Listing Service ("MLS") from January 2016 through March 2023, was collected for purposes of analysis.[26]

[25] Residential developments with similar property characteristics were selected for use as control areas. Homes with different characteristics (e.g., homes on smaller lots within the city of San Angelo or older homes) may be impacted differently by changes in economic conditions. Therefore, the selection of control areas with similar characteristics is imperative for truly identifying a benchmark than considering citywide or countywide averages.
[26] Because we are using the MLS, not all sales occurring in the areas are necessarily being captured and therefore, this is a representative sample.

Data on the median price per interior square foot of living space, sale to list price ratio, and DOM was obtained for the subject and control area sales. If the announcement or construction of the Rambler Solar project had a negative impact on sales prices in the surrounding market area, the graph would show a dip or divergence in sales price per interior square foot in the subject area compared to the control areas and correlate with relevant project dates (i.e., the date the project was announced, or the date of construction). If a dip or divergence is evident at a different point in time (not correlated with the project under study), it is unlikely to be associated with the solar project. Similarly, an impact for the other metrics would be in the form of a lower sale to list price ratio (i.e., the sale price of properties sells lower compared to the list price) or the average DOM increases following the key dates.

Figure 10 depicts the median price per interior square foot in both the subject area and the identified control areas. The price per interior square foot of living space rose in a general trend over time for both subject and control area properties. Median price per interior square foot in the identified control areas is higher than the price per interior square foot in the subject area, both before and after the construction of the Rambler Solar facility. This is likely due to the newer construction in the control areas that has come available in recent years. The control area median price per interior square foot began to rise relative to subject area prices in 2017. The positive divergence in the control areas continued until 2019. Key dates to consider are Rambler Solar's tax abatement application in January 2019, and the publicity surrounding the project's purchase by Duke Energy in September 2019. During this 2019-time frame, median prices leveled out in the control areas while prices in the subject area near Rambler Solar continued to rise, narrowing the price gap between the two areas. The prices in both areas trended generally together throughout 2020, the year Rambler Solar began operations. In 2022, control area prices grew at a faster rate which is consistent with the number of new construction homes coming available in the control areas. New construction often brings a higher price per interior square foot than the price per interior square foot of relatively older homes.

Figure 11. Median price per interior square foot for the subject and control areas for Rambler Solar

Figure 11 graphs DOM and shows similar trends for both proximate and distant homes, providing no indication of market resistance. Figure 12 graphs the sale to list price ratio. Sales proximate to Rambler Solar tend to sell consistently at full asking price, particularly in more recent years. This contrasts with homes further away, which often sell at a discount relative to their original listing price.

Figure 12. Days on market for the subject and control areas for Rambler Solar

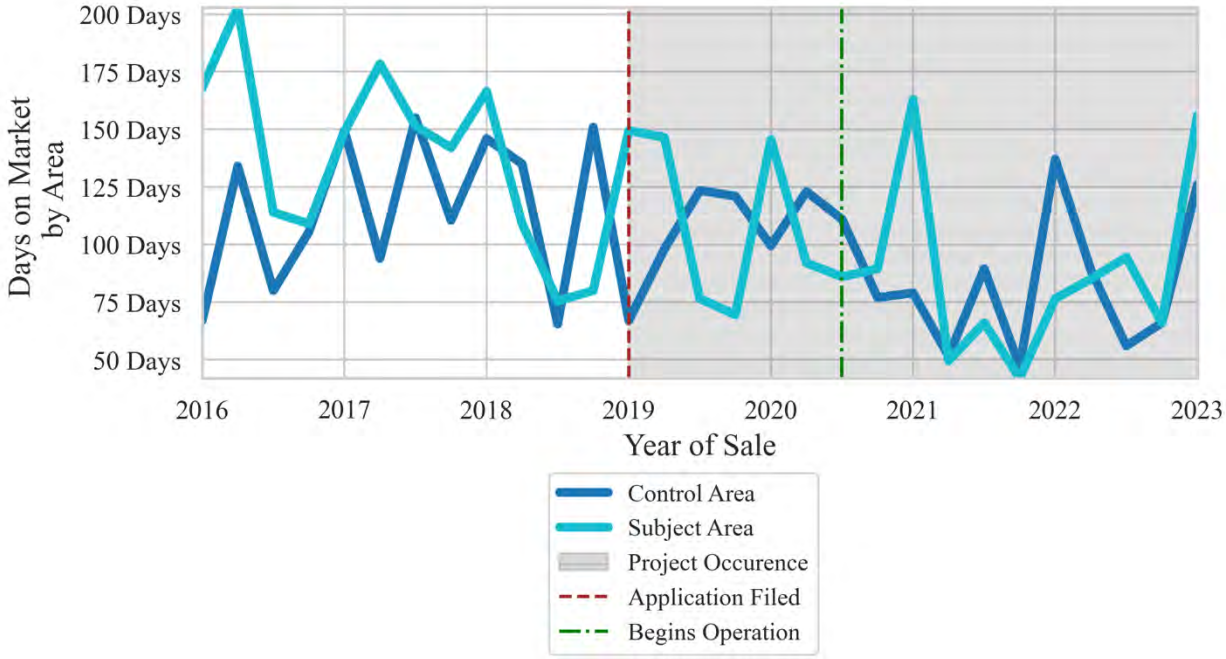
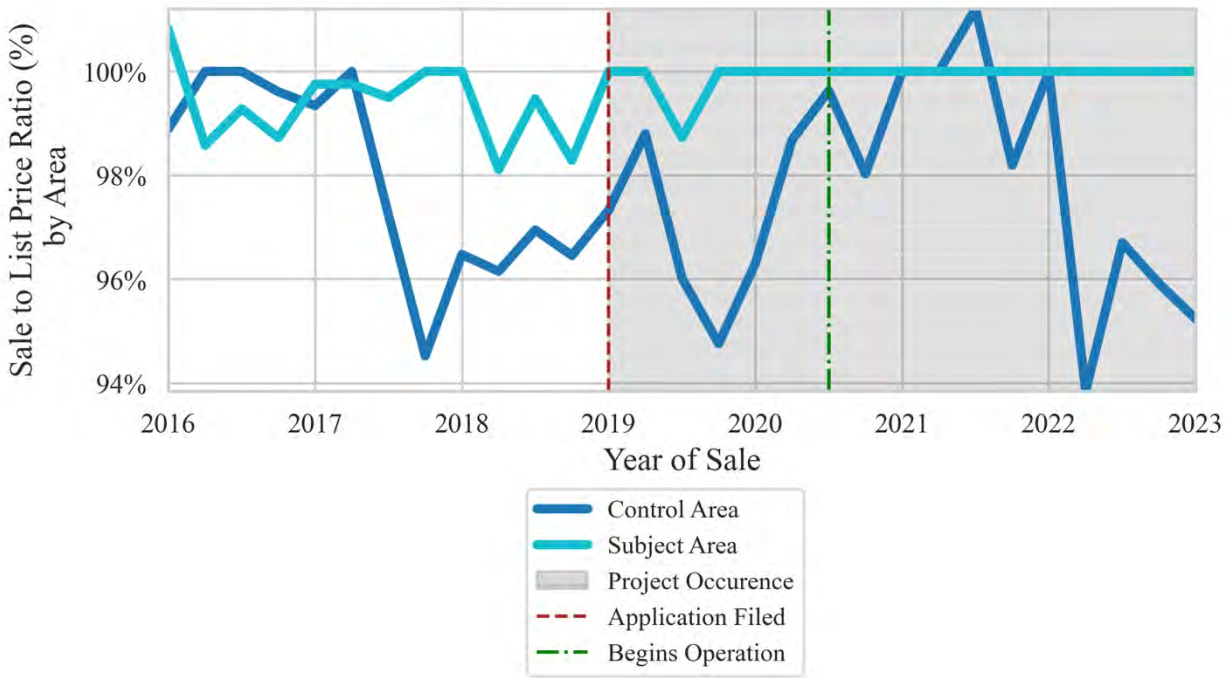


Figure 13. Sale to list price ratio for the subject and control areas for Rambler Solar



These market trends do not show any evidence of negative impact correlated with the announcement or construction of the Rambler Solar facility. To the contrary, median price per interior square foot improved in the 2019-2020 time frame relative to control area prices, as the Rambler Solar project was announced and constructed. Subject area sales near Rambler Solar sell at a higher sale to list price ratio on average, and the days on market have fluctuated over time but are generally consistent with the marketing time for control area homes. It should be noted that the subject area homes in Buffalo Heights do not have a view of the Rambler Solar project. These results are consistent with literature which has noted that property value impacts are most likely for residential properties with a view of a utility-scale solar project, versus residential properties in proximity to a solar project but without a direct view.

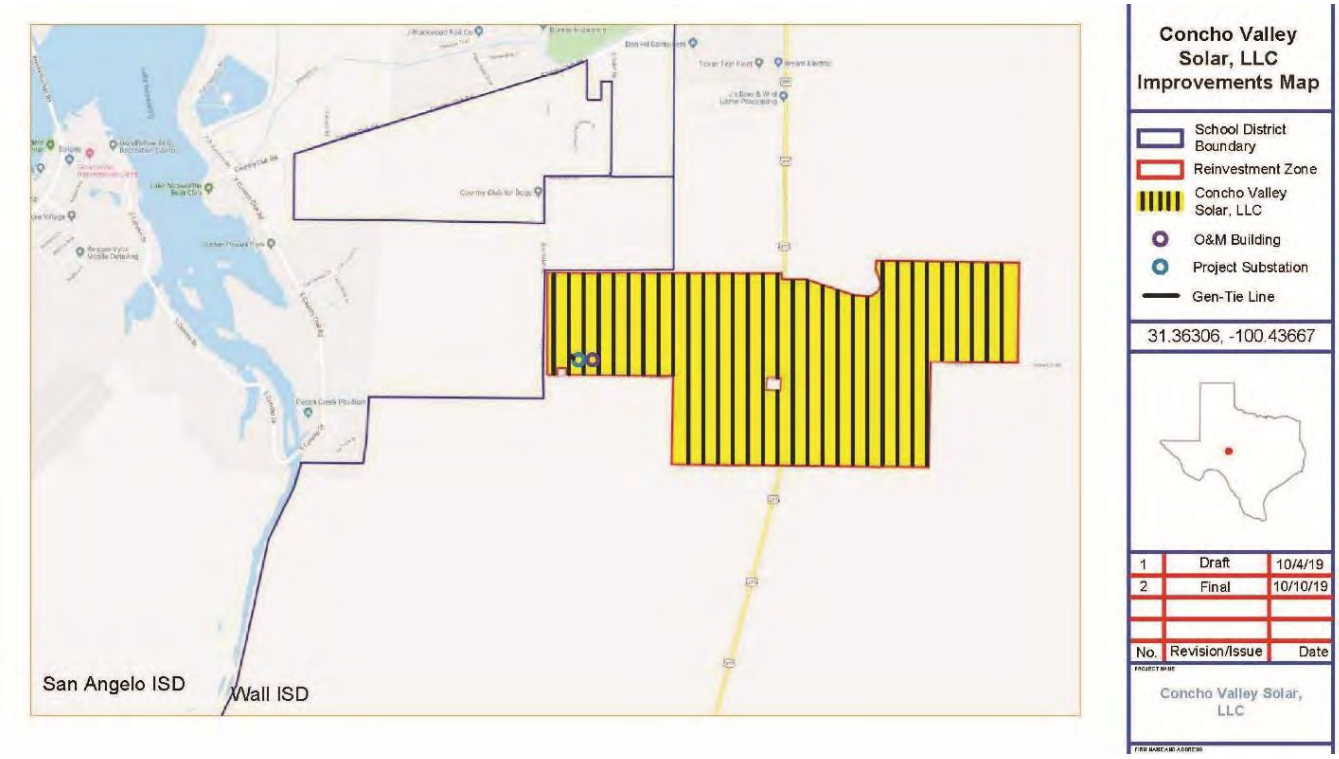
Concho Valley Solar

The Concho Valley Solar project is located approximately 1.5 miles to the southeast of residential development in San Angelo. Some rural homes are located in closer proximity to Concho Valley Solar. The 159.8 MW project, with an address of 467 Ratliff Drive, consists of approximately 700 acres of land. It is the second completed solar project in the county. An application for tax abatement was received in November 2019, construction began in November 2021, and it became operational in December 2022.

Figure 14. Aerial map depicting the location of Concho Valley Solar project[27]

[27] Figure taken from the Application for Appraised Value Limitation to Wall Independent School District

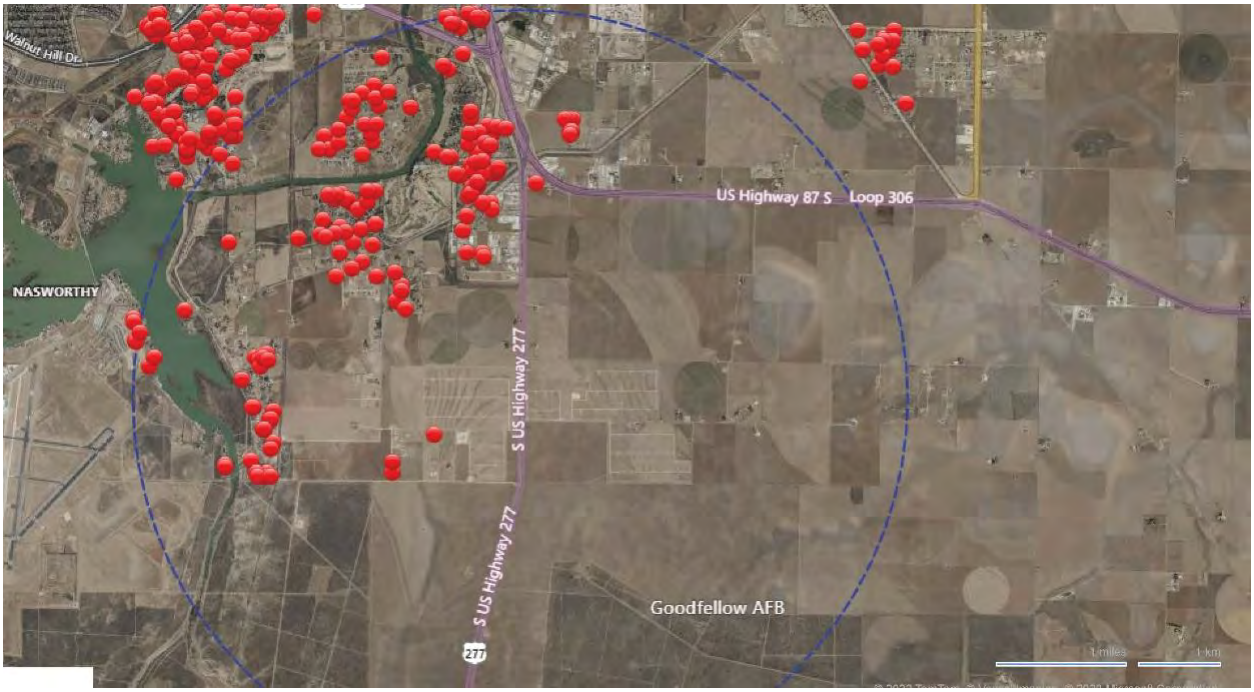
Figure 15. Location of Concho Valley Solar project and San Angelo Independent School District[28]



Data was collected on subject area residential sales from January 2016 to the present within three miles of the Concho Valley Solar facility, south of the Concho River and Highway 87 N, which serve as a physical barrier separating properties north of the solar project.[29] These sales are located primarily in two designated neighborhoods in San Angelo— the Country Club neighborhood and the Nasworthy neighborhood.

[28] Figure taken from the Application for Appraised Value Limitation to Wall Independent School District
[29] A physical barrier acts as a feature that physically separates areas and as a result, creates differing experiences for property owners across such divides.

Figure 16. Sales from January 2016 to March 2023 within a three-mile radius around Concho Valley Solar facility



These are designated as Neighborhood 22 and Neighborhood 23 on the map in Figure 16 below from the Development Services Department in San Angelo. For the purpose of this analysis, sales in these same neighborhoods but north of the Concho River and Highway 87, and sales west of Lake Nasworthy, were selected as control areas. These sales are in the same general neighborhood as the subject sales but physically separated from the Concho Valley Solar facility by water or a major highway.

Figure 17. San Angelo neighborhood map[30]

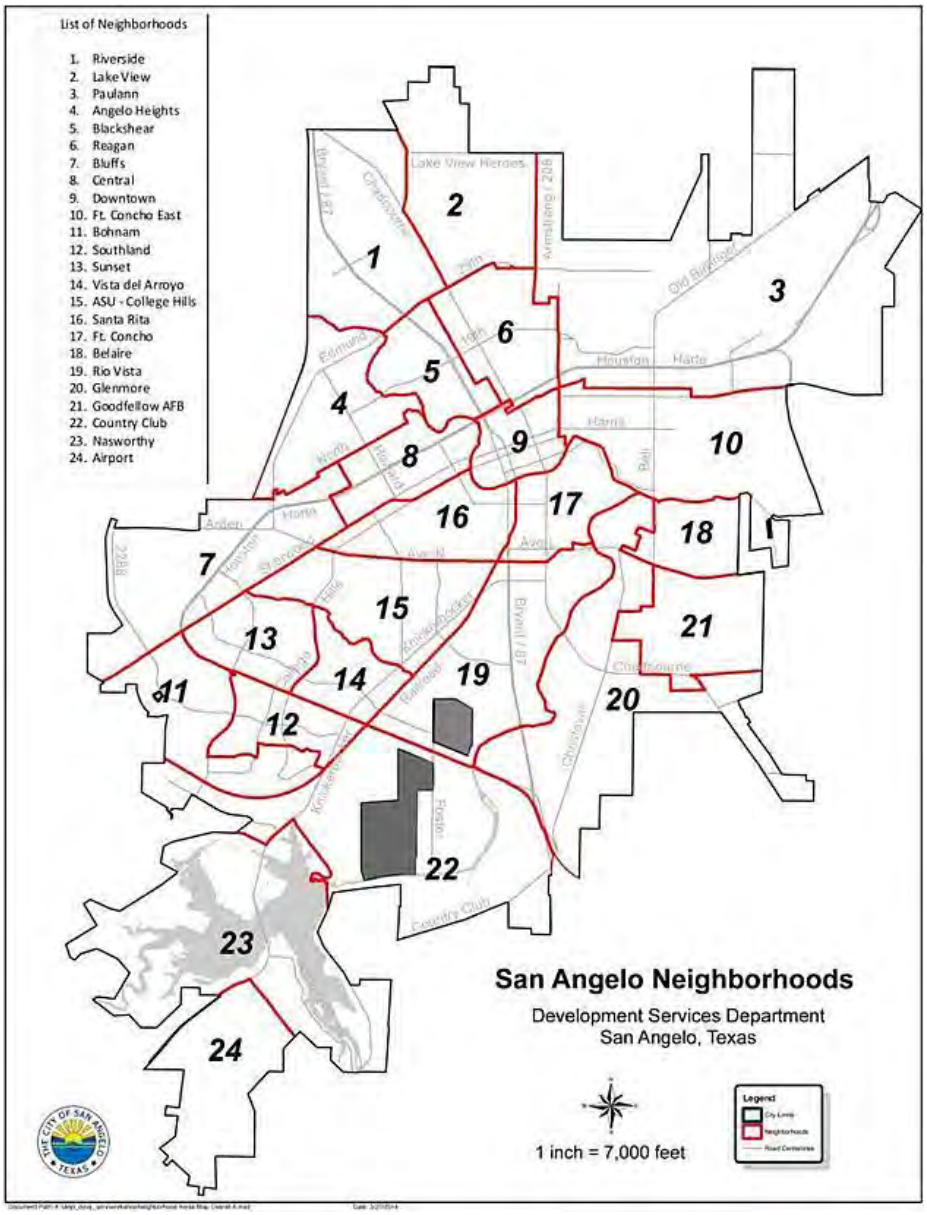


Figure 17 graphs median price per interior square foot for the subject and control areas and indicate the prices of properties close to the Concho Valley Solar project converged with, and occasionally outpaced, properties further away. This trend was present in more recent years, during the construction and completion of the project.

[30] San Angelo Development Services Department

Figure 18. Median price per interior square foot for the subject and control areas for Concho Valley Solar

DOM were generally similar or slightly lower (meaning quicker to sell) than homes further away. This was a difference that both predated and continued after the announcement and construction of the Concho Valley Solar project. Sale to list price ratios also trended closely with homes further away both during and after announcement and construction phases of the project, with no discernable divergence occurring in the data.

Figure 19. Days on market for the subject and control areas for Concho Valley Solar

Figure 20. Sale to list price ratio for the subject and control areas for Concho Valley Solar

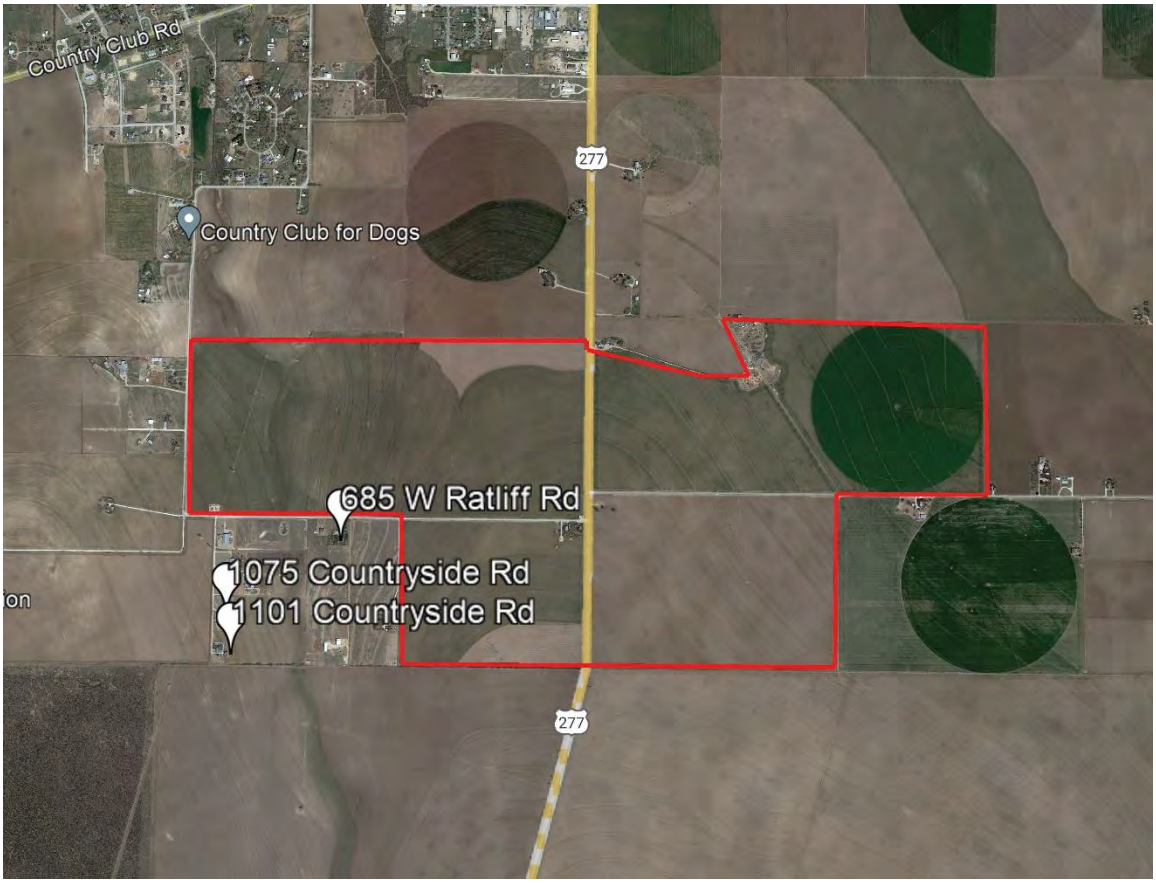
These trends show no evidence of market impact to homes within three miles of the Concho Valley Solar facility and south of the Concho River and Highway 87 N. To the contrary, subject area sales prices have improved relative to the control area sales since 2020, the years following the announcement and construction of the Concho Valley Solar facility. Both sales to list price ratios and DOM have generally trended with that of control area properties throughout the time period studied, both before and after the announcement and construction of the Concho Valley Solar facility.

Similar to the residential sales surrounding the Rambler Solar project, the majority of subject area sales in this analysis do not have a direct view of the Concho Valley Solar facility. However, three rural residential sales have occurred since the announcement of the project that were either adjacent to the facility or have a direct view of the facility.

Three individual sales were considered in more detail due to their proximity to or view of the Concho Valley Solar project. A single-family residential home on Ratliff Road, adjacent to the project, sold on March 8, 2021, for $709,000. The sale occurred after the Concho Valley Solar project announcement and tax abatement approval, but before construction of the project began. The seller was also the listing agent. While confirming the marketing period of the transaction, the seller did not indicate that the project had an effect on the property.[31] Two homes sold on Countryside Road, in close proximity to Concho Valley Solar, in 2022, after construction of the project was underway. A single-family home on Countryside Road sold on July 1, 2022, for $900,000. A high-voltage transmission line is also visible from this property. The listing agent stated the 71 DOM was faster than the typical DOM for homes selling in the $900,000 range which was closer to 150 days. The agent stated the property actually sold closer to the date it was listed but the longer closing period was due to the buyer having a contingency to sell their other property. When asked about the Concho Valley Solar projects the agent stated they had not found that the project has affected the sales they have been a party to nor have buyers shown concern.[32] The other property on Countryside Road sold on September 14, 2022, for its full listing price of $565,000. The sale was confirmed with the agent, who said that while some buyers had questions about the Concho Valley Solar project, it ultimately did not impact the sale price.[33] The buyers paid full price for this property.

[31] Conversation with agent involved with the sale on 5/30/2023.
[32] Conversation with agent involved with the sale on 5/30/2023.
[33] Conversation with agent involved with the sale on 3/5/2023.

Figure 21. Map of Individual Sales Near Concho Valley Solar[34]

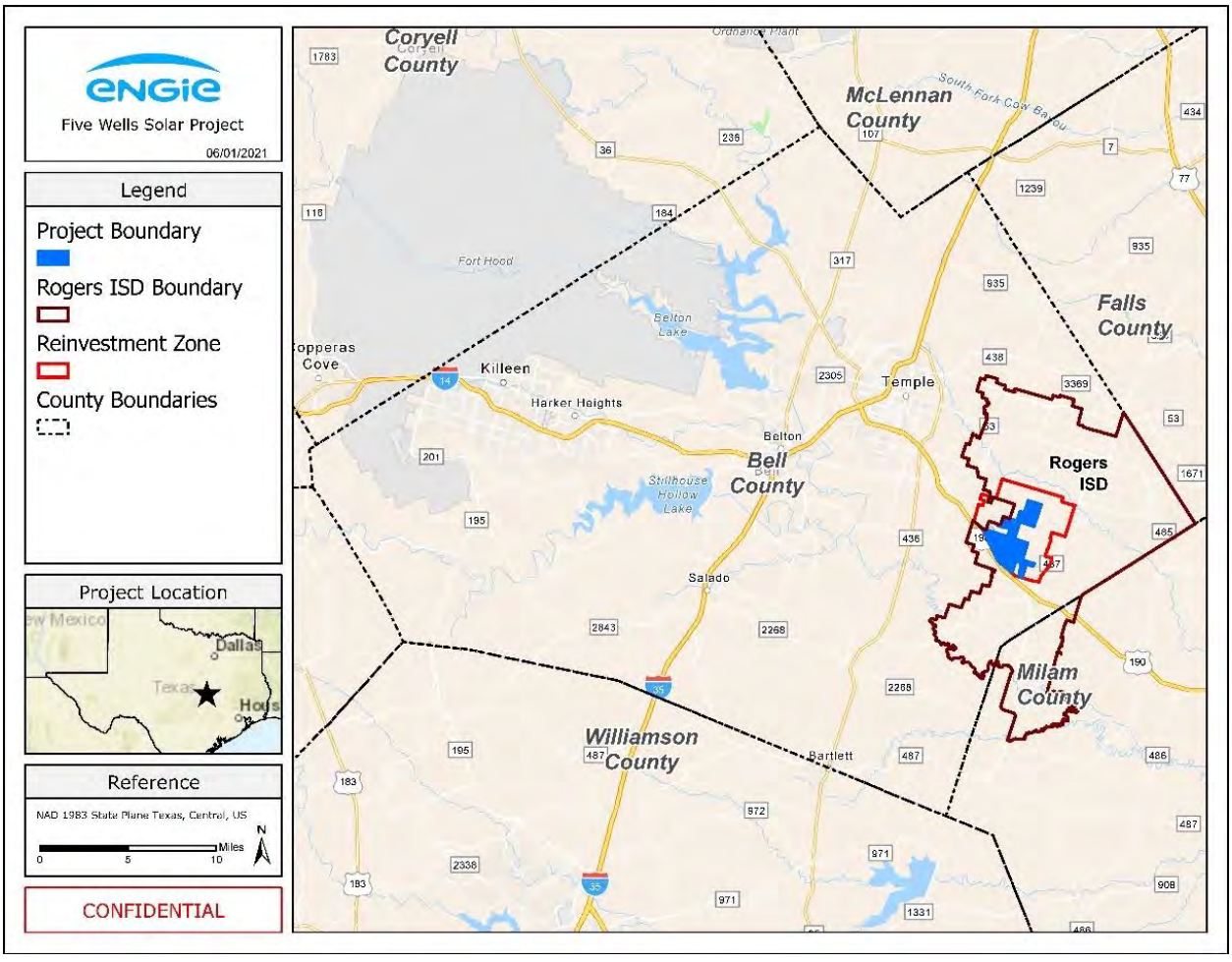


[34] This aerial was as of March 2021, prior to construction of the Concho Valley Solar project. The approximate boundary of the solar project is outlined in red.

Bell County – Five Wells Solar

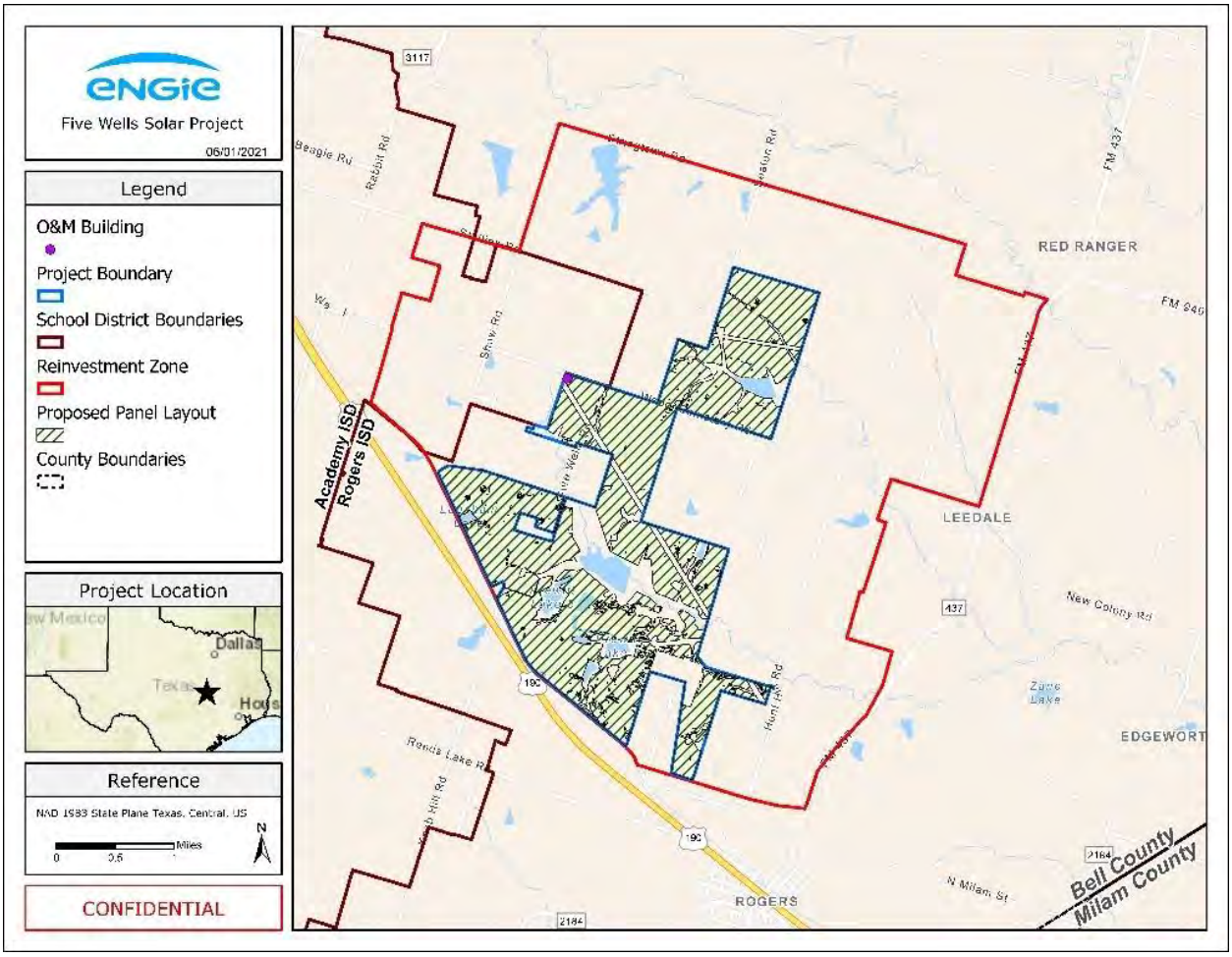
Several utility-scale solar projects are being approved and constructed in Bell County, located in Central Texas along Interstate 35 between Austin and Waco. The first of these projects, the Five Wells Solar project, is located east of Temple along Highway 190 near the town of Rogers. The application for tax abatement for Five Wells Solar was submitted in July 2021 and approved in May 2022. Construction of the project began in late 2022 and is currently underway. Five Wells Solar comprises approximately 8,000 acres and will have a solar production capacity of 350 MW.

Figure 22. Map of Five Wells Solar project and Rogers Independent School District in Bell County[35]



[35] Figure taken from the Application for Appraised Value Limitation to Rogers Independent School District

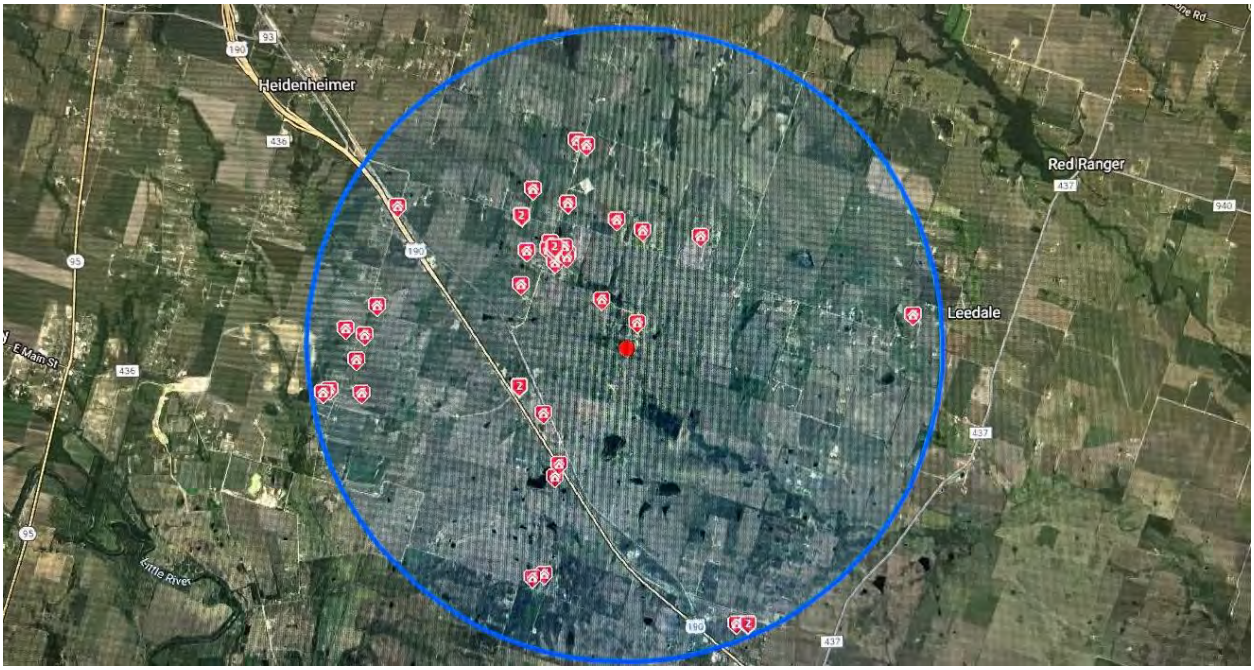
Figure 23. Map of Five Wells Solar project[36]



The residential development in this area is more rural in nature, compared to the planned developments residential neighborhoods analyzed in Tom Green County. These tracts primarily consist of rural residential homes on small acreage lots. The large size of the solar project, combined with the sloping topography in the area, result in a greater number of proximate homes to have a view of the Five Wells Solar facility. For purposes of this analysis, residential sales within a three-mile radius of the address point of the Five Wells Solar facility at 9161 Five Wells Road, Rogers, Texas, were analyzed as subject sales. All Bell County residential sales outside of the three-mile radius but east of Highway 95 and Interstate 35 were designated control area sales. Both the subject and control area sales are primarily rural residential properties located in eastern Bell County with similar locational influences and market appeal.

[36] Figure taken from the Application for Appraised Value Limitation to Rogers Independent School District

Figure 24. Sales from January 2018 to March 2023 within a three-mile radius around Five Wells Solar facility



In recent months, after the approval of the tax abatement and during construction of the Five Wells Solar project, median price per interior square foot for homes near Five Wells Solar have increased significantly compared to homes farther away. Before the project was announced or construction started, prices in the area were generally lower relative to prices of homes further away. This reversed within a year of the project's announcement.

Figure 25. Median price per interior square foot for the subject and control areas for Five Wells Solar

Median price per interior square foot of homes proximate to the Five Wells Solar project tend to sell for higher sale to list price ratios (meaning fewer to no discounts, or in recent years, selling above the asking price). Proximate properties did appear to take longer to sell, with longer median days on market, though this was true in some years prior to the pandemic. To better understand the cause of these longer marketing periods, realtors involved in several subject area transactions were interviewed.

Figure 26. Days on market for the subject and control areas for Five Wells Solar

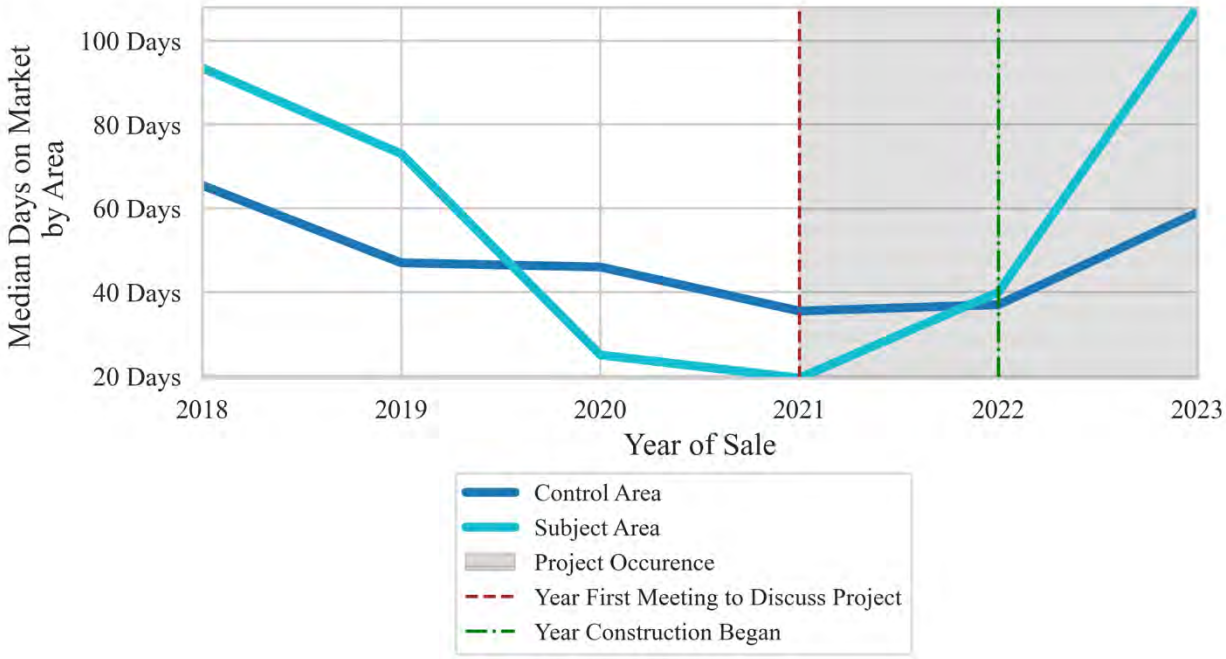


Figure 27. Sale to list price ratio for the subject and control areas for Five Wells Solar

These trends show no evidence of market impact to homes within three miles of the Five Wells Solar facility. To the contrary, subject area sales prices have been strong and show to be improving relative to the control area sales since 2021, and in the years since the Five Wells Solar facility was announced and constructed. Sales to list price ratios are strong, showing an average ratio over 100% for subject area sales in 2022. DOM has increased over time and relative to the control area, but conversations with realtors involved in several transactions revealed that the cause of the longer marketing period for these sales was not associated with the Five Wells Solar facility (instead attributable to other factors such as a need for extensive repairs, a buyer unable to obtain financing, or the property still under construction). During these conversations agents stated the project did not come up in their discussions, or that they have found that the market, in general, is aware of the Five Wells Solar Project and it has not affected the sales they have been a party to.[37] One agent stated they were aware of individual cases where the solar project was a consideration for the potential buyers, and that the project, as well as current market conditions, contributed to longer marketing periods for a property.[38]

[37] Conversation with brokers and agents involved with sales on Wedel Cemetery Road and Shaw Road.
[38] Conversation with agent involved with sales on FM 2184 and Sun Circle.

Lamar County – Impact Solar and Samson Solar

Two utility-scale solar projects in Lamar County, located in northeast Texas adjacent to the Oklahoma border, were analyzed for the purpose of identifying potential market impacts to single-family residential homes located proximate to these projects. Lamar County was chosen due to the prevalence of utility-scale solar activity, both operational and planned, in the county.

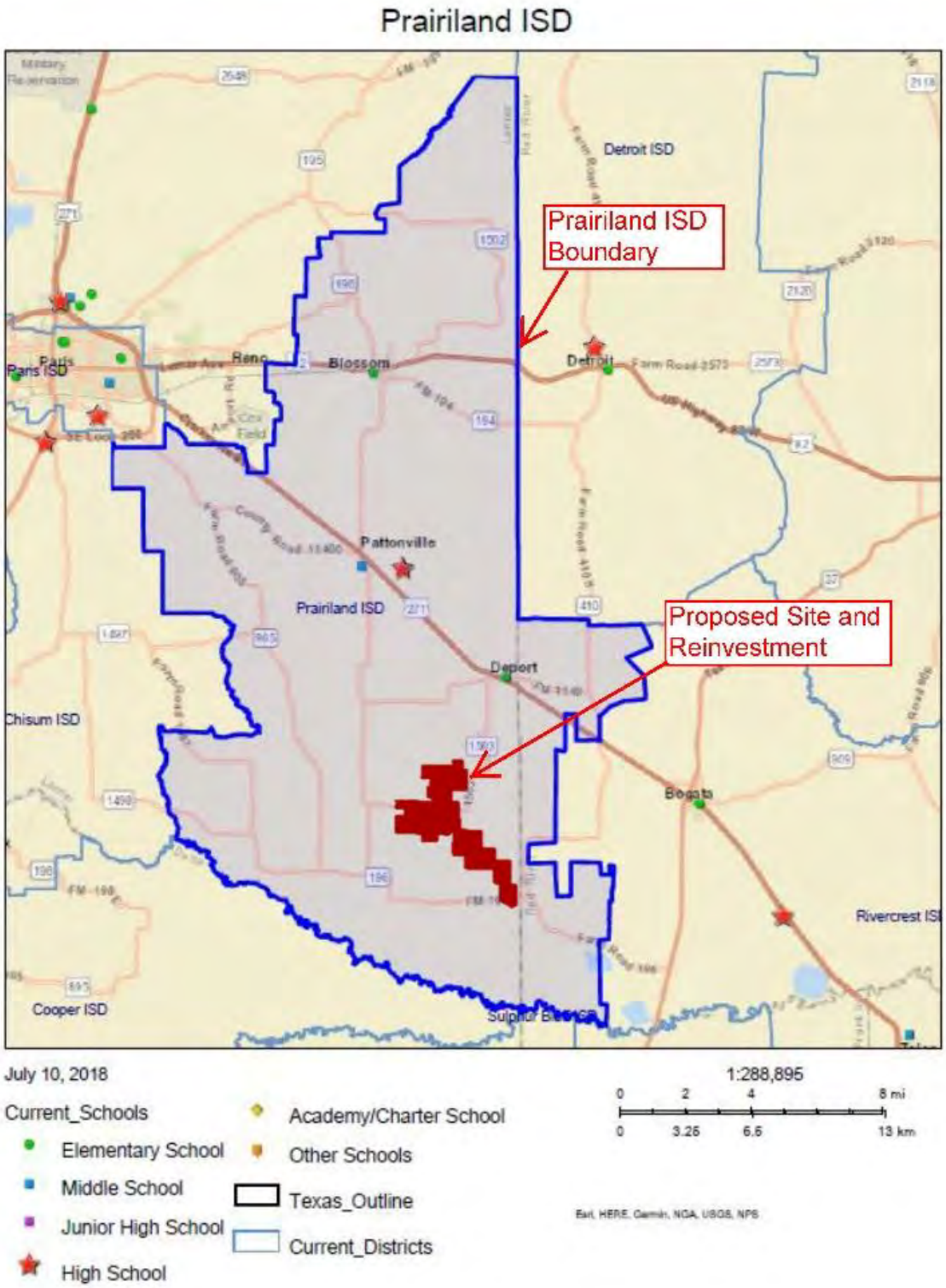
Impact Solar

Impact Solar is a 260 MW facility located at 6795 FM 1503, Deport, Texas. The facility is on approximately 1,500 acres and contains over 650,000 solar panels. The tax abatement application was submitted in August 2018 and approved in January 2019. In March 2020, Lightsource BP announced that financing had been approved, and construction began shortly thereafter. The facility became operational in December 2020.

Figure 28. Aerial photo of Impact Solar[39]

[39] Photo by Lightsource BP.

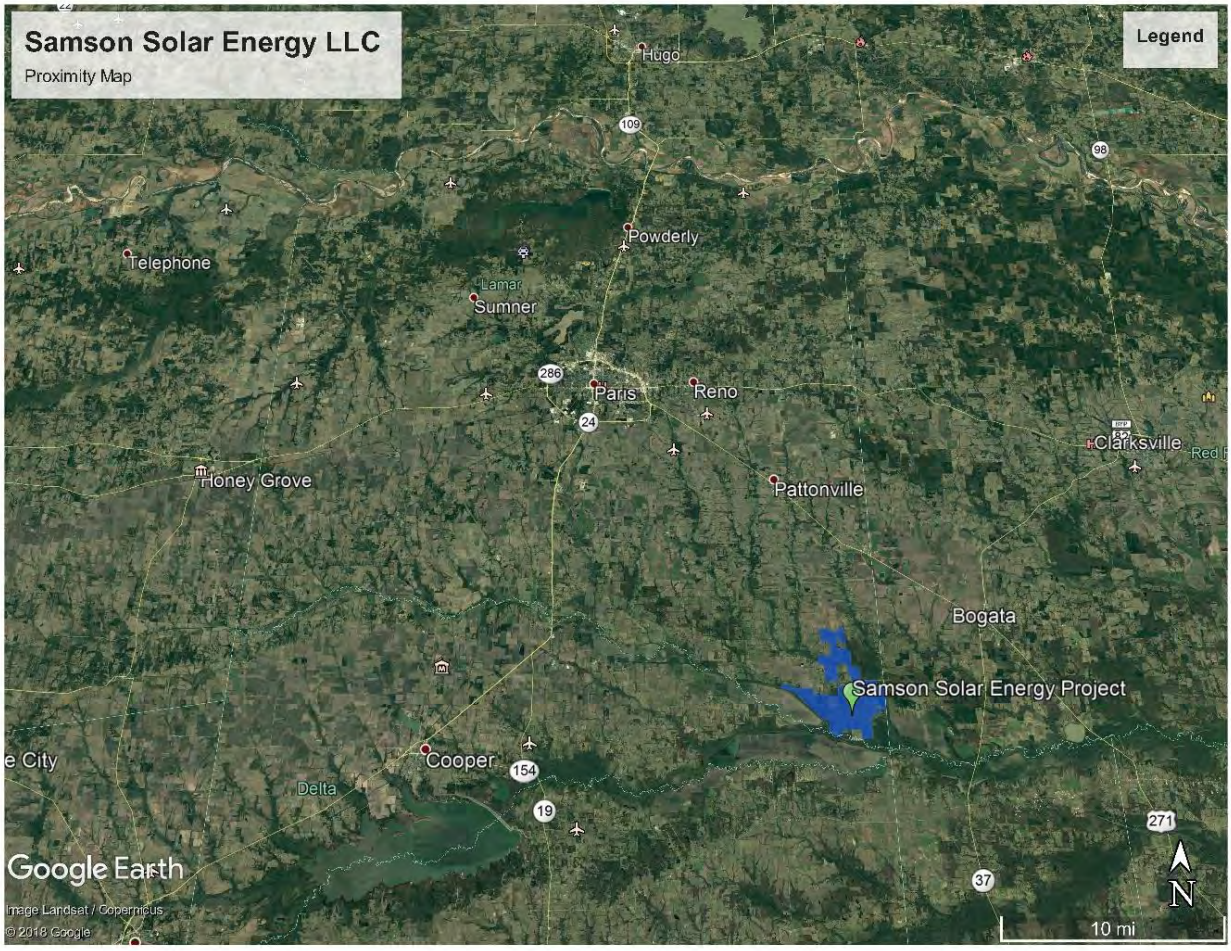
Figure 29. Map of the Impact Solar facility and Prairiland ISD in Lamar County[40]



Samson Solar

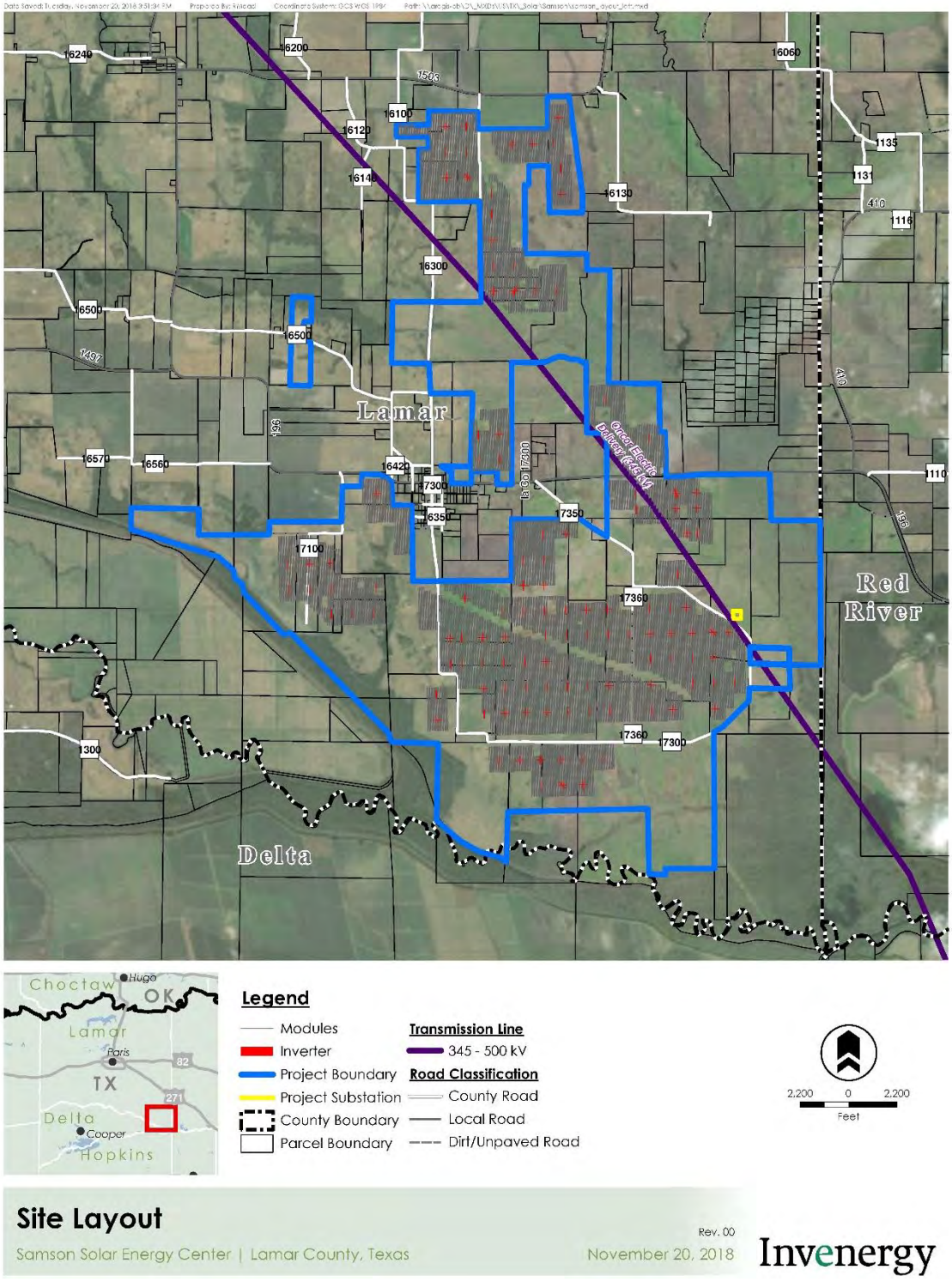
Samson Solar is a multiple-phase project, with individual developments ranging from 200 to 310 MW per installation. The total MW across all sites totals 1,310 MW. Overall, the facility is on approximately 18,000 acres. The Samson Solar Energy Center will be one of the largest solar energy generation facilities in the United States. An application for a value limitation agreement was submitted to Prairiland ISD in January 2019, and tax limitations were approved in May 2019. Construction of the first phase began in July 2020. Approximately 3,435 acres with 250 MW capacity became operational in November 2022, and an additional 3,435 acres are expected to come online in June 2023.

Figure 30. Map of Samson Solar Energy facility in Lamar County[41]



[41] Figure taken from the Application for Appraised Value Limitation to Prairiland Independent School District

Figure 31. Site layout of Samson Energy facility in Lamar County[42]



Due to the location of both Impact Solar and Samson Solar in the southeastern portion of Lamar County, and rural residential development proximate to both solar facilities, sales surrounding the two utility-scale solar facilities were combined for purposes of analysis. Rural residential subject sales are located within the southeast portion of Lamar County, north of the Sulphur River (county line), west of Highway 37 and south of Highway 271. All of these sales are within five miles of either the Impact or Samson Solar facilities. Control area sales are located in southwest Lamar County, west of Highway 24, southwest of the Soil Conservation Service Site Reservoir, and south of Highway 1509 (east and north of the county line). The rural residential development in the control area is similar to the subject area, but the control area sales are not proximate to an existing utility-scale solar development.

Figure 32. Sales from January 2016 to April 2023 within Lamar County and within five miles of either the Impact Solar or Samson Solar facility

Figure 32 depicts the median price per interior square foot in both the subject area (within five miles of either the Impact or Samson Solar facilities), as well as in the identified control area. The price per interior square foot of living space rose in general over time for both subject and control area properties. The median price per interior square foot in the subject area is generally higher than that in the control area, both before and after construction of the solar facilities. Key dates to consider are Impact Solar's construction and operational start date in 2020, construction of Samson Solar beginning in July 2020, and the beginning of operations at the first phase of Samson Solar in November 2022. Between 2020 and 2022, median prices in the subject and control area both trended together with no identifiable pattern of divergence.

[42] Figure taken from the Application for Appraised Value Limitation to Prairiland Independent School District

However, for Lamar County, some caution must be taken when interpreting results. The county is sparsely populated; therefore, the number of sales in both the subject and control areas in some years are low (e.g., 2 subject sales in 2021, 4 control sales in 2022). For 2023, data collection occurred only through the first three months, and only one sale occurred in each the subject and control area. With the caveat of limited data, there is no clear pattern of price divergence between subject and control areas associated with the solar farm installations.

Figure 33. Median price per interior square foot for the subject and control areas for Lamar County

DOM showed similar trends for both subject and control area homes, providing no indication of market resistance. DOM shortened for sales proximate to either of the solar farms once operations began. The exception is the first three months of 2023, but again, this is driven by the single year-to-date subject sale in that area and is consistent with the previous year's average DOM in the control area. Overall, sales in both subject and control areas tend to have similar sale to list price ratios (5-10%) which appears to be more the result of local market practices, as these discounts were present county-wide, and were just as likely to occur in the years before the solar projects were built as they were in the following years. The one exception is in 2021, in which the sale to list price ratio for the subject area dipped. After further research, it was determined that this was due to the sparsely populated nature of this study area and the resultant effect that the specifics of a single sale can have on the overall results in such a setting. More specifically, there were only

two subject sales that year, the first being a $215,500 house with 1,788 square feet, and the second a 984 square foot home selling for just $71,000. The former sold for a sale to list price ratio of 98% (i.e., a discount of 2%) while the latter sold at a sale to list price ratio of 75%. Given the unusually small size and pricing of this latter property, its reduced sale to list price ratio is attributable to property-specific factors, rather than the result of solar farm construction. This one sale does, however, pull down the median sale to list price ratio for that year, again illustrating the limitations of interpreting the infrequent sales data in Lamar County.

Figure 34. Days on market for the subject and control areas for Lamar County

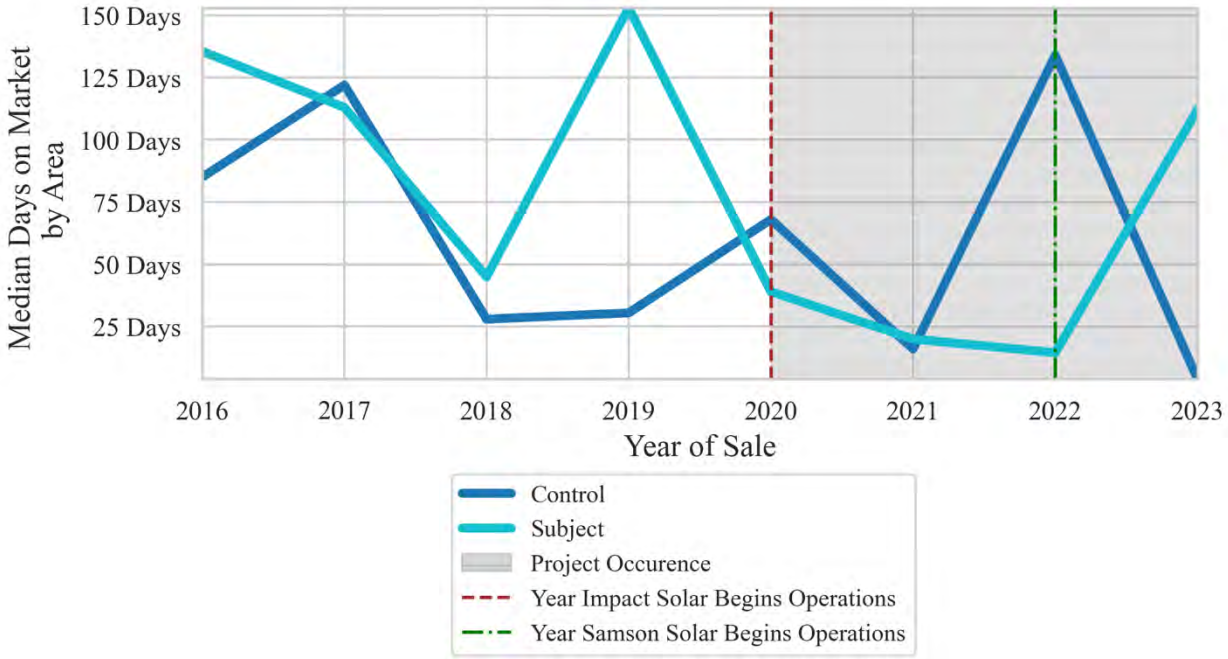


Figure 35. Sale to list price ratio for the subject and control areas for Lamar County

Overall, market trends do not show any evidence of negative impact correlated with the announcement or construction of either the Impact or the Samson Solar facilities in Lamar County. Prices generally trended together, selling at similar prices as control areas after the facilities were constructed, with broadly similar sale to list price ratios and DOM.

Bee County – Sparta Solar

The Sparta Solar facility is part of the larger Helena Energy Center in the northern portion of Bee County, in a rural area north of Beeville. The Helena Energy Center includes both wind and solar generation facilities. Construction of Sparta Solar began in April 2021, with an expected operational date of December 2023. The project is large, with 250 MW across 15,000 acres. An additional 268 MW of wind farm capacity is also a component of this project, with turbines erected over five months beginning in September of 2021.[43] The rural residential area in Bee County surrounding Sparta Solar was chosen for analysis because of the size and publicity of the project, and because of its geographic location in the southeastern portion of Texas.

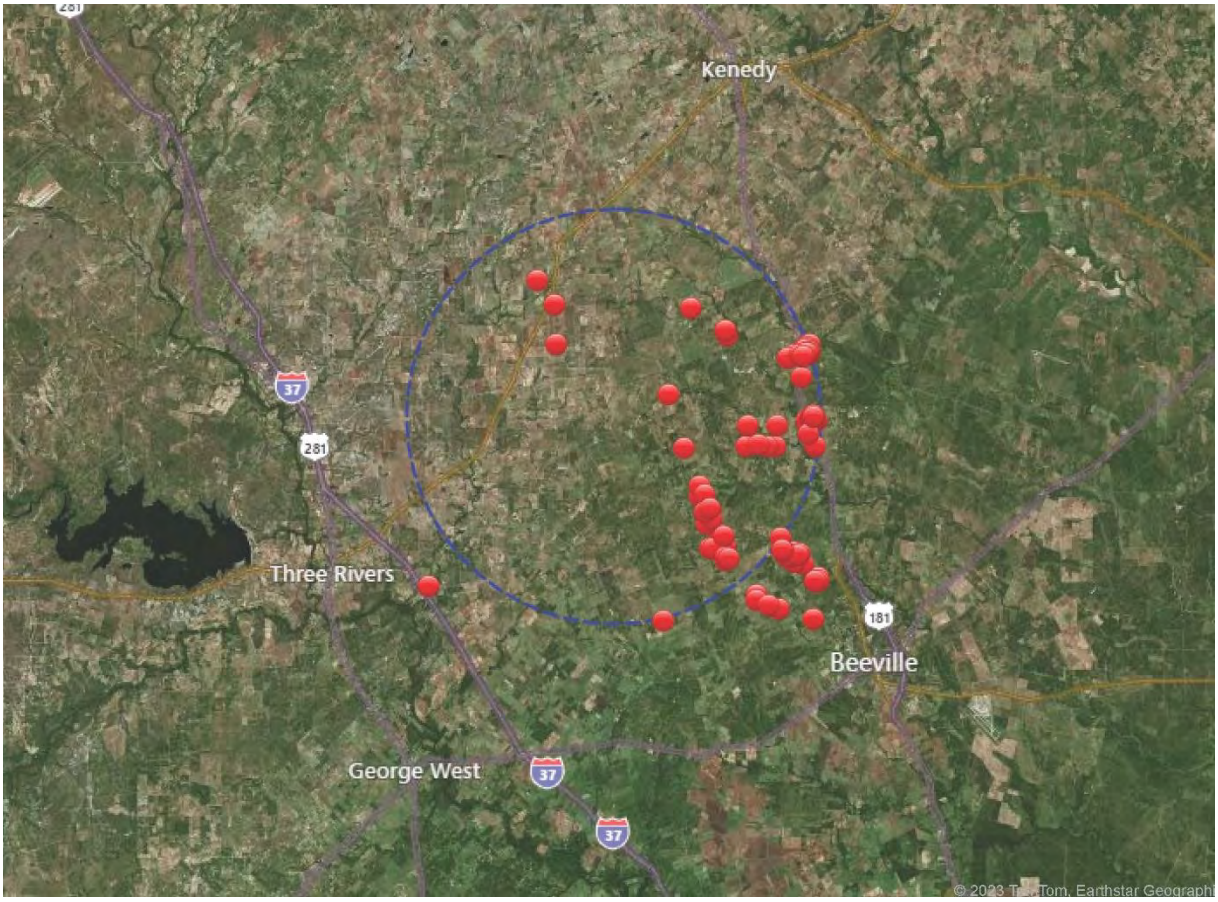
Figure 36. Map of Sparta Solar project in Bee County[44]

For this analysis, the subject area consists of rural residential sales within the boundary of Bee County and within ten miles of the address point for the Sparta Solar facility at 10494 FM 673, Mineral, Texas. The boundary extends further in this analysis than in the analyses for utility-scale

[43] https://helenaenergycenter.com/
[44] Figure taken from the Application for Appraised Value Limitation to Pawnee Independent School District

solar projects in other counties, due to the sparsely populated nature of the rural area. Only three sales of rural residential property transacted through the MLS within five miles of the Sparta Solar facility between 2016 and 2022. Rural residential properties located in the southern portion of Bee County, south of Highway 59 and Highway 202, were used as control area sales.

Figure 37. Sales from January 2016 to April 2023 within Bee County and a ten-mile radius of the Sparta Solar facility

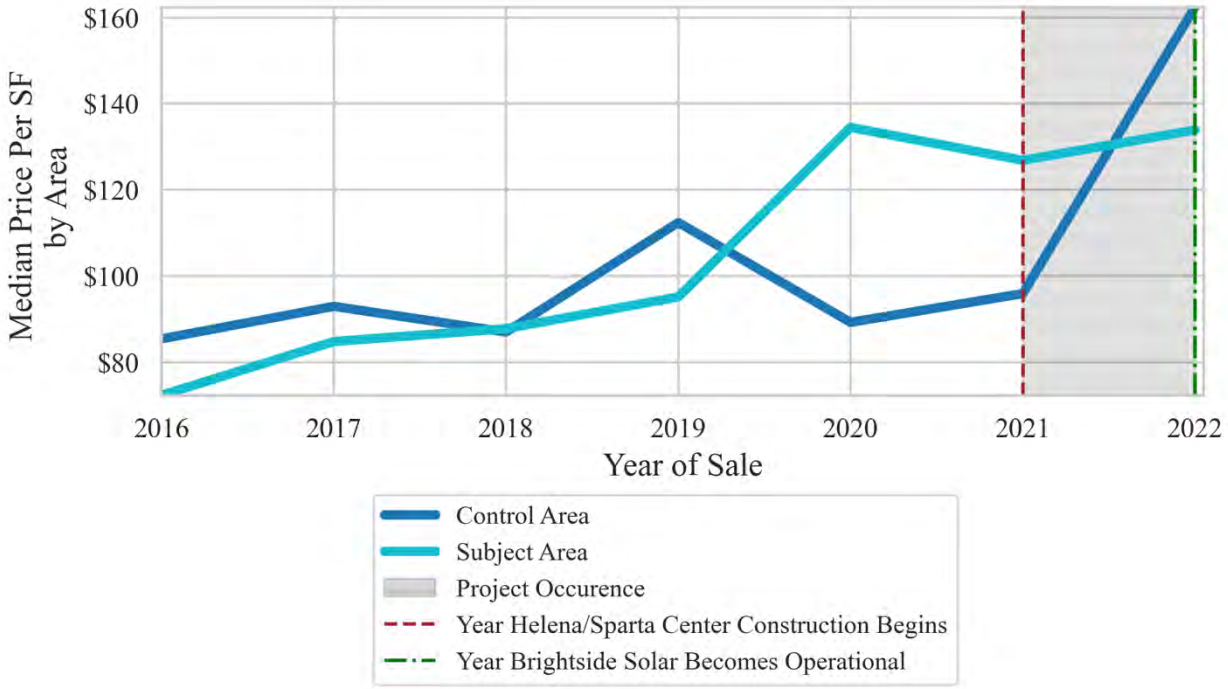


Annual sale counts in Bee County were low, which means that while we can interpret trends over time between the Subject and Control Areas, variation from one year to the next can be overly

influenced by just one or two sales. (For example, there were no sales in 2023 for the Subject Area, except for one whose sale price reflected its state of disrepair).[45]

In Bee County, median price per interior square foot for homes proximate to the Sparta Solar facility sold at no discernible discount relative to homes further away. In some years the average sales price in the subject area was above the average sales price in the control area, and in other years control area prices were above subject area prices. This is partly attributable to the small number of sales each year, but in general, no negative impact or discount is evident in the sales price trends for the subject area proximate to the Sparta Solar facility.

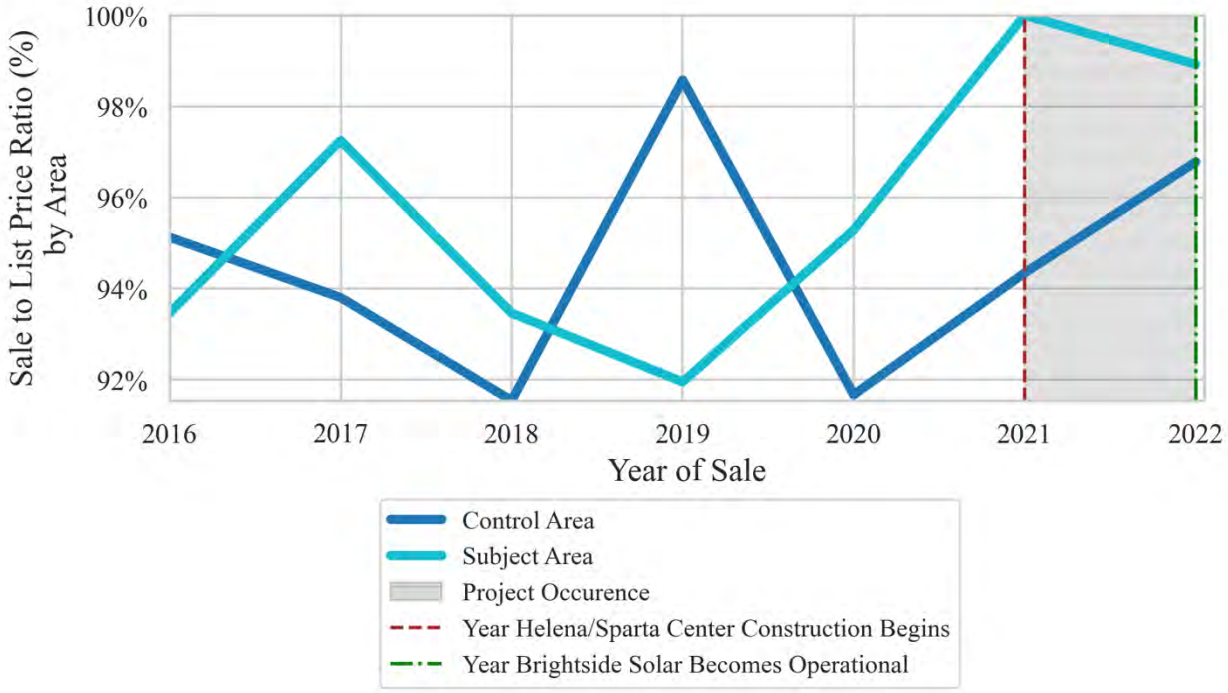
Figure 38. Median price per interior square foot for the subject and control areas for Bee County



[45] We interviewed the listing agent involved in this transaction, and they confirmed that the sale to list price ratio was unrelated to the proximity of the Sparta Solar facility. The agent stated that the property had no view of the solar project and described the purchase price as instead reflecting the expenses needed to restore the property to an adequate condition, along with negative circumstances involving the next-door neighbor.

Trends in the average sale to list price ratio give a similar picture. In recent years, subject area sale to list-price ratios have been stronger, but only by a few percent.[46] Overall, no negative market impacts are apparent for homes proximate to the Sparta Solar facility in Bee County.

Figure 39. Sale to list price ratio for the subject and control areas for Bee County



Conclusion

The market trend analysis for six utility-scale solar projects in varying geographic locations across Texas, in varying residential markets, and at different stages of project development showed no evidence of negative market impact for proximate residential properties. Sale metrics – price per interior square foot, sale to list price ratios, and DOM – in subject areas follow generally similar trends when compared with control area sales located further from solar projects. Further research into individual sales and interviews with local market players confirmed that the market participants were knowledgeable of the solar projects, and this knowledge did not have a negative impact on the sale price or marketing time. In general, and consistent with the published literature, any potential for individual sales to be affected tends to involve properties with a direct view of a utility-scale solar project; but overall, it appears a market and demand exists for those properties at competitive prices.

[46] The MLS System for Bee County did not provide data on the number of Days on Market for each sale.

Real Property Analytics, Inc. (RPA) is a real estate appraisal and consulting firm specializing in analyzing the effects of potentially adverse influences on the market value of residential, commercial, industrial, and agricultural properties. RPA has provided real estate analysis services on assignments throughout the U.S. and in Canada for over 20 years. Our firm has familiarity and expertise in specialized valuation methods used in complex assignments, including econometrics and statistical modeling, paired sales analysis, and case study research. RPA principals have provided litigation support and expert witness testimony in both federal and state courts throughout the U.S.

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Jennifer Pitts, MAI, CRE, is the President of Real Property Analytics, Inc. and has over 15 years of experience in real estate consulting and appraisal throughout the United States and Canada. She specializes in analyzing complex valuation issues, including the valuation of properties impacted by environmental contamination or other disamenities, and has been retained as a testifying expert on litigation matters before federal and state courts in Texas, Florida, Georgia, New York, Montana, California and elsewhere. These matters involved: the impacts of soil, groundwater, airborne and surface water contamination and alleged contamination on property values; real estate issues related to proposed environmental class actions; the impacts of high voltage electric transmission lines on property values; the valuation and highest and best use of properties subject to eminent domain; and real estate development feasibility. Ms. Pitts is a graduate of Texas A&M

University with a master's degree in Land Economics and Real Estate and a bachelor's degree (summa cum laude) in Finance. She currently holds the professional designation of Counselor of Real Estate (CRE), a professional designation that is awarded by invitation only to a select number of professionals recognized for their expertise, experience and ethics in providing real estate counseling and advisory services. She is also a State-Certified General Real Estate Appraiser in Texas (TX-1380184-G) and other states, and a Designated Member of the Appraisal Institute.

Chris Yost-Bremm, PhD, is an Assistant Professor of Finance at San Francisco State University. Dr. Yost-Bremm has been with Real Property Analytics, Inc. since 2014, developing and critiquing statistical methodologies involving real property on behalf of numerous firms and individuals. Dr. Yost-Bremm has significant experience in analyzing the impacts of environmental contamination, particularly under class action or mass tort claims (at both the certification and merit stages). He has also provided statistical analysis services under non-litigation circumstances, involving environmental cleanups by international government agencies. In addition to environmental contamination, Dr. Yost-Bremm has provided analytic services for mining and other industrial properties and has analyzed numerous other commercial and residential property types under complex economic situations. He has assisted in developing real property testimony involving class-level insurance claims, among other matters. Dr. Yost-Bremm holds a PhD in Finance from Texas A&M University, an MBA from California State University (with distinction), and undergraduate degrees in management and international economics (with honors).