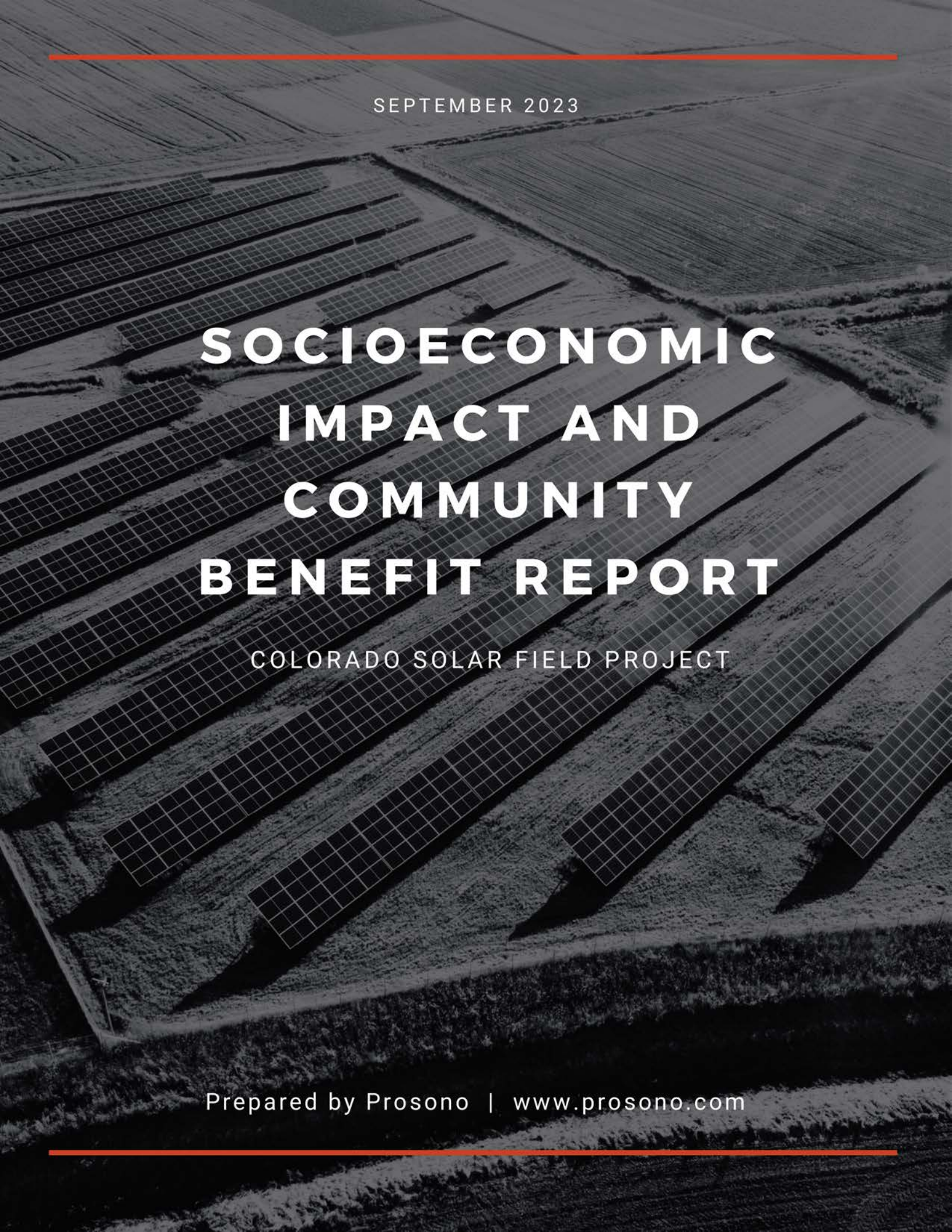


SEPTEMBER 2023

SOCIOECONOMIC IMPACT AND COMMUNITY BENEFIT REPORT

COLORADO SOLAR FIELD PROJECT

Prepared by Prosono | www.prosono.com

Table of Contents

Table of Contents - Figures & Tables

I. EXECUTIVE SUMMARY

This Socioeconomic Impact and Community Benefit Report has been prepared to gather and document the expected effects of Horus' proposed Colorado Solar Field Project in accordance with the Weld County Charter and County Code. It outlines the Project's alignment with the County strategy and its impacts on land, individuals, and the public in the near-term and future.

Solar energy is a responsible and excellent use of private land and delivers very low environmental impacts combined with high social and economic benefits. Operational disturbances in the form of traffic, noise, and glare will be minimal to neighboring residents and communities. Impacts to agricultural operations are expected to be positive due to the maintenance of meadow-life conditions, enhanced with professionally designed pollinator seed mixes and habitat. Oil and gas activity and water rights will not be impacted.

Additionally, this report outlines the beneficial economic effects to surrounding communities. Supporting an estimated **1,977 direct and indirect jobs** and nearly **$13 million in projected property tax revenue**, this Project produces significant financial impact on the region that can be used to invest in community assets. This Project will complement the strong Oil and Gas production in Weld County by creating a more stable and reliable power supply, as local generation will be able to maintain power service during extreme weather events that may compromise long distance transmission capacity. This Project will also provide lower cost electricity for residents and businesses.

PROJECTED IMPACTS OF PROJECT

Earnings

$125,877,100 in wage earning during construction

$6,310,200 per year in earnings over the operating life of the project

Output

$171,955,000 in economic output during construction

$8,229,700 in economic output over the operating life of the project

Jobs

1,997 FTE jobs during construction, equivalent to 1% of the Weld County workforce

102 FTE jobs over operating life of the Project

NOW HIRING

- **Net positive Impacts on Agricultural Economy** through protection of land from urban development and native pollinator environment to support neighboring agricultural output.
- **No negative impact on the Oil and Gas sector** as not competing for productive land leases or resources like water.
- **Net positive impact on the neighboring population** and communities.

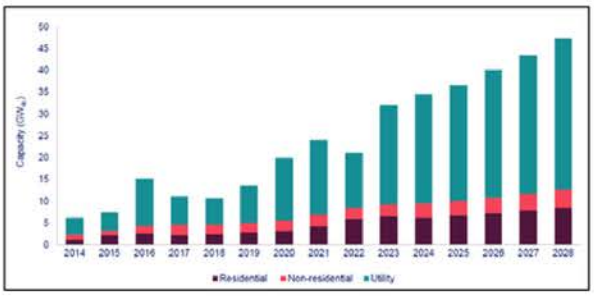
II. OVERVIEW OF THE U.S. AND STATE SOLAR PV INDUSTRY

A. U.S. Solar PV Industry

The U.S. solar industry is growing at a significant pace, with systems installed for onsite use at residential, commercial, and industrial properties, and with utility-scale solar powered-electric generation facilities intended for wholesale distribution. According to the Solar Energy Industries Association (SEIA), the industry is expected to triple in size over the next five years, reaching a total installed solar capacity of 375 GW by 2028 (SEIA, 2023). The SEIA is a nonprofit trade association of the solar-energy industry founded in 1974. SEIA counts over 1,000 members, including some from Weld County and a large portion of the 399 solar-related companies in the State. SEIA consolidates data sets from multiple industry and third-party sources.

In the last decade alone, solar has experienced an average annual growth rate of 24%. Thanks to federal policies like the solar Investment Tax Credit, rapidly declining costs, and increasing demand across the private and public sector for clean electricity, there are now more than 155 gigawatts (GW) of solar capacity installed nationwide (SEIA, 2023), enough to power more than 18% of homes in the United States (Banmiller, 2023). Solar photovoltaics have represented the largest share of new generating capacity across *all* sources for each of the last four years. In the first half of 2023, 45% of all new capacity added to the grid came from solar (SEIA, 2023).

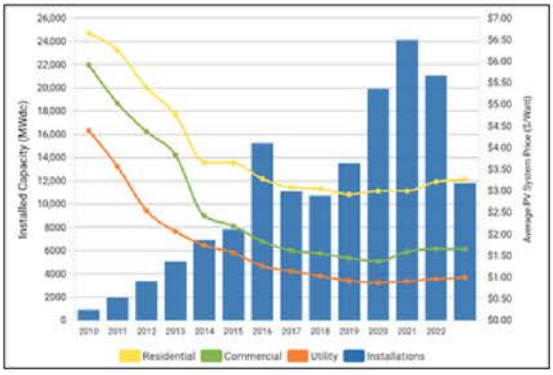
Figure 1 - Annual U.S. Solar PV Installations and Forecasts By Segment, 2014-2028



Source: Solar Energy Industries Association, Solar Market Insight Report 2023 Q3

As Figure 1 shows, the industry has continued to add increasing numbers of photovoltaic (PV) systems to the grid over the past decade. The notable surge in 2016 was due to a rush to complete as many projects as possible before an expected expiration of the Investment Tax Credit, which pulled projects from 2017 and 2018. The slight decrease in 2022 was due to pricing and procurement challenges, but the industry was anticipating a strong rebound in 2023, and an impressive deployment in the first half of the year puts the industry on track (SEIA, 2023) to meet these expectations.

Figure 2 - U.S. Solar PV Pricing Trends & Deployment Growth



Source: Solar Energy Industries Association, Solar Industry Research Data

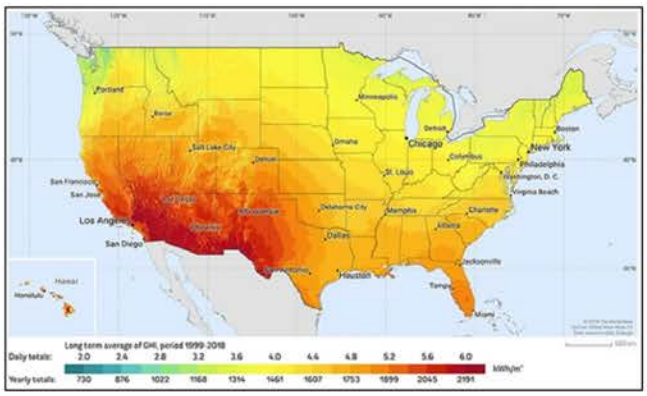
The installation cost of solar energy has witnessed a notable reduction of over 40% in the last ten years, as illustrated in Figure 2, and this decline has facilitated the solar industry's expansion into emerging markets. The primary catalyst for cost reduction has been advancements in technology and

subsequent price drops in solar equipment. However, the solar industry experienced a modest price increase in recent years due to shipping constraints and supply chain challenges stemming from the Covid 19 pandemic and trading uncertainties. Encouragingly, signs of supply chain stabilization are emerging. Importers are increasingly able to furnish documentation demonstrating compliance with the Uyghur Forced Labor Prevention Act and the Federal Government's moratorium on solar tariffs have led to a greater number of solar modules successfully entering the U.S. market, resulting in the stabilization of price increases in 2023. Utility-scale prices currently range from $16-$35/MWh, which is competitive to other forms of energy generation (SEIA, 2023).

B. Colorado Solar PV Industry

According to SEIA, Colorado is ranked 12th in the U.S. for total installed solar capacity, up from 25th in 2022. Installed solar capacity is the maximum amount of electricity that generating stations can produce under specific conditions, and it is typically calculated in megawatts (MW). Colorado installed 166 MW in 2022, bringing its cumulative capacity to 2,995 MW, or enough to power 589,898 homes. As seen in Figure 3, the State of Colorado receives a similar amount of irradiance as California, Wyoming, and Utah. Colorado ranks behind only California amongst those peers when it comes to installed solar capacity – California ranks 1st, Utah ranks 13th and Wyoming ranks 44th (Colorado Solar, 2023).

Figure 3 – Global Horizontal Irradiation Map of the U.S.

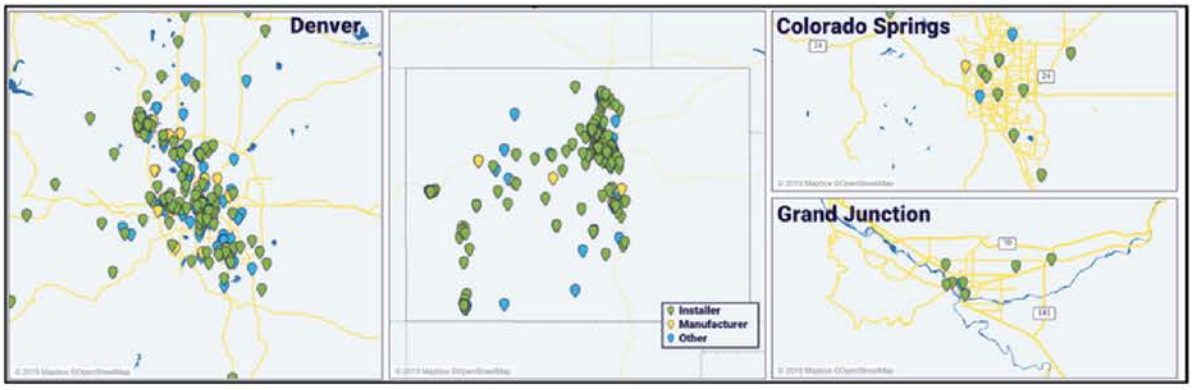


Source: Solargis Resource Maps and GIS Data

With over 300 sunny days per year, Colorado has tremendous solar potential. It was one of the first states in the U.S. to have a Renewable Energy Standard, and there are multiple solar programs in Colorado for rooftop solar, community solar and utility-scale solar. Examples of utility scale solar installations in the State include: the 300 MW Bighorn Solar facility in Pueblo came online in 2021; the 150 MW Comanche Solar facility in Pueblo was completed in 2016; and Amazon's 6 MW DEN3 project in Aurora as one of the largest corporate projects in the State.

There are more than 399 solar companies in Colorado including 40 manufacturers, 189 installers/developers, and 170 others. Figure 4 shows the locations of solar companies in the state as of the time of this report. Currently, there are 7,626 solar jobs in Colorado, ranking 7th in the nation (SEIA, 2023). Some of these are located in Weld County.

Figure 4 – Solar Companies in Colorado



Source: Solar Energy Industries Association, Colorado Solar Fact Sheet 2023

Figure 5 shows the Colorado historical installed capacity by year according to the SEIA. Large growth was seen in 2021, followed by a compression in 2022 that is in line with supply issues experienced nationally. Over the next five years, solar in Colorado is expected to grow 4,084 MW or by 36%.

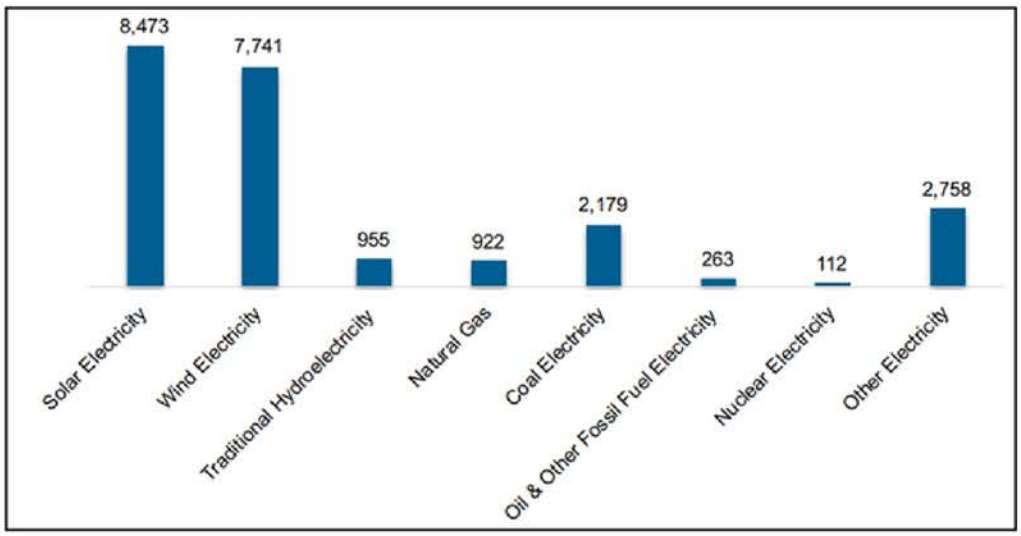
Figure 5 – Colorado Annual Solar Installations

Source: Solar Energy Industries Association, Solar Industry Research Data

C. General Economic Benefits of Utility-Scale Solar PV Energy

The U.S. Department of Energy sponsors the U.S. Energy and Employment Report on an annual basis. The Electric Power Generation sector encompasses both utility and non-utility employment within various electric generating technologies such as fossil fuels, nuclear, and renewable energy technologies. This sector is comprised of professionals involved in facility construction, equipment manufacturing, operations and maintenance, as well as wholesale parts distribution for all electric generation technologies. As depicted in Figure 6, in 2023 the solar energy industry boasts the highest employment numbers (8,473), surpassing wind electric generation (7,741) and the collective employment in all other electric generation types (summing to 7,189) (U.S. Energy and Employment Report, 2023).

Figure 6 – Electric Generation Employment by Technology



Source: US Energy and Employment Report 2023: Colorado

Utility-scale solar-powered electric generation facilities contribute many positive economic impacts. During both the short-term construction phase and the long-term operational phase, solar PV installations generate employment opportunities in the community. This includes not only those directly engaged in construction and maintenance, but indirect roles supported through supply chain purchases and induced growth through spending by the workforce. Examples include construction and trades work across the site from grading to structural and electrical installations, as well as local building materials like gravel and concrete. Supporting industries in logistics and other professional services are likely sourced locally. Moreover, solar PV projects contribute to fortifying the local tax base through induced sales tax revenue and property taxes, leading to enhancements in county services and local infrastructure, such as public roads.

Many studies have meticulously assessed the socioeconomic benefits of solar PV projects across the United States and are predicting the future impacts of these projects. Tabassum et al. (2021) underscored the critical role of social development in sustainable development, especially considering the unemployment challenges resulting from the Covid 19 pandemic. In this context, the solar market stands out. It has exhibited remarkable job growth from 2016 to 2021, outpacing the overall U.S. economy's job growth by a factor of five, amounting to a 44% increase. Over the decade from 2009 to 2019, major technology corporations such as Apple, Amazon, Walmart, and Google contracted extensive amounts of solar energy for their operations, making up material portions of their energy mix (39,830%, 36,900%, 2,316%, and 12,810%, respectively) and creating many job opportunities in parallel. Notably, the solar industry features a diverse workforce, with veterans comprising 8% of solar jobs - a higher proportion than in any other sector of the economy - and with women constituting 26%.

In addition to the creation of new employment opportunities, solar energy facilitates the provision of electricity to remote rural areas and mountainous regions where the construction of traditional power stations may not be practical. The benefits of solar adoption extend to lowering electricity costs by fostering competition in the electricity market, reducing dependence on centralized utilities, and enabling local generation, thereby mitigating transmission and distribution costs.

III. PROJECT OVERVIEW AND IMPACT ON INDUSTRIES AND RESOURCES IN WELD COUNTY

A. Project Snapshot

The proposed Project consists of an approximately 279 MW AC solar- photovoltaic installation. As proposed, the Project has two Points of Interconnection (POIs). The total site spans approximately 2,200 acres.

The Project area is bounded by County Road 67 to the east, County Road 73 to the west, County Road 2 to the south, and County Road 8 to the north. State Route 79/County Road 69/Kiowa-Bennett Road and County Road 73 transect the Project Site in north/south direction. The Project Site is on private land. Land ownership surrounding the Project Site is private with one adjacent parcel owned by the State. Approximately eight residential properties lie within 0.5 miles of the Project boundary.

The communities within Weld County that are nearest to the Project Site are Sloan, Roggen, Tampa, and Keenesburg, which have roughly 2,000 residents in total. Two communities in other counties are also nearby – Bennett (located across Arapahoe and Adams Counties) and Strasburg (located in Adams County), which have roughly 6,300 residents in total.

A variety of natural, land use, and other constraints were considered and avoided in the development and selection of proposed routes and sites for the Project. These included residential, commercial, industrial, and agricultural uses as well as a variety of natural resource considerations, such as sensitive species, Oil and Gas, and Water.

B. Weld County, Colorado Economic Snapshot

Weld County is in the northeast part of Colorado (see Figure 7). It has a total area of 4,017 square miles and the U.S. Census estimates that the 2022 population was 350,176 with 128,987 housing units. The county had a population density of 82.6 (persons per square mile) in 2020 compared to 55.7 for the State of Colorado. Median household income in the county was $80,843 compared to $89,930 for the State of Colorado.

Figure 7 – Location of Weld County, Colorado

As shown in Table 1, the largest employer industry in Weld County is "Construction" followed by "Manufacturing," "Retail Trade," "Health Care and Social Assistance," and "Mining, Quarrying, and Oil and Gas Extraction." The data for Table 1 comes from the Upstate Colorado Weld County Workforce Snapshot which uses the Economic Modeling Specialists International (EMSI) Q2 2020 Data Set, the most recent data available. According to the August 2023 YCharts data, the county's unemployment rate is 3.7%, up from 3% a year prior and higher than Colorado's state unemployment rate of 3.1% ("Weld County, CO Unemployment Rate," 2023).

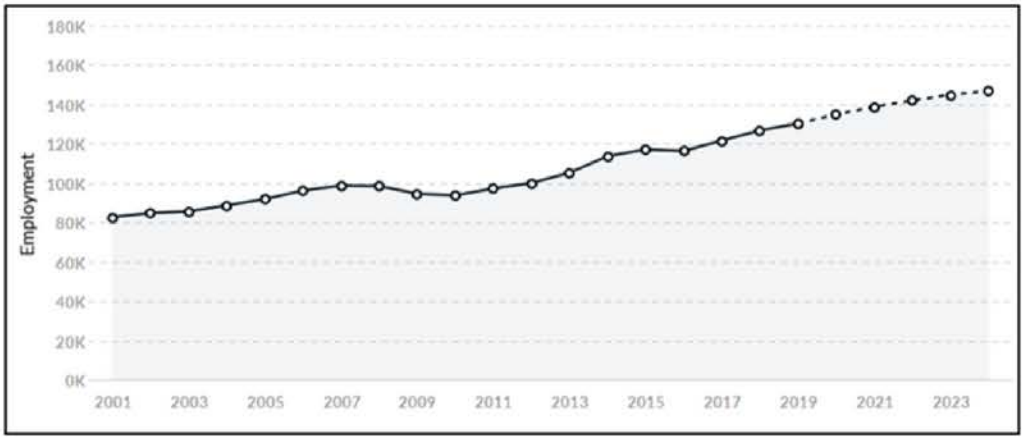
Table 1 – Employment by Industry in Weld County

Industry	2020 Jobs	Percent of Workforce Employed
Construction	15,215	9.0%
Manufacturing	14,958	8.9%
Retail Trade	11,369	6.7%
Health Care and Social Assistance	10,746	6.4%
Mining, Quarrying, and Oil and Gas Extraction	9,664	5.7%
Accommodation and Food Services	9,317	5.5%
Administrative and Support and Waste Management and Remediation Services	6,817	4.0%
Agriculture, Forestry, Fishing and Hunting	6,595	3.9%
Other Services (except Public Administration)	5,999	3.6%
Transportation and Warehousing	4,889	2.9%

Source: Upstate Colorado Weld County Workforce Snapshot

Table 1 provides the most recent snapshot of total employment by industry but does not examine the historical trends within the county. Figure 8 shows employment from 2001 to 2019, with projected trends through 2023. Employment grew by 15% between 2014 to 2019 and is expected to grow by 13% from 2019 to 2024.

Figure 8 – Total Employment In Weld County

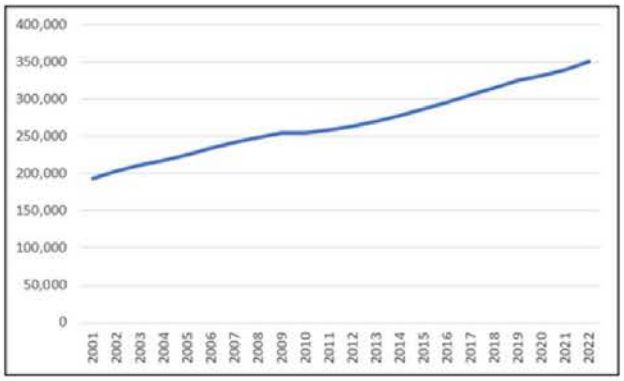


Source: Upstate Colorado Weld County Workforce Snapshot

Similar to the upward trend of employment, the overall population in the County has been increasing steadily, as shown in Figure 9. Weld County population was 306,571 in 2017 and 350,356 in 2022, a gain of 43,785, or 14.3%, over five years.

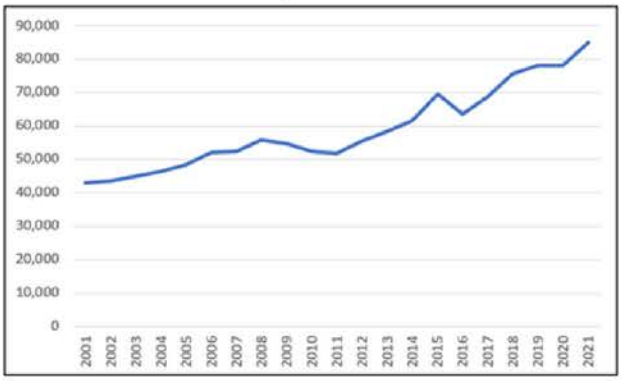
Household income has been trending upward in Weld County, as well. Figure 10 shows the median household income from 2001 to 2021. It increased $21,217 from 2016 to 2021, or 33.3%, over five years.

Figure 9 – Population in Weld County from 2001-2022



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Estimate of Population

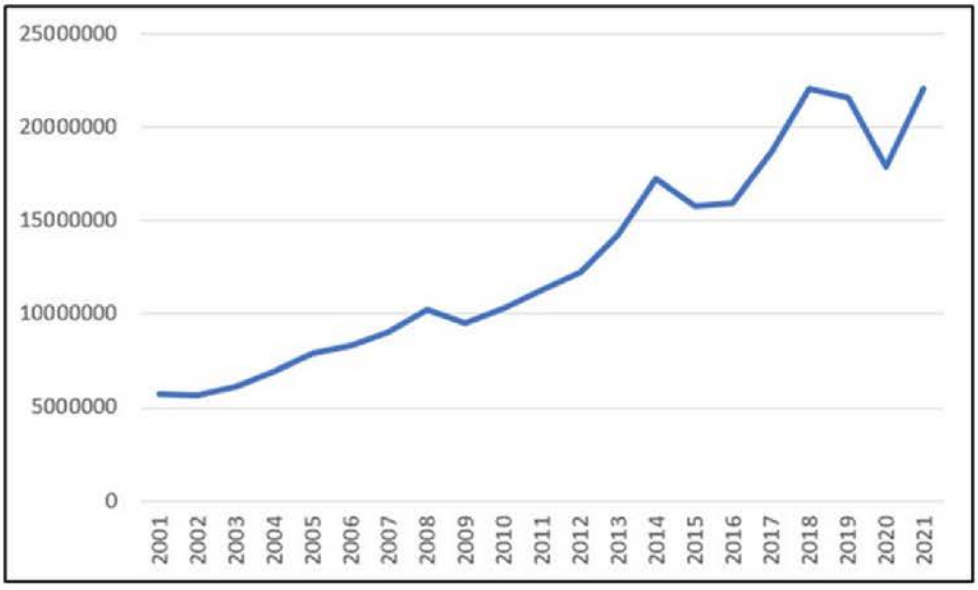
Figure 10 – Median Household Income (USD) in Weld County from 2001-2021



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Estimate of Median Household Income

Real Gross Domestic Product (GDP) is a measure of the value of goods and services produced in an area and adjusted for inflation over time. The Real GDP for Weld County has been increasing overall, although it has experienced dips in 2009, 2015, and 2020, as shown in Figure 11. The primary drivers of the ~$22-billion USD County Gross Domestic Product are Agriculture and Energy (primarily Oil and Gas).

Figure 11 – Real Gross Domestic Product (GDP) in Weld County from 2001 to 2021



Source: Federal Reserve Bank of St. Louis Economic Data, U.S. Census Bureau, Real Gross Domestic Product

C. Key County Industry Impacts: Agriculture

Summary

The proposed Project's impact on the agricultural economy of Weld County are anticipated to be net positive:

- Unirrigated land is being proposed for use.
- The Project proposal includes re-seeding the site with native plants supportive of pollinators, which will serve to improve yields of nearby agricultural production.
- The site will be protected from urban sprawl for the Project life, leaving the option of a return to agricultural production.

Details

State of Colorado Agriculture

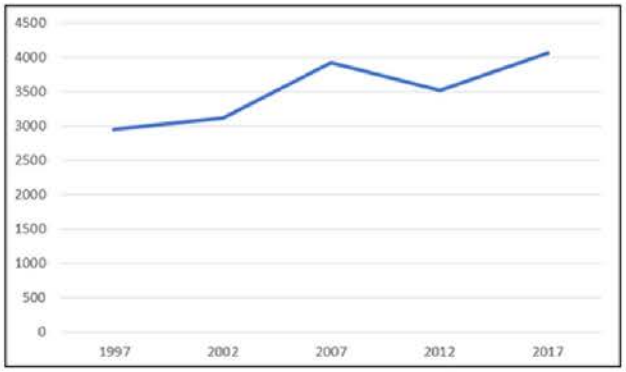
In the most recently published Agricultural Census (2017), Colorado was ranked 25th in total value of agricultural products sold. As of 2022, it ranked third nationally for all sheep and lamb products and was second for wool production. Colorado ranked tenth for all cattle and calves and fifth for cattle on feed. It ranked in the top five for the following crops: proso millet (1), silage sorghum (3), non-oil varieties of sunflowers (4), winter wheat (5), barley (5), alfalfa hay (5), and grain sorghum (5) (USDA's National Agricultural Statistics Service, 2022). In 2022, Colorado had 38,800 farms totaling 31.8 million acres in operation, with an average farm size of 820 acres. In the same year, Colorado had 2.6 million cattle, produced 5.3 billion pounds of milk, and yielded an average 121 bushels per acre for grain corn with a total market value of $889 million (State Agricultural Overview, 2022). The average net cash farm income per farm is $29,669 (Agricultural Census, 2017).

Weld County Agriculture

In 2017, Weld County had 4,062 farms covering 2,098,803 acres, for an average acre size of 517. The total market value of products sold was $2.047 billion, with 83% coming from livestock, poultry, and product sales and 17% coming from crop sales. The average net cash farm income of operations was $97,295 (National Agricultural Statistics Service, 2017).

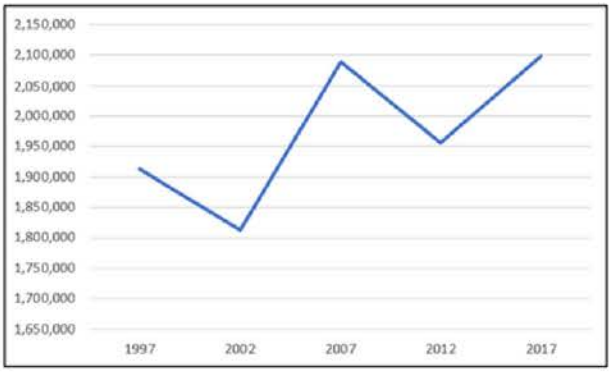
The agriculture sector in Weld County is strong, ranking first in Colorado and eighth in the nation. The number of farms in the County increased by 37.2% between 1997 and 2017, as shown in Figure 12, and the amount of farmland increased by 185,200 acres or 9.7% over the same period, as shown in Figure 13. Both the number of farms and acres decreased between 2007 to 2012, but increased to their highest levels since then. This data is pulled from the USDA Agricultural Census, which is published every five years. The data from the 2022 Agricultural Census is not yet available.

Figure 12 – Number of Farms in Weld County 1997 to 2017



Source: U.S. Agricultural Census – 1997, 2002, 2007, 2012, and 2017

Figure 13 – Land in Farms (Acres) in Weld County 1997 to 2017



Source: U.S. Agricultural Census – 1997, 2002, 2007, 2012, and 2017

Project Impacts

According to the Natural Resources Conservation Service (NRCS), 91% of the Project Site is considered prime farmland if irrigated and 3% is considered farmland of statewide importance if irrigated (Soil Survey Staff). The breakdown is shown in Table 2.

However, according to the Colorado Division of Resources mapping, only 120.58 acres of the Project site had been irrigated in recent years (indicated by the red circle Figure 14). The crop produced on this portion of the site was corn. It is our understanding that irrigation has ceased in advance of this Project, and that no irrigation is planned. The remainder of the site has been unirrigated and thus assumed to be of lower value to the agricultural output of Weld County in its current state. This previously irrigated 120.58 acres account for 0.0057% of the acres used for farming in Weld County. The land will not be irrigated going forward as part of the proposed Project.

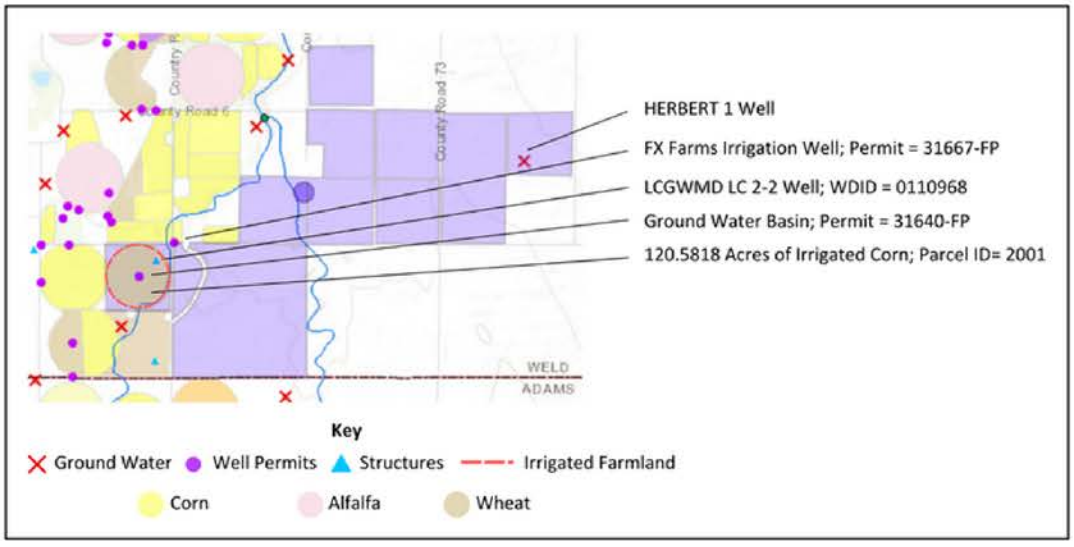
Table 2 – Breakdown of Land Cover Class on Site

Industry	Acres
Agriculture	2,004
Invasive Perennial Grassland	105.0
Developed, Open Space – Low Intensity	39.1
Western Great Plains Sandhill Shrubland	6.2
Western Great Plains Shortgrass Prairie	1.6
Western Great Plains Riparian Woodland and Shrubland	0.1

Source: Natural Resource Conservation Service

The land across the proposed Project site has also previously been disturbed through agriculture, making the environmental and aesthetic impacts on the land less severe versus claiming undeveloped resources. This Project will help protect the land for future agricultural use by preventing permanent loss due to industrialization and urbanization. According to the America's Farmland Trust, low-density urban sprawl permanently eliminates 2,000 acres of farmland annually nationwide.

Figure 14 – Map of Project Site



Source: Colorado Division of Water Resources

Furthermore, it is the intent of the Project to plant and maintain ground coverings that support soil health and neighboring agriculture. Because up to 90% of the ground on the site may be covered in vegetation, net-biodiversity gains may be realized based on the vegetation selected, erosion will be minimized due to groundcover, and the soil microbiome will be protected. Results would be similar to fallowed parcels under USDAs Conservation Reserve Program enabling a potential productive return to agriculture upon Project decommissioning.

Pollinators attracted by the chosen groundcover such as butterflies, bees, birds, and bats support plant reproduction and reinforce resilient ecosystems. Three-fourths of the world's flowering plants and about 35% of the world's food crops depend on pollinators such as butterflies, bees, birds, and bats to reproduce. During decommissioning, soil previously compacted during construction and operations activities, especially outside the vegetated area, will be recovered and restored.

D. Key County Industry Impacts: Oil and Gas

Summary

No negative impacts on the local Oil and Gas economy are anticipated through the proposed project:

- No active or demonstrated production is being hindered.
- The power generated and supplied by the Project will contribute to overall lower power costs, which would also support operational cost reductions for Oil and Gas sites.

Details

State of Colorado Oil and Gas

Colorado is the fifth-largest crude oil-producing state, contributing nearly 4% to the nation's output. It holds approximately 4% of the country's economically recoverable crude oil reserves. Colorado's significant growth in crude oil production since 2010, increasing nearly fivefold by 2022, can be attributed to the widespread adoption of advanced drilling techniques such as horizontal drilling and hydraulic fracturing technologies. Monthly crude oil production in the State peaked in November 2019 at slightly more than 17 million barrels and declined to about 11 million barrels by February 2021, due to the economic impacts of the pandemic. Crude oil production again increased in 2022 increased by 3% (U.S. Energy Information Administration [EIA], 2022 and 2023).

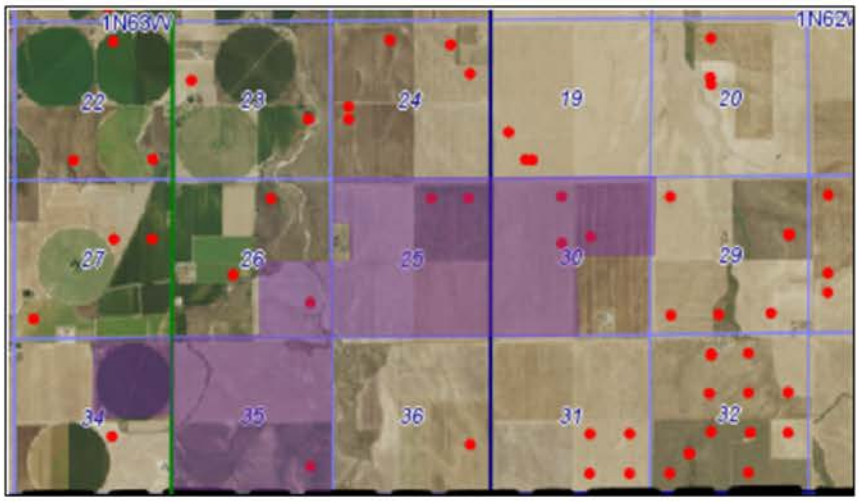
Weld County Oil and Gas

About four-fifths of Colorado's crude oil production is based in Weld County, with much coming from the Niobrara Shale formation located in Denver-Julesburg Basin in northeastern Colorado and neighboring states. Weld County's Wattenberg field is among the top 10 U.S. oil and natural gas fields based on proved reserves (U.S. EIA, 2022 and 2023). There are over 17,000 active wells in Weld County, making up more than one-third of all active wells in the state (Oil and Gas Energy Department).

Project Impacts

According to the State of Colorado Energy and Carbon Management Commission (ECMC) Maps, seven well bore permits have been filed on the site, as shown in Figure 15. In the figure, the red dots mark the well locations and the purple area indicates the Project site. All well bore permits have expired, and no site reported any production to the ECMC. The Project site is not in the most productive area in the county. Many large producing Oil and Gas sites in the County are also grid connected to support their auxiliary loads. Lower cost power from the Project may support the economics of such Oil and Gas operations in other areas.

Figure 16 – Well Locations on Project Site



Source: ECMC Database

E. Key County Resource Impacts: Water

This report does not cover the detailed water use and water rights impacted, but rather focuses on the qualitative impact of the Project on the water resources of the site and region.

None of the proposed Project site will be irrigated. Limited municipal or off-site water use will occur during the construction phase, the establishment of the ground cover, and even less during operation. Compared to other uses, the proposed Project is anticipated to have a minimal impact:

- Agricultural water use is over 100 times that of a solar project per acre (Bracken, et al, 2015; Colorado State University; Penn State Extension.
- The establishment period of a solar project (construction, initial startup) is roughly equivalent to residential water use on a per acre basis.
- Water use during the Project operation period drops to under 1/40th of the use during the construction and establishment period.

Water for construction purposes, such as concrete foundations and dust control, is generally covered via off-site sources by a construction water provider and is appropriately sourced from municipal or private sources. The other anticipated use of water during this Project will be irrigation to establish the selected native vegetation for ground covering. It is expected that the ground covering selected will be suited to the local climate and will not require ongoing irrigation past the establishment period.

During the life of the project, the solar PV modules may need to be cleaned to maintain energy output. The exact cleaning schedule is a function of precipitation, dust, and other particulate settling on the panels. To minimize cleaning, the Project intends to treat neighboring roads with GMCO CS products, a blend of liquid magnesium chloride and a complex sugar. The product is an environmentally friendly solution for gravel road stabilization and dust control. This will reduce water consumption related to cleaning during the operation period. Water for operational purposes would either be brought on-site or accessed via an appropriately permitted water source at the site.

IV. ENHANCEMENT OF THE SOCIOECONOMIC ENVIRONMENT

A. High-Value Job Creation, Earnings, and Economic Output

It is anticipated that construction of the Project will have a beneficial impact on the local economies of nearby municipalities and communities. Multiple studies have been conducted to estimate the creation of jobs from solar PV and energy storage projects. Solar PV energy investments create an average of 1.5 times as many jobs as investing the same amount of money in fossil fuels (U.S. EIA, "Levelized Costs", 2022).

The Jobs and Economic Development Impact (JEDI) models are widely used screening tools that estimate the economic impacts of constructing and operating power plants, fuel production facilities, and other projects at the local (usually State) level. JEDI estimates the number of jobs and economic impacts to a local area that can reasonably be supported by a power plant, fuel production facility, or other project. Jobs, earnings, and output are distributed across three categories:

Project Development and Onsite Labor Impacts (Direct Impacts)	The dollars spent on labor from companies engaged in development and on-site construction and operation of power generation and transmission. These results include labor only—no materials. Companies or businesses that fall into this category of results include project developers, environmental and permitting consultants, road builders, concrete-pouring companies, construction companies, tower erection crews, crane operators, and operations and maintenance (O&M) personnel.
Local Revenue and Supply Chain Impacts (Indirect Impacts)	The increase in demand for goods and services from direct on-site project spending. Businesses and companies included in this category of economic activity include construction material and component suppliers, analysts and attorneys who assess project feasibility and negotiate contract agreements, banks financing the projects, all equipment manufacturers, and manufacturers of replacement and repair parts.
Local Revenue Induced Impacts	The reinvestment and spending of earnings by direct and indirect beneficiaries. Induced results are often associated with increased business at local restaurants, hotels, and retail establishments, but also include child care providers and any other entity affected by increased economic activity and spending occurring at the first two categories.

The total impact of the construction and operation of the Project, as defined by JEDI, is the sum of the above three categories for each construction and for operations. State-specific multipliers and personal spending patterns are used to derive the results. These model defaults are based on interviews with industry experts and project developers. Economic multipliers contained within the model are derived from Minnesota IMPLAN Group's IMPLAN accounting software and State data files.

Given the development status of the proposed Project, the default model values have been used. The current planned DC capacity of 380 MW DC is assumed (1.36 DC/AC ratio). As shown in Table 3, most jobs (1,194) are created during the construction period of the project, which may span 12-18 months. Direct construction labor is the largest category. The supply chain impacts on supporting industries are predominantly on the suppliers of building materials for the site, from concrete to fencing. The induced jobs are a result of increased business due to the growth in the workforce in the area. In Table 2 and 3, construction jobs are over the project, construction period of 12-18 months, while operating jobs are on an annual basis. Construction jobs are defined as full-time equivalents (FTE), or 2,080-hour units of labor (one construction period job equates to one full-time job for 1 year). A part-time or temporary job may be considered one job by other models but would constitute only a fraction of a job according to the JEDI models.

Table 3: JEDI Model Job Creation of the PV Portion of the Project within the State
A value of "0" indicates no in-State job creation for the respective category.

During Construction and Installation Period (12 – 18 months)	Annual Jobs [Number of Full Time Positions]
PROJECT DEVELOPMENT AND ONSITE LABOR IMPACTS	
Construction and Installation Labor	954.3
Construction and Installation Related Services	240.3
Subtotal	1,194.6
MODULE AND SUPPLY CHAIN IMPACTS	
Manufacturing	0.0
Trade (Wholesale and Retail)	34.0
Finance, Insurance and Real Estate	0.0
Professional Services	74.5
Other Services	84.8
Other Sectors	285.0
Subtotal	478.4
INDUCED IMPACTS	324.5
TOTAL SHORT-TERM JOB IMPACTS	**1,997.5**
During Operating Years (20 Years)	**Annual Jobs [Number of Full Time Positions]**
ONSITE LABOR IMPACTS (PV PROJECT ONLY)	70.5
LOCAL REVENUE AND SUPPLY CHAIN IMPACTS	19.5
INDUCED IMPACTS	12.5
TOTAL LONG-TERM JOB IMPACTS	**102.5**

The construction and ongoing operational work require skilled professionals across trades. Therefore, in addition to the number of jobs, the JEDI model considers the value of the jobs created in the form of earnings. Table 4 shows the earnings impacts from the project, which are categorized by construction impacts and operations impacts. New earnings during construction total over $125 million. New long-term earnings (i.e., over the 20-year project life) total over $6.3 million.

Table 4: JEDI Model Earnings Impact of the PV Portion of the Project within the State

A value of "0" indicates no in-State earnings for the respective category.

During Construction and Installation Period (12 – 18 months)	Total Earnings [In $000, 2023 USD]
PROJECT DEVELOPMENT AND ONSITE LABOR IMPACTS	
Construction and Installation Labor	$61,807.5
Construction and Installation Related Services	$18,171.4
Subtotal	$79,979.0
MODULE AND SUPPLY CHAIN IMPACTS	
Manufacturing	$0.0
Trade (Wholesale and Retail)	$2,553.0
Finance, Insurance and Real Estate	$0.0
Professional Services	$4,681.8
Other Services	$9,368.4
Other Sectors	$12,334.9
Subtotal	$28,938.0
INDUCED IMPACTS	$16,960.1
TOTAL SHORT-TERM EARNINGS IMPACTS	**$125,877.1**
During Operating Years (20 Years)	**Total Earnings [In $000, 2023 USD]**
ONSITE LABOR IMPACTS (PV PROJECT ONLY)	$4,240.8
LOCAL REVENUE AND SUPPLY CHAIN IMPACTS	$1,416.9
INDUCED IMPACTS	$652.5
TOTAL LONG-TERM EARNINGS IMPACTS	**$6,310.2**

Finally, the JEDI model estimates the value of this economic activity to the State economy. It is an equivalent measure to the Gross Domestic Product, which measures output on a national basis. As shown in Table 5, the Project generates a net new total economic output of nearly $172 million during construction and an annual net new output of over $8.2 million.

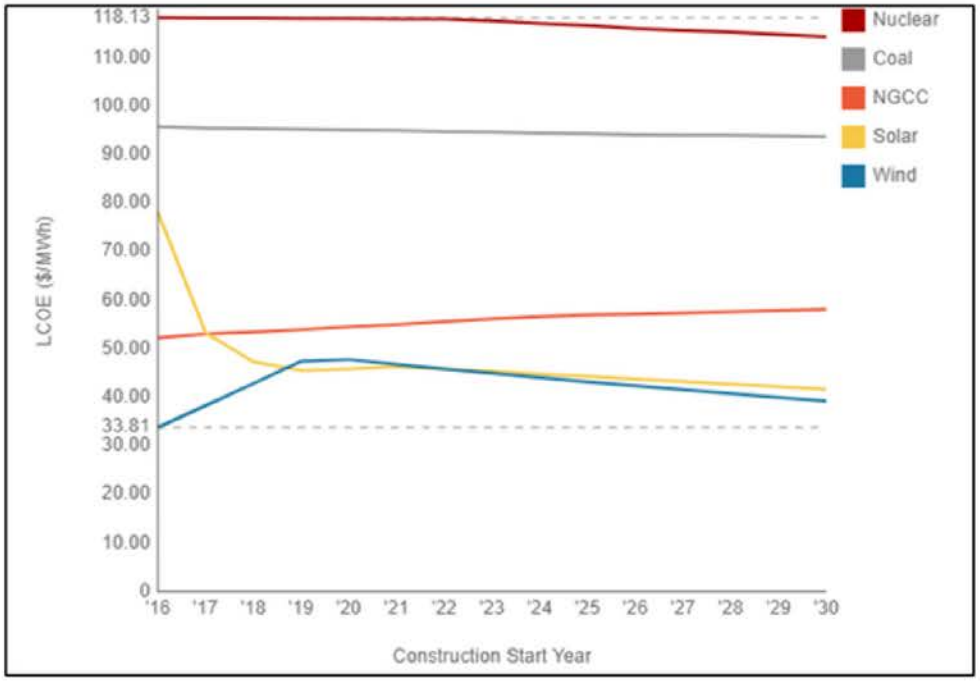
Table 5: JEDI Model Output and Value Added of the PV Portion of the Project
A value of "0" indicates no in-State value-added output for the respective category.

During Construction and Installation Period (12 – 18 months)	Value Added Output [In $000 (2023 USD)]
PROJECT DEVELOPMENT AND ONSITE LABOR IMPACTS	$89,904.0
MODULE AND SUPPLY CHAIN IMPACTS	
Manufacturing	$0.0
Trade (Wholesale and Retail)	$4,633.5
Finance, Insurance and Real Estate	$0.0
Professional Services	$8,131.3
Other Services	$15,070.9
Other Sectors	$20,961.3
Subtotal	$48,797.0
INDUCED IMPACTS	$33,254.1
TOTAL SHORT-TERM OUTPUT AND VALUE ADDED IMPACTS	**$171,955.0**
During Operating Years (20 Years)	**Value Added Output [In $000 (2023 USD)]**
ONSITE LABOR IMPACTS (PV PROJECT ONLY)	$4,240.8
LOCAL REVENUE AND SUPPLY CHAIN IMPACTS	$2,709.5
INDUCED IMPACTS	$1,279.5
TOTAL LONG-TERM OUTPUT AND VALUE ADDED IMPACTS	**$8,229.7**

B. Low Cost and Locally Generated Power

According to the U.S. EIA, this Project, like other solar and storage projects, provides lower cost electricity than other generation options. This helps lower power costs for residents and businesses in the Utility service area (U.S. EIA, "Levelized Costs", 2022). Reliable and cheap energy can trigger further economic development in the region. Lower cost power can support utilities in offering more affordable energy to low-income households. Figure 16 shows the comparable cost of energy generation in Colorado, with the yellow solar line notably more economical than Nuclear, Coal, or Natural Gas generation.

Figure 16 – Cost of Energy Generation in Colorado



Source: SEIA, "Solar and Property Value", 2019

By integrating both Solar and Storage, this Project further supports stable, reliable power generation. Solar and storage projects also contribute to national energy independence and security. Local generation will support power service reliability during extreme weather events such as wildfire that may compromise long distance transmission capacity.

C. Increased Income for Landowners

Landowners are compensated via lease payments, providing a stable and predictable income. By leasing, the landowner preserves future optionality on using the land for agriculture, other energy development, or other land uses deemed appropriate in the future.

D. Minimal Long-term Impact Transportation and Road Use

Additional road use outside of the construction period will be negligible. The Project intends to reduce road dust generation by treating the surface of adjacent dirt or gravel roads with GMCO CS products. A local vendor has been identified.

E. No Negative Impact on Property Values

Various analyses on property value in States across the country have demonstrated that large-scale solar arrays in rural settings have no measurable impact on the value of adjacent properties, and in some cases may even have positive effects. Proximity to solar farms has been proven to not deter the sales of agricultural or residential land (McGa, P. L., 2018).

F. Positive Local Health Impacts

Based on similar projects in Colorado, the Project could mitigate upward of 450,000 MT CO2 per year and the associated respiratory illness from these harmful emissions. By mitigating these emissions locally, there is a potential positive effect of reduced sick days taken by employees or students, resulting in better productivity and fewer hospitalizations associated with respiratory illnesses and cardiac arrest. These impacts can result in fewer lost wages and lower medical expenditures. Locally, the intent of the Project to treat neighboring roads with a blend of liquid magnesium chloride and a complex sugar will promote local dust control and the associated positive air quality impacts.

G. No Negative Visual and Sensory Impacts

Visual: The solar field will be constructed at least 500 feet from existing residential buildings or visual screening (e.g., landscaping, opaque fencing, etc.) in line with Weld County's requirements. The facility itself is primarily low height, ranging from 4 feet to 10 feet, reaching a maximum height similar to a field of corn. The visual setting at the Project site is already defined by agriculture of a similar height, combined with high-voltage transmission lines and oil and gas exploration equipment.

Thermal: A study from the University of Maryland shows that any heat created by a solar farm is much smaller than what is created by urban areas, dissipates quickly, and can't be measured 100 feet away (SEIA, "Solar and Property Value", 2019). A recent study has demonstrated that large scale Solar facilities have a cooling effect on the land surrounding them (McGa, P. L., 2018).

Audible: Sound at the Solar Project will be limited to inverters and the transformers, which cannot be heard past the Project boundaries.

H. No Negative Impact on Public and Emergency Services

The Project is located within District 3 of the Weld County Sheriff's Department and is within the jurisdiction of the Southeast Weld Fire Protection District. The nearest hospital to the Project Site is the Platte Valley Medical Center in Brighton, CO. None of these services are expected to be negatively affected.

V. TAX REVENUE

Other projects in Colorado and nationally have reported property tax revenues of $10 to 20 million over the Project's life. Based on the latest information from the State of Colorado, we estimate property tax revenue at $12.99 million over the project life (Table 6). The annualized average is approximately $649,575. This is in addition to the property tax for the land itself (currently $7,239 per year). It is also in addition to tax revenue generated through the local job creation and spending during construction, over the Project lifetime, and at decommissioning through employment and induced spending at local businesses as indicated in Section IV.

This calculation is based on the current Mill Levy according to Weld County and the current State assessment rate per the State of Colorado calculation template. Projects over 2 MW in size are assessed at the State-level. Unforeseen interruptions in production or degradation of system performance may affect actual numbers, as well as any changes to the Mill Levy or State of Colorado Assessment Rates.

Table 6 – Projected Property Tax Payment by Year

Year	Projected Tax Payment
Year 1	$515,484
Year 2	$523,216
Year 3	$583,366
Year 4	$592,116
Year 5	$600,998
Year 6	$610,013
Year 7	$619,163
Year 8	$628,451
Year 9	$637,877
Year 10	$647,446
Year 11	$657,157
Year 12	$667,015
Year 13	$677,020
Year 14	$687,175
Year 15	$697,483
Year 16	$707,945
Year 17	$718,564
Year 18	$729,343
Year 19	$740,283
Year 20	$751,387
TOTAL	**$12,991,502**

VI. APPENDIX

The following are the ordinances and related information that this report addresses in full in or in part.:

Table 7 – County Ordinances Addressed in Report

Ordinance	Required Information
21-7-330.B.6	Summarization of major natural and socioeconomic environmental constraints as they affect the site selection and construction of the facility as proposed.
21-7-330.B.7	Summarization of the effects of the proposed site selection and construction upon the natural and socioeconomic environment of the impact area as applicable to submission requirements. Included should be an analysis of impacts upon agricultural productivity and agricultural resources and upon vested water rights.
21-8-330.B.8	Analysis of the long-term effects of the proposed site selection and construction upon the physical and socioeconomic development of the impact area.
21-8-330.B.9	A description of a program to minimize and mitigate adverse impacts and to maximize the positive impacts of the proposed site selection and construction.

VII. REFERENCES

Banmiller, D. “The US Solar Industry is Booming: What’s Driving the Growth?” (2023, June 13). Wood Mackenzie. Accessed 9/25/2023 at https://www.woodmac.com/podcasts/the-interchange-recharged/us-solar-industry-booming.

“Bighorn Solar: 300MW Powering the World’s First Steel Mill to Run Almost Entirely on Solar.” Lightsource bp. (2023, May 30). Accessed 9/11/2023 at https://lightsourcebp.com/project/bighorn-solar.

Binder, G. “Researchers Discover Solar Heat Island Effect Caused By Large-Scale Solar Power Plants.” (2016, November 7). Phys.org. Accessed 9/11/2023 at https://phys.org/news/2016-11-solar-island-effect-large-scale-power.html.

Bivens, J. “Updated Employment Multipliers for the U.S. Economy.” Economic Policy Institute. (2019, January 23). Accessed on 9/11/2023 at https://www.epi.org/publication/updated-employment-multipliers-for-the-u-s-economy/.

Bracken, N., Macknick, J., Tovar-Hastings, A., Paul, P., Gerritsen, M., &; Mehta, S. (2015). (tech.). “Concentrating Solar Power and Water Issues in the U.S. Southwest. Joint Institute for Strategic Energy Analysis.” Accessed 9/11/2023 at https://www.nrel.gov/docs/fy15osti/61376.pdf.

Colorado Division of Water Resources. (n.d.). Geocortex GIS Viewer. Access on 9/28/2023 at https://maps.dnrgis.state.co.us/dwr/Index.html?viewer=mapviewer.

Colorado State University. (n.d.). “Colorado Water Knowledge.” Accessed 9/25/2023 at https://waterknowledge.colostate.edu/water-management-administration/water-uses/#1525208065511-d1803510-ed64.

“Colorado Solar.” SEIA.(2023, Q2). Accessed 9/25/2023 at https://www.seia.org/state-solar-policy/colorado-solar.

“Colorado Sunlight Hours & Renewable Energy Information.” Turbine Generator. (2023). Accessed 9/25/2013 at https://www.turbinegenerator.org/solar/colorado.

“Cost of Building Power Plants in Your State.” Be a Force for the Future. (2019, August 22). Accessed 9/11/2023 at https://www.nrdc.org/resources/cost-building-power-plants-your-state.

EPA. “Quantifying the Multiple Benefits of Energy Efficiency and Renewable Energy: A Guide for State and Local Governments.” Energy Resources for State and Local Governments. (2022, November 15). Accessed 9/11/2023 at https://www.epa.gov/statelocalenergy/quantifying-multiple-benefits-energy-efficiency-and-renewable-energy-guide-state.

Federal Reserve Bank of St. Louis. (n.d.). “Weld County, CO.” FRED Economic Data. Accessed on 9/26/2023 at https://fred.stlouisfed.org/series/COWELD3POP.

Jaeger, J. (2021, October 18). “Climate-friendly Investments Can Create More Jobs Per Dollar than Polluting Alternatives.” World Resources Institute. Accessed 9/11/2023 at https://www.wri. org/insights/green-investments-create-more-jobs-polluting-alternatives.

Jenniches, Simon. “Assessing the Regional Economic Impacts of Renewable Energy Sources, Renewable and Sustainable Energy Reviews.” Elsevier. (2018, October). Accessed 9/25/2023 at https://www.sciencedirect.com/science/article/pii/S1364032118303447.

Jo J. H., Loomis, D.G., and Aldeman, M. R. (2013, December). “Optimum Penetration of Utility-Scale Grid Connected Solar Photovoltaic Systems in Illinois.” Renewable Energy, 20-26. Accessed 9/25/2023 at https://www.sciencedirect.com/science/article/abs/pii/S0960148113002243.

Lancaster University. “Large Scale Solar Parks Cool Surrounding Land.” ScienceDaily. 2021, 5 October. Accessed 9/11/2013 at www.sciencedaily.com/releases/2021/10/211005124801.html.

McGa, P. L. (2018). (rep.). “Property Value Impact Study for Proposed Newark Road Solar Energy Use.” Cohn Reznick and Borrego Solar Systems, Inc. Accessed 9/11/2023 at https://solarformasoncounty. com/wp-content/uploads/2021/03/Property-Value-Impact-Study-Cohn-Reznick-2018.pdf.

Michaud, G., Khalaf, C., Zimmer, M. & Jenkins, D. (2020, Augus 8). “Measuring the Economic Impacts of Utility Scale Solar in Ohio.” Developed for the Utility Scale Solar Energy Coalition of Ohio (USSEC). Accessed on 9/25/2013 at https://www.ohio.edu/voinovich-school/news-resources/reports-publications/utility-scale-solar.

National Agricultural Statistics Service. “Weld County Colorado Profile.” 2017 Census of Agriculture. Accessed on 9/16/2023 at https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources /County_Profiles/Colorado/cp08123.pdf.

Oil and Gas Energy Department. Weld County Oil and Gas. Accessed on 9/28/2023 at https://www.weld.gov/files/sharedassets/public/v/1/departments/oil-and-gas-energy/documents/wc-oil-and-gas-aaaapr_-2023.pdf.

Penn State Extension. “Agricultural Water Needs and Sources Water Supply.” (2023, March 20). Accessed 9/11/2023 at https://extension.psu.edu/agricultural-water-needs-and-sources-water-supply.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online. Accessed 9/11/2023 at https://websoilsurvey.nrcs.usda.gov/ app/WebSoilSurvey.aspx.
Solargis. “Global Horizontal Irradiation.” The World Bank. (2019). Accessed 9/25/2013 at https://solargis.com/maps-and-gis-data/download/usa.

“Solar and Property Value.” Solar Energy Industries Association. (2019, July). Accessed 9/11/2023 at https://www.seia.org/sites/default/files/2019-09/Solar%20Property%20Value%20FactSheet%202019-PRINT_1.pdf.

"Solar Market Insight Report 2023 Q3." SEIA. (2023, September 7). Accessed 9/25/2013 at https://www.seia.org/research-resources/solar-market-insight-report-2023-q3.

State Agriculture Overview. USDA 2022 State Agriculture Overview for Colorado. (n.d.). Accessed on 9/28/2023 at https://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=COLORADO.

Tabassum, S., Rahman, T., Ul Islam, A., Paul, P., Rahman, S., Roy Dipta, D., Roy, S., Mohammad, N., Nawar, N., &; Hossain, E. "Solar Energy in the United States: Development, Challenges and Future Prospects." Energies. (2021, December 4). Accessed 9/11/2023 at https://www.nrel.gov/docs/fy15osti/61376.pdf.

United States Department of Agriculture. (n.d.). "Census Archive." Census of Agriculture Historical Archive. Accessed on 9/16/2023 at https://agcensus.library.cornell.edu.

Upstate Colorado. (n.d.). Weld County Workforce Snapshot. Accessed on 9/26/2023 at https://upstatecolorado.org/wp-content/uploads/2020/07/Weld-County-Workforce-Snapshot-Report-July-2020.pdf.

U.S. Census Bureau. (n.d.). Weld County Colorado QuickFacts. Accessed on 9/26/2023 at https://www.census.gov/quickfacts/weldcountycolorado.

"U.S. Energy and Employment Report – 2023." USEER. Accessed 9/25/2023 at https://www.energy.gov/sites/default/files/2023-06/USEER23-CO-v2.pdf.

U.S. Energy Information Administration. "Levelized Costs of New Generation Resources in the Annual Energy Outlook 2022." (2022, March). Accessed on 9/11/2023 at https://www.eia.gov/ outlooks/aeo/pdf/electricity_generation.pdf.

"U.S. Solar Energy Market Size & Share Analysis – Growth Trends & Forecasts 2023-2028". Mordor Intelligence. Accessed 9/25/2013 at https://www.seia.org/research-resources/solar-market-insight-report-2023-q3.

USDA's National Agricultural Statistics Service Mountain Regional Field Office. (2022). Colorado Agriculture. Lakewood, CO; Colorado Department of Agriculture. Accessed 9/28/2023 at https://www.nass.usda.gov/Statistics_by_State/Colorado/Publications/Agriculture_Profile/Colorado-AG-Profile-2022.pdf.

U.S. Energy Information Administration. (2022, December 30). Proved Reserves of Crude Oil and Natural Gas in the United States, Year-End 2021. Accessed on 9/28/2023 at https://www.eia.gov/naturalgas/crudeoilreserves.

U.S. Energy Information Administration. (2023, May 18). Colorado State Profile and Energy Estimates. EIA Independent Statistics and Analysis. Accessed on 9/28/2023 at https://www.eia.gov/state/analysis.php?sid=CO.

"Weld County, CO Unemployment Rate." (2023, August). YCharts. Accessed on 10/5/2023 at https://ycharts.com/indicators/weld_county_co_unemployment_rate.