Facebook's U.S. Renewable Energy Impact Study

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FACEBOOK

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Executive Summary

In 2011, Facebook was one of the first companies to commit to supporting its facilities with 100% renewable energy. Today, the company's U.S. data center fleet is supported by 100% renewable energy, and Facebook is on track to maintain this commitment for future data center developments and expansions. **Facebook's ability to achieve this commitment is in large part due to its pioneering approach to renewable energy procurement, which to date has resulted in 55 new solar and wind projects adding 5,763 megawatts (MW) of clean electricity to the U.S. grid.**

Facebook's renewable energy commitment is a key component of the company's broader sustainability initiatives, including its sustainable data center design and net-zero carbon emissions goal. To better understand the economic impact of Facebook's renewable energy efforts in the United States, the company contracted RTI International, an independent nonprofit research institute, to conduct an economic analysis of Facebook's U.S. portfolio of 5,763 MW of solar and wind projects that support the company's 13 U.S. data centers. This report presents findings from that analysis, along with specific insights from 30 energy experts.

This report provides evidence that Facebook's renewable energy commitments have had economic impacts while advancing renewable energy capacity in many regions of the U.S.

55
Utility-Scale Solar and Wind Projects

5,763
Total MW

Over
40,000
Total Construction Phase Jobs (2014–2022)

$2.6 billion
Total Construction Phase Labor Income

$4.2 billion
Total Construction Phase GDP

Key Findings: Economic Impacts of Facebook-Supported Renewable Energy Projects

- Facebook-supported U.S. renewable energy projects will result in an estimated $7.4 billion in development capital expenditures, of which an estimated $3.1 billion will be sourced within the United States. Development costs generate one-time economic impacts during construction and installation as well as ongoing benefits from annual operations and on-site maintenance.
- During construction (2014–2022), these projects have or will support over 40,000 jobs and $4.2 billion in Gross Domestic Product (GDP) throughout the U.S. economy.
  - › Facebook added new renewable energy capacity in all U.S. regions where its data centers operate.
  - › State renewable energy capacity additions from Facebook-supported projects range from 100 MW to over 700 MW.
  - › On average, the construction of Facebook-supported projects supports 412 total jobs statewide for every 100 MW of contracted capacity.
  - › The average state-level impact was 1,318 jobs during construction, exceeding 2,000 jobs in 6 states and the combined 4-state Tennessee Valley region where new projects are located.
- In a typical year, defined in this report as 2023, the operation of new renewable energy projects will sustain nearly 1,000 U.S. operations jobs and $157 million in U.S. GDP annually across the country.

Facebook's Approach to Powering U.S. Data Centers with Renewable Energy

Over the past 4 years, corporate sustainability initiatives have helped boost the renewable energy industry through rapid increases in renewable energy procurement. In 2020, corporations purchased a record of 24 gigawatts (GW) of renewable energy, almost 4 times the amount purchased in 2017.[1] In 2018 and 2019, Facebook was recognized as the number-one corporate buyer of renewable energy in the United States by the Renewable Energy Buyers Alliance.[2]

In working to achieve its 100% renewable energy commitment, Facebook has led private-sector efforts to increase renewable energy capacity in the United States while also expanding renewable energy access for other buyers.

Renewable energy is a key component of Facebook's strategy to build and operate sustainable data centers in the United States.

Data centers are energy-intensive buildings, using large amounts of electricity to power servers and cooling equipment. The development of data centers across the United States has grown significantly due to rising demands for data center services.[3] Facebook's U.S. fleet of data centers, which power Facebook for billions of users around the world, has grown from 1 to 13 over the last decade. And over the last 10 years, through partnerships with local stakeholders across the United States, Facebook has translated its data center growth and renewable energy commitment into a model for clean energy-based development.

Today, the company's U.S. data center fleet is supported by 100% renewable energy, and Facebook is on track to maintain this commitment for future data center developments and expansions.[4] To reach this commitment, Facebook established 2 overarching goals associated with electricity procurement for each data center it builds and operates:

Goal 1

Add new renewable energy capacity to the grid equivalent to the amount of electricity consumed by the company's data center operations. This goal is important because Facebook committed to meeting the company's energy demands through clean energy and wants to contribute to a cleaner U.S. grid.

New renewable energy means that Facebook added solar and wind generation that was not already available or planned to be added to an electrical grid as part of the criteria for involvement in a renewable energy project.

Goal 2

Ensure all Facebook-supported renewable energy projects are located in the same electric grids as its data centers. This goal is important because Facebook wants the benefits of increased renewable energy capacity and the associated economic impacts to benefit the communities and states where the company operates.

Renewable energy in the same electrical grid means that renewable energy generation occurs where the new energy demand is geographically located.

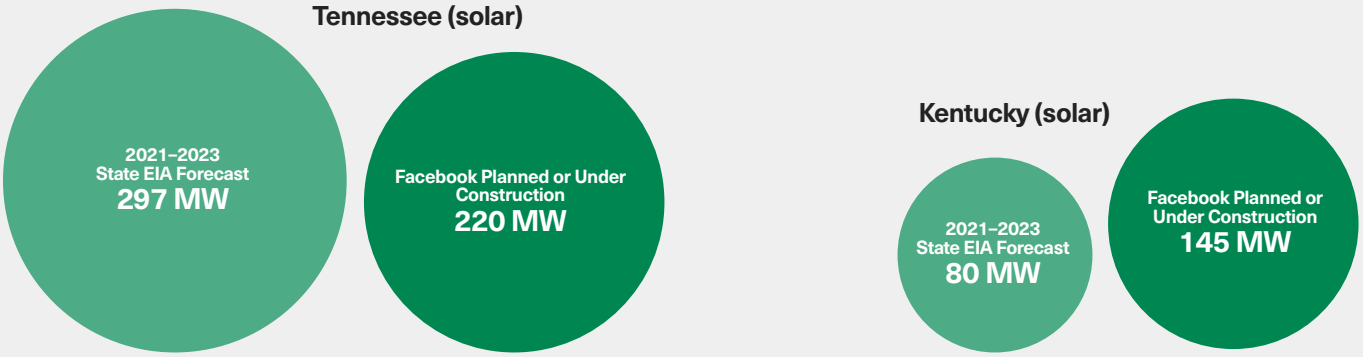
Facebook added new renewable energy capacity in all U.S. regions where its data centers operate.

Facebook-supported projects have added significant renewable energy capacity both in states with established renewable energy track records, such as Texas and North Carolina, and in states where little or no renewable capacity previously existed, such as Kentucky, Tennessee and Montana.

Project data, state-level annual statistics for existing solar and wind capacity (2019), and state-level forecasts for planned capacity[5] provide evidence that Facebook's renewable energy goals have been successful at advancing renewable energy in many states.

- As of 2019, Facebook's projects represented 6% of North Carolina's solar capacity and 15% of Nebraska's wind capacity. North Carolina was one of the top solar capacity states, while Nebraska was in the earlier stages of developing wind energy capacity.
- 2,280 megawatts (MW) of Facebook-supported capacity became operational in 2020. In the 10 states with these completed projects, the additions made up 15% of forecasted 2020 solar and wind capacity. The 10 states included a mix of established and emerging renewable markets: Georgia, Indiana, Montana, North Carolina, New Mexico, Ohio, Oregon, Texas, Utah, and Virginia.

In states with historically low renewable energy capacity, Facebook's renewable energy procurement will lead to renewable energy capacity additions that are close to or higher than the total renewable energy capacity forecasted by the state between 2021 and 2023.



Several of the announced renewable projects supporting Facebook data centers were also the largest in their state at the time.

Alabama

Colbert County solar project announced 227 MW in 2018.[6]

Tennessee

Lincoln County solar project announced 150 MW in 2018.[7]

Ohio

Hardin County solar project announced 150 MW in 2018.[8]

Montana

Carbon County wind project announced 239 MW in 2019.[9]

By adding renewable energy capacity in the same electrical grids as its data centers, Facebook demonstrated how this goal could increase local renewable resource capacity and concentrate direct short- and long-term economic impacts within the regions where the renewable projects are constructed and are operating.

In addition to adding 5,763 MW of renewable energy capacity to local grids, construction and operations of solar and wind projects support economic outcomes in numerous data center locations, many of which are economically distressed.

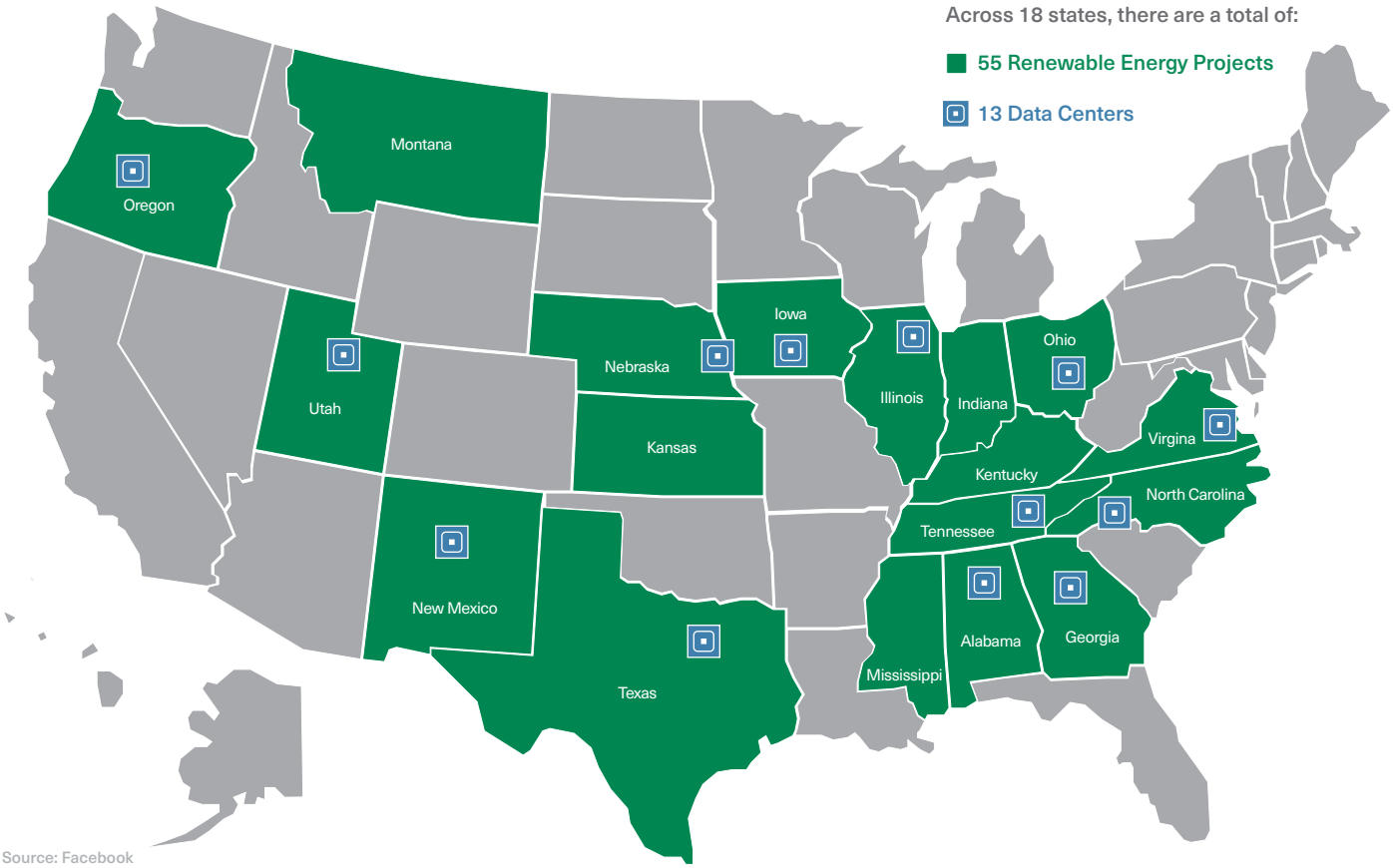
Facebook's renewable energy portfolio spans 18 states and 46 counties, from the suburbs of Albuquerque, NM, to rural counties in Georgia and Nebraska with fewer than 10,000 residents.[10] Of the 55 renewable energy projects supported by Facebook:

- 96% are located outside of major metropolitan areas,
- 82% are located in counties with poverty rates above the national average, and
- Nearly one-third of the project counties experienced net employment losses from 2014 to 2019, a period of overall U.S. economic growth.

A typical project of 100 MW employs:

- 270 on-site jobs during construction
- 5 on-site jobs during operations
- The average compensation for an operations job is over $89,000, nearly double the 2019 median household income in the counties where most of the projects are located.

Facebook ensured that all new renewable energy projects are located in the same electric grids as its data centers.



Source: Facebook

Facebook's pioneering approach to procuring renewable energy paved the way for other purchasers.

Although there are various corporate sustainability approaches designed to achieve renewable energy goals, Facebook tailored its own procurement strategy using two key tools: long-term agreements and green tariffs.

Long-term agreements are contracts between a renewable energy owner and customer that offer a predictable cashflow to a renewable energy project over many years. By providing a steady revenue stream, these agreements enable new solar or wind projects to be constructed based on long-term demand for clean electricity.

Long-term agreements involve complex negotiations associated with the terms and conditions necessary to meet the goals of utilities, project developers, regulators, and customers. This collective process and agreement terms and conditions informed other energy customers with renewable energy goals, especially those that did not have the same level of in-house legal, financial, or energy sector experience.[11]

Facebook's long-term agreements have an average term of 18 years.

The use of long-term agreements will result in the addition of 5,763 MW of new renewable energy by the end of 2023.

Green tariffs are a new type of procurement tool that uses public-private partnerships to meet renewable energy goals. Green tariffs are optional programs in regulated electricity markets offered by utilities and approved by regulators that allow utility customers to buy renewable electricity from a specific project through a unique utility tariff rate.[12]

In regulated electricity markets, Facebook participated in the next generation of utility "green power" programs that go beyond the traditional programs and incentives.[13] New alternatives are designed to provide customers with more predictable rates and cost savings. These programs also allow customers to connect their energy spending to a specific source of renewable electricity generation.[14] By participating in the design of tools such as green tariffs, Facebook led by example.

The company was the first customer to participate in 7 new or updated green tariff programs, and each of these programs laid the foundation for new renewable procurement for qualifying customers where the option was not previously possible.[15] For example:

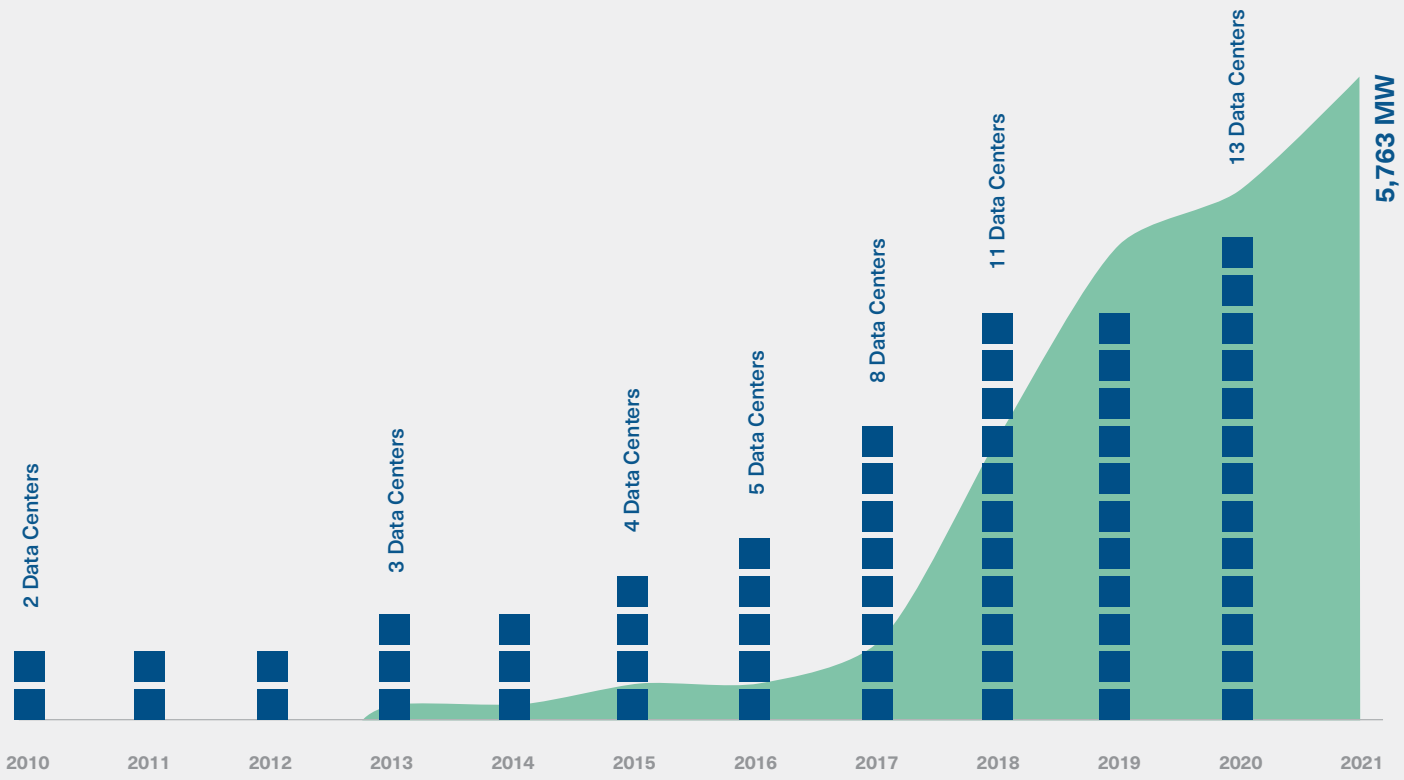
- Facebook participated in Tennessee Valley Authority's (TVA) Green Invest program, which earned the 2020 Green Power Leadership Award for Green Power Market Development, and TVA estimated that nearly $2.7 billion in solar investment has been generated since the program's inception.[16]
- Facebook's solar energy partnership with Walton Electric Membership Corporation (Walton EMC) in Georgia created a framework that inspired a separate large-scale renewable energy agreement between Walton EMC and Nestlé Purina PetCare Company.[17]

> *"Facebook planted seeds of change for renewable energy accessibility that were replicable and scalable."*
>
> —Interviewee

Facebook rapidly increased its sourcing of new renewable energy to meet data center demands in every region where the company located.

As utilities and policymakers consider transitions away from fossil fuel-based energy sources, Facebook's approach to adding new renewable energy projects to the same electrical grids as its data centers offers a model for how to meet significant energy demands through clean energy. Facebook's transparency, technical skills, and willingness to use tools—such as long-term agreements and green tariffs—promoted greater renewable energy accessibility.[18]

Cumulative U.S. Data Center and Renewable Energy Megawatts by Announcement Year



Note: Figure based on announcement year. Renewable energy projects take between 2 and 3 years to become operational once a long-term agreement is established. Data centers often involve more than 1 renewable energy project. Source: Facebook

Economic Impacts of Facebook-Supported Renewable Energy Projects

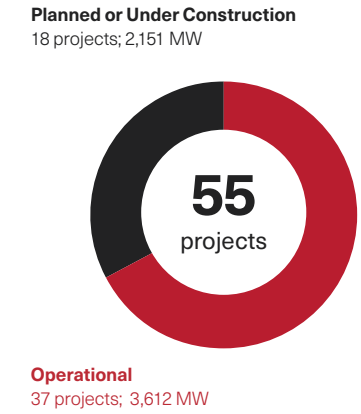
Rattlesnake Creek Wind Project. Photo courtesy of Enel.

By 2023, Facebook-supported U.S. renewable energy projects will have provided 40,000+ jobs and $4.2 billion+ in GDP throughout the U.S. economy.

To date, Facebook's long-term agreements to purchase renewable energy have resulted in 55 new solar and wind projects in the United States alone. At year-end 2020, two-thirds of announced projects were operational. The remaining 18 projects are planned or under construction and will be completed between 2021 and 2022. The economic impacts of these projects are projected to occur during that two-year period.

Each project generates short- and long-term economic impacts through construction and operations. RTI International calculated the economic impacts generated from estimated on-site project construction and operations expenditures (direct effects),[19] as well as the impacts of supply chain purchasing (indirect effects) and employee spending (induced effects). The economic impacts were quantified by job creation, labor income, and GDP in the states where Facebook-supported renewable energy projects are located and throughout the domestic supply chain.

Facebook's U.S. Renewable Energy Project Portfolio



	Construction	Operations
Typical Time Frame:	**1 year**	**15-25 years**
Jobs•:	**One-Time**	**Ongoing, Annual**

* Throughout the report, jobs are expressed as the total number of job-years. These jobs can be filled by the same or different individuals over both the construction and operations phases.

New renewable capacity creates jobs and income as spending cycles through the economy.

Direct →

Project Construction and Operations

Construction of new power plants, manufacturing equipment such as turbines and inverters, and electric power generation.

Indirect →

Supply Chain

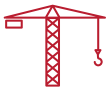
Engineering services, building component manufacturing, and electricity transmission and distribution.

Induced

Households

As new jobs boost incomes, people spend their money at retailers, grocery stores, healthcare providers, and personal services.

By 2022, construction will have provided over 40,000 total jobs over 9 years.



The construction phase includes an estimated $7.4 billion in total construction expenditures that will occur from 2014 through 2022, of which approximately $3.1 billion will be sourced within the United States. The construction costs of current and planned renewable energy projects are primarily for installation labor and materials.[20] The expenses result in the following economic impacts during the construction phase:

- 270 direct, on-site jobs for every 100 MW in contracted capacity
- 2.6x employment multiplier: 1.6 additional jobs for each on-site job
- 700 total U.S. jobs for every 100 MW in contracted capacity

Construction Phase Impacts at a Glance: 2014–2022 (9 Years)

40,694 Total Jobs

$2.6 billion in Labor Income

$4.2 billion in U.S. GDP

Operations will provide nearly 1,000 jobs annually.

After all the projects are operational in 2023, an estimated total of $119 million will be spent each year to operate and provide electricity to the grid. Together, the projects result in the following recurring economic impacts in a typical year:

- 3.5x employment multiplier: 2.5 additional jobs for each direct, on-site job
- 8 total U.S. jobs for every $1 million in U.S. operating expenditures.

Total Operations Phase Impacts at a Glance: 2023 (Typical Year)

952 Total Jobs

$70 million in Labor Income

$157 million in U.S. GDP

Economic Impacts for U.S. Solar and Wind Projects Supported by Facebook's Portfolio of Long-Term Agreements: 2014–2023

Number of Jobs; Millions of 2020 Dollars, Undiscounted

	Construction (Cumulative)				Operations (Annual)			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Jobs	15,770	9,736	15,187	**40,694**	272	269	411	**952**
Labor Income	$1,011	$704	$839	**$2,554**	$24	$23	$23	**$70**
GDP	$1,585	$1,175	$1,481	**$4,240**	$68	$49	$40	**$157**

Solar projects account for 3,940 MW of renewable project capacity, or 68% of the portfolio of Facebook's long-term agreements.

The solar industry is one of the fastest-growing job sectors in the United States. Industry-wide residential, non-residential, and utility-scale solar has experienced a fourfold growth in construction employment since 2010.[21] In 2019, industry data also showed that overall utility-scale construction employment was over 31,000—a 44% increase from 2018.[22] Utility-scale solar construction projects that support Facebook's data centers have made substantial contributions to nationwide job growth.

When it comes to sourcing the renewable equipment from suppliers and vendors in the United States, there are differences between solar and wind industries' supply chain impacts. For example, national trends show that solar equipment (e.g., modules) is more likely to be imported than wind equipment.[23]

- For select projects, Facebook-supported projects go against national trends and target domestic equipment supply chains to boost local manufacturing industries.
- Facebook-supported solar construction has an employment multiplier of 2.4x total jobs for every on-site construction job.

3,940
MW

21,610
Total Construction Phase Jobs (2017–2022)

$1.3 billion
Total Construction Phase Labor Income

$2.3 billion
Total Construction Phase GDP

682
Annual Operations Phase Jobs (2023)

In 2019, utility-scale solar operations employed 3,700 people.[24] The estimate excludes solar industry jobs in construction and other supply chains. In terms of labor intensity, solar utility-scale operations require 3.3 jobs per $1 million in sales, on average.[25] The average is higher than wind electric power generation and suggests utility-scale solar operations are more labor intensive.[26]

$98,000 annual average wage across all solar electric power generation occupations.[27]

Example occupations: first-line construction supervisors, general operations supervisors, and project management specialists.[28]

Economic Impacts for U.S. Solar Projects Supported by Facebook's Portfolio of Long-Term Agreements: 2017–2023

Number of Jobs; Millions of 2020 Dollars, Undiscounted

	Construction (Cumulative)				Operations (Annual)			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Jobs	9,179	4,525	7,906	**21,610**	235	156	291	**682**
Labor Income	$562	$330	$437	**$1,329**	$19	$13	$16	**$48**
GDP	$940	$551	$771	**$2,262**	$41	$29	$28	**$98**

Wind projects account for 1,823 MW of renewable project capacity, or 32% of the portfolio of Facebook's long-term agreements.

In 2019, the wind electric power sector provided 115,000 jobs across a variety of sectors in the U.S. economy, an increase of 3% from 2018.[29] Over one-third of these jobs—nearly 38,000—represented construction employment.[30] During the wind construction phase, wind construction is more labor intensive relative to solar and requires 1.6 times the number of direct construction jobs per MW of installed capacity.

Major wind system components are also often manufactured domestically, and a strong domestic equipment supply chain exists for items such as towers, blades, and turbines. In 2019, these and other wind-related manufacturing sectors supported over 26,000 jobs, and the sector was forecasted to grow by 2% in 2020.[31]

- Facebook-supported wind construction supports 362 direct construction jobs for every 100 MW of installed capacity.
- Facebook-supported wind construction has an employment multiplier of 2.9x total jobs for every on-site construction job.

1,823
MW

19,084
Total Construction Phase Jobs (2014–2021)

$1.2 billion
Total Construction Phase Labor Income

$2 billion
Total Construction Phase GDP

270
Annual Operations Phase Jobs (2023)

In 2019, utility-scale wind operations employed 6,400 people.[32] The estimate excludes wind industry jobs in construction or other supply chains. In contrast with solar utility-scale operations, wind is not as labor intensive as it requires 0.9 jobs per $1 million in sales.[33]

$85,000 annual average wage across all wind electric power generation occupations.[34]

Example occupations: installation, maintenance, and repair occupations such as wind turbine technicians as well as operations and business specialists.[35]

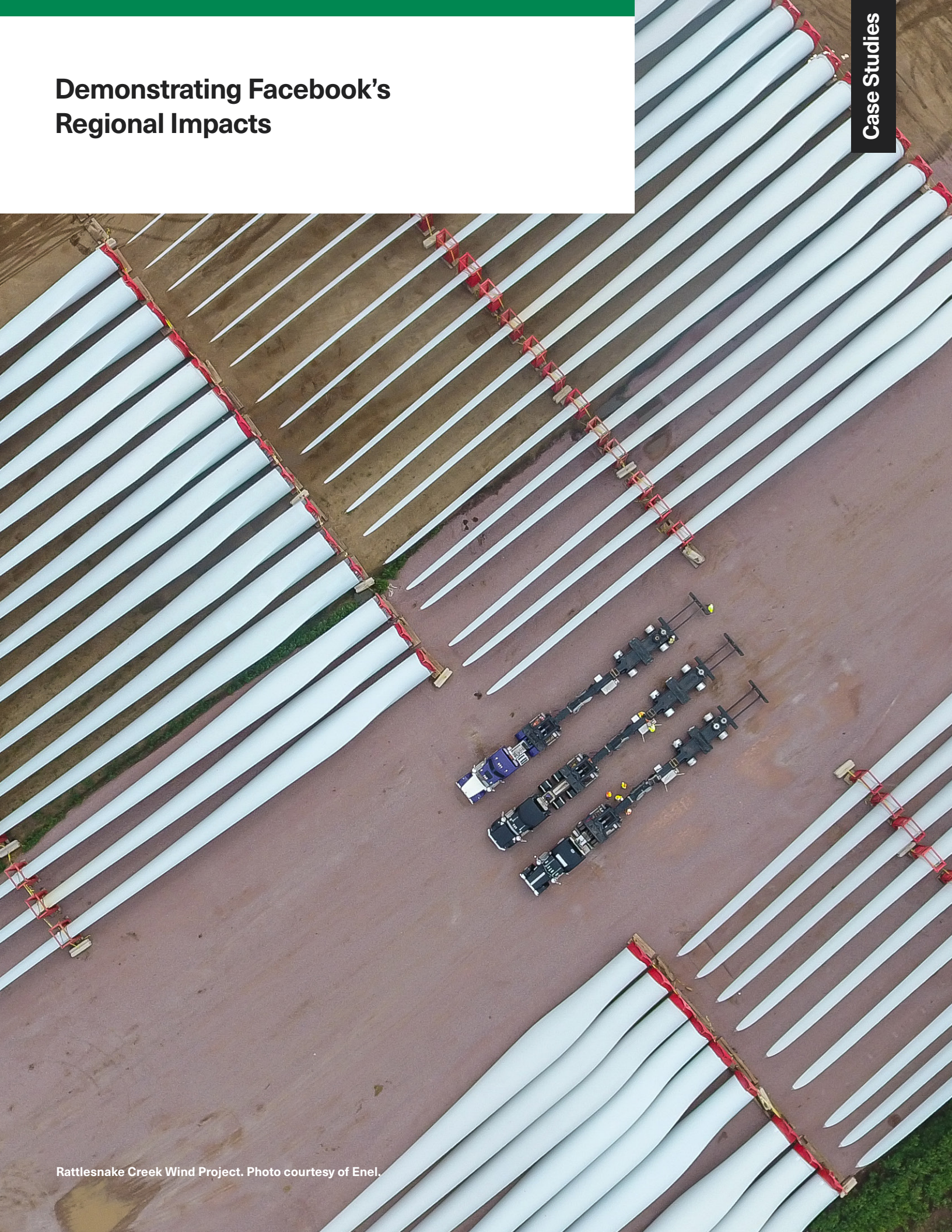
Economic Impacts for U.S. Wind Projects Supported by Facebook's Portfolio of Long-Term Agreements: 2014–2023

Number of Jobs; Millions of 2020 Dollars, Undiscounted

	Construction (Cumulative)				Operations (Annual)			
	Direct	Indirect	Induced	Total	Direct	Indirect	Induced	Total
Jobs	6,592	5,211	7,281	19,084	37	113	120	270
Labor Income	$449	$375	$402	$1,225	$5	$10	$7	$22
GDP	$645	$624	$710	$1,978	$26	$21	$12	$59

Demonstrating Facebook's Regional Impacts

Case Studies

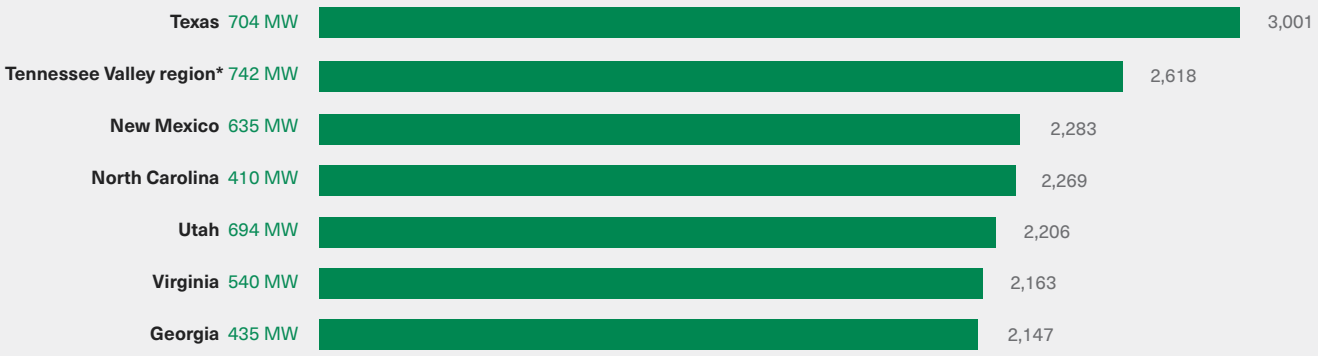


Rattlesnake Creek Wind Project. Photo courtesy of Enel.

Facebook U.S. renewable energy projects strengthened regional job markets with an average of 1,318 construction jobs in 18 different state economies.

Facebook-supported renewable energy capacity additions range from 100 MW to over 700 MW per state. The study revealed that every 100 MW of new capacity supported an average of 412 statewide construction jobs. In 7 locations, more than 2,000 cumulative jobs were supported during the construction phase.

Total Construction Phase Jobs (2014–2022)
Average across all states: **1,318**



*The Tennessee Valley region includes renewable energy projects in Alabama, Tennessee, Kentucky, and Mississippi.

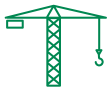
To place the regional capacity additions and economic impacts into context, two case studies describe Facebook's commitments and the evolution of renewable energy markets in the Tennessee Valley region[36] and New Mexico. Both case studies report the relative size of new capacity additions and illustrate how Facebook's approach to powering its data centers increases local economic activity during the construction and operations phases. Additional evidence shows how early commitments helped inspire momentum for additional renewable energy growth that continues to support local economies, many of which are economically distressed.

Case Study

Tennessee Valley Region: Huntsville, AL, and Gallatin, TN, Data Centers

Facebook and the Tennessee Valley Authority (TVA) began working together in 2017 to determine a renewable energy[37] solution for a new site that Facebook was considering for a data center. This site would become the location for the Huntsville, AL, Data Center. TVA is a corporate agency of the United States that provides electricity for business customers and local power companies serving nearly 10 million people in parts of 7 southeastern states including Tennessee and portions of Alabama, Mississippi, Kentucky, Georgia, North Carolina, and Virginia.

In 2018, Facebook announced its first 2 solar projects in Alabama and Tennessee, totaling 377 MW. At that time, the 2 projects were the largest solar projects contracted in both states.[38] To date, Facebook has announced a total of 5 solar projects across 4 states in the Tennessee Valley region: Alabama, Kentucky, Mississippi, and Tennessee. These projects are scheduled to become operational between 2021 and 2023.



Construction will support over 1,500 direct, on-site jobs in the 4-state region. The construction phase includes an estimated $805 million in construction expenditures with approximately $243 million that will be sourced locally. These expenditures will result in 353 total jobs for every 100 MW in contracted capacity.

Operations will support nearly 40 direct, on-site operations jobs, each earning over $75,000 annually in wages and benefits. The operations phase includes an estimated $14 million in operating expenditures that support ongoing annual impacts, including $5 million in total labor income and $14 million in total regional GDP.

All projects are in rural counties, and are located in areas that have a poverty rate above the national average and median household income below state and national levels.[39] These types of economic challenges place even more importance on the impacts of the construction and ongoing operational activities at each renewable energy project site.

5
Utility-Scale Solar Projects

742
total MW

Over
2,600
Total Construction Phase Jobs (2020–2022)

$140 million
Total Construction Phase Labor Income

$222 million
Total Construction Phase regional GDP

Economic Impacts for Facebook-Supported Solar Projects in Alabama, Kentucky, Mississippi, and Tennessee

Millions of 2020 Dollars, Undiscounted; Number of Jobs

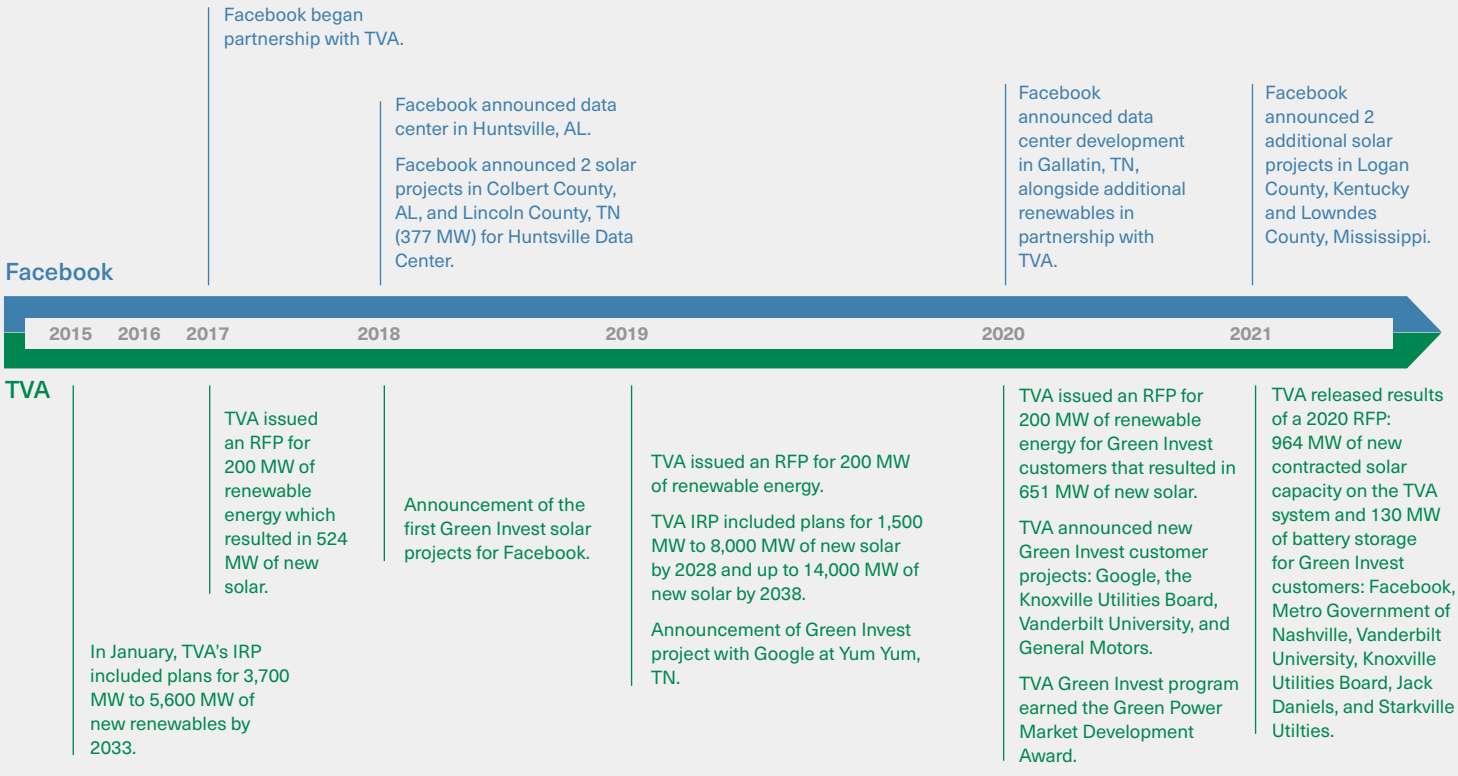
	Construction (Cumulative)		Operations (Annual)	
	Direct	Total	Direct	Total
Jobs	1,566	2,618	38	79
Labor Income	$87	$140	$3	$5
GDP	$130	$222	$9	$14

Note: Total estimated impacts include direct, indirect, and induced results in both the construction phase and operations phase. See glossary for more detail on how these results are defined.

Facebook's activities in the Tennessee Valley region have resulted in 742 MW of new solar and informed the renewable energy opportunities for other utility-scale TVA customers.

Over the last 5 years of local engagement, Facebook shared extensive industry knowledge that has informed the creation of renewable energy resources at scale.[40] TVA and Facebook pioneered the framework that became Green Invest in 2018. With TVA's competency in competitive renewable energy procurement, the Green Invest program evolved as an industry-leading approach to expand renewable energy across the TVA service area. The program continues to grow: Facebook announced additional Green Invest projects to support a second data center in Gallatin, TN.

Timeline of Key Facebook and TVA Activities from 2015 to 2021



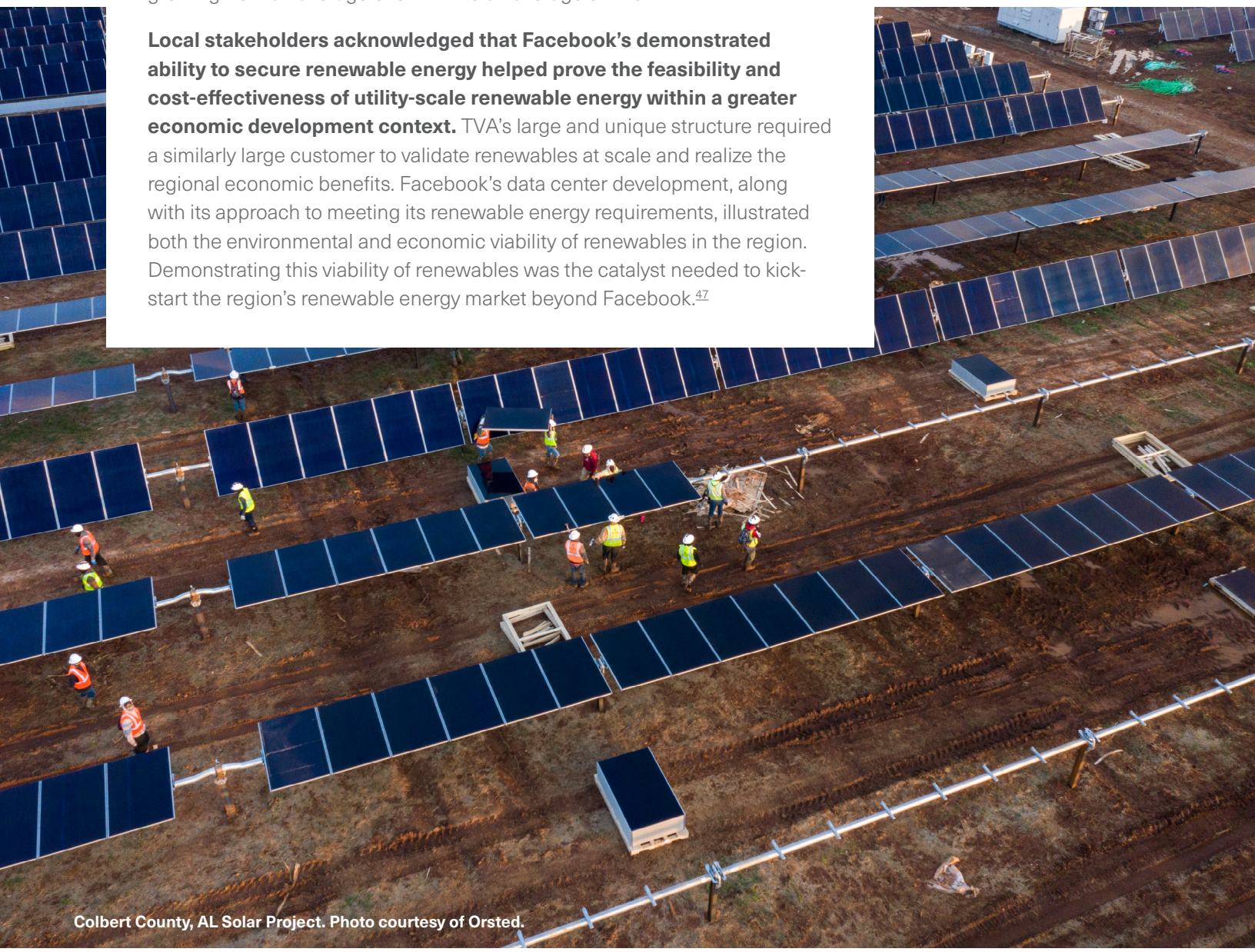
Today, the renewable energy landscape is strikingly different than it was prior to 2017. Facebook was the first customer for TVA's Green Invest program. Several TVA customers, including Google, the Knoxville Utilities Board, Vanderbilt University, Metro Government of Nashville, Jack Daniels Distillery, and General Motors have since utilized Green Invest.[41] These additions led to 964 MW of new contracted solar capacity, plus 130 MW of battery storage.[42] As a result of this influx of Green Invest participation, TVA estimated that nearly $2.7 billion in solar investment has been generated since the program's inception.[43]

Additional changes in TVA's integrated resource plans (IRPs) and interconnection application queue signal continued growth in renewable energy throughout the region. TVA's most recent 2019 IRP reflects significant changes to renewable resource projections compared to the 2015 IRP. The 2015 IRP projected over 5,000 MW[44] of solar and wind power by 2033. The 2019 IRP projections are double this amount—10,000 MW in solar and wind power by 2033—and include additional 2038 scenarios, one of which is up to 14,000 MW in renewable energy capacity.[45]

Interconnection applications are required before connecting new renewable generation to the grid. As a result, these applications provide an indicator of future renewable resource expansion. Since 2017, interconnection applications in TVA's service area went from 7 to 33, a nearly fivefold increase. In terms of size, the applications more than doubled in average project size—growing from an average of 81 MW to an average of 176 MW.[46]

Local stakeholders acknowledged that Facebook's demonstrated ability to secure renewable energy helped prove the feasibility and cost-effectiveness of utility-scale renewable energy within a greater economic development context. TVA's large and unique structure required a similarly large customer to validate renewables at scale and realize the regional economic benefits. Facebook's data center development, along with its approach to meeting its renewable energy requirements, illustrated both the environmental and economic viability of renewables in the region. Demonstrating this viability of renewables was the catalyst needed to kick-start the region's renewable energy market beyond Facebook.[47]

> *"Facebook was a pioneer and has been impactful not just for themselves and its operations, but ultimately in moving the needle on clean energy in this region."*
>
> —Local interviewee



Colbert County, AL Solar Project. Photo courtesy of Orsted.

Case Study

New Mexico: Los Lunas Data Center

When Facebook approached the Public Service Company of New Mexico (PNM) in 2016 about supporting its Los Lunas Data Center with renewable energy, aiming for a 100% renewable commitment was a new concept.[48] Since then, Facebook has announced 10 solar and wind projects in New Mexico.[49] Seven projects are currently operational, and the remaining 3 projects are scheduled to become operational between 2021 and 2023. Today, a large share of PNM's renewable resource portfolio represents electricity in support of Facebook's data centers. By 2023, over 50% of the utility's installed generation capacity will come from solar and wind, with approximately a third of that tied to Facebook's contracted renewable resources.[50]

Construction will support over 1,400 direct, on-site jobs in New Mexico. The construction phase includes an estimated $834 million in construction expenditures with approximately $238 million that will be sourced locally to produce one-time impacts. These expenditures will result in 360 total jobs for every 100 MW in contracted capacity.

Operations will support 36 direct, on-site operations jobs, each earning over $86,000 annually in wages and benefits. The operations phase includes an estimated $16 million in operating expenditures that support ongoing annual impacts, including $5 million in total labor income and $14 million in total state GDP.

All the projects are located in economically distressed areas with poverty and unemployment rates higher than the national average and median household income below the national average.[51] In 2019, income per capita averaged $38,000 across the 6 counties where these projects are located (33% below the national average).[52] A recent report by the Institute for Energy Economics and Financial Analysis that documented the "near overnight boom" of Facebook's data center and the transition of the state's electricity sector affirmed how significant Facebook's impacts have been for these locations across the state.[53]

10
Utility-Scale Projects

635
total MW

Over
2,200
Total Construction Phase Jobs (2017–2022)

$120 million
Total Construction Phase Labor Income

$207 million
Total Construction Phase state GDP

Economic Impacts for Facebook-Supported Projects in New Mexico
Millions of 2020 Dollars, Undiscounted; Number of Jobs

	Construction (Cumulative)		Operations (Annual)	
	Direct	Total	Direct	Total
Jobs	1,416	2,283	36	77
Labor Income	$83	$120	$3	$5
GDP	$134	$207	$10	$14

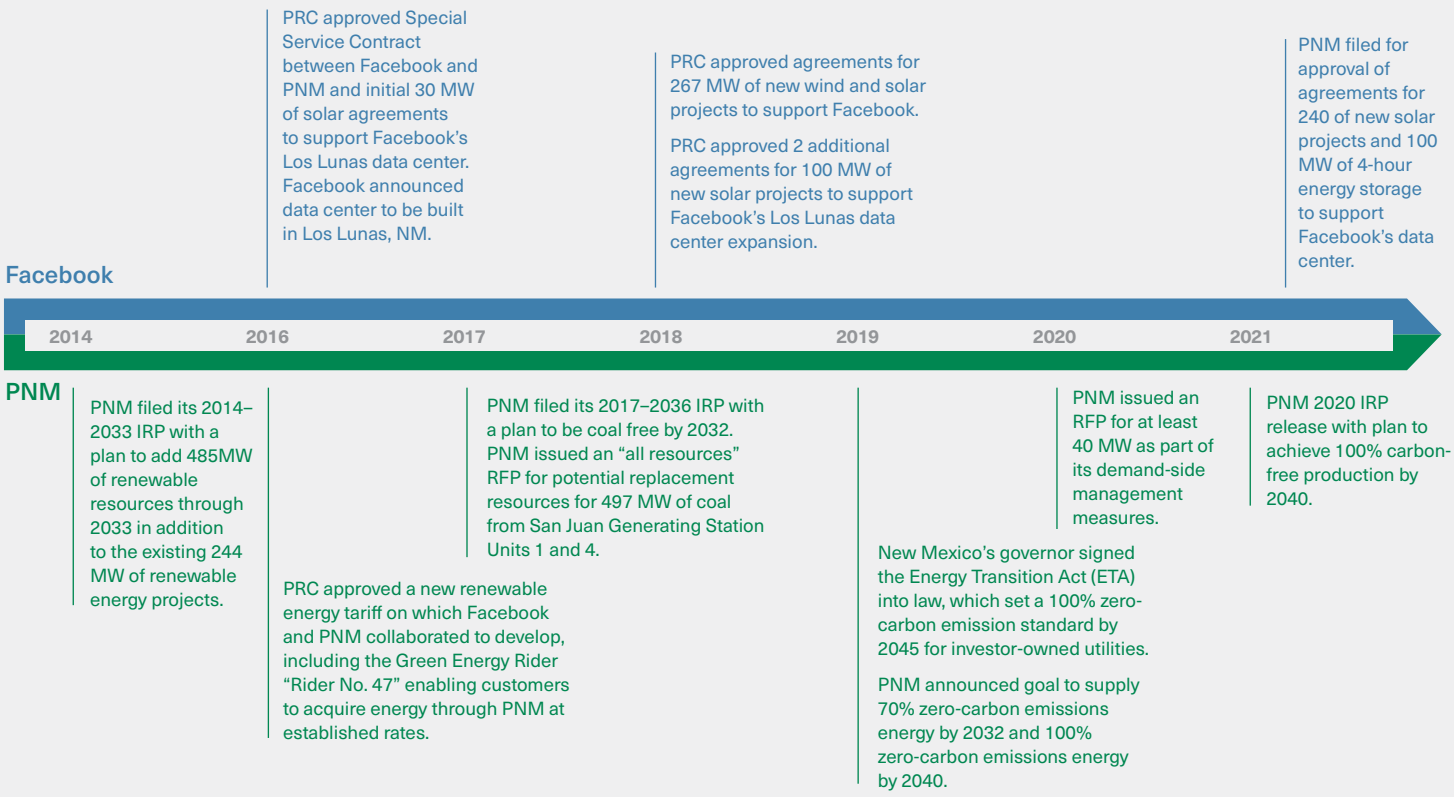
Note: Total estimated impacts include direct, indirect, and induced results in both the construction phase and operations phase. See glossary for more detail on how these results are defined.

Facebook's activities in New Mexico, along with the growing public demand for renewable energy, resulted in significant changes at PNM and at the state level. In 2016, PNM collaborated with Facebook to establish a green tariff, which has served as the first model for supplying renewables in PNM's service area.[54] In the same year, the New Mexico Public Regulation Commission (PRC) approved the first PNM solar project to supply energy for Facebook's Los Lunas Data Center. In 2017, Facebook announced a data center expansion, raising the total planned construction expenditures on-site to more than $1 billion and prompting a need for additional renewable energy capacity.[55]

Since its initial conversation with Facebook in 2016, PNM steadily increased its commitments for additional renewable resources and announced in 2019 an ambitious goal of being 100% carbon free by 2040.[56] This represented a significant shift from relatively modest renewable growth projections in the utility's 2014 and 2017 IRPs to being fully committed to a renewable energy future.[57] Simultaneously, New Mexico's state government had been taking steps to increase the future deployment of renewable energy, expanding its renewable portfolio standards and setting a carbon-free energy standard. In March 2019, New Mexico Governor Michelle Lujan Grisham signed the Energy Transition Act (ETA) into law, which sets a 100% zero-carbon emission standard for investor-owned utilities by 2045.[58]

> *"Case by case, Facebook made concrete progress, and this was one key source of evidence needed to push toward the ETA."*
>
> —Local interviewee

Timeline of Key Facebook and PNM Activities from 2014 to 2021

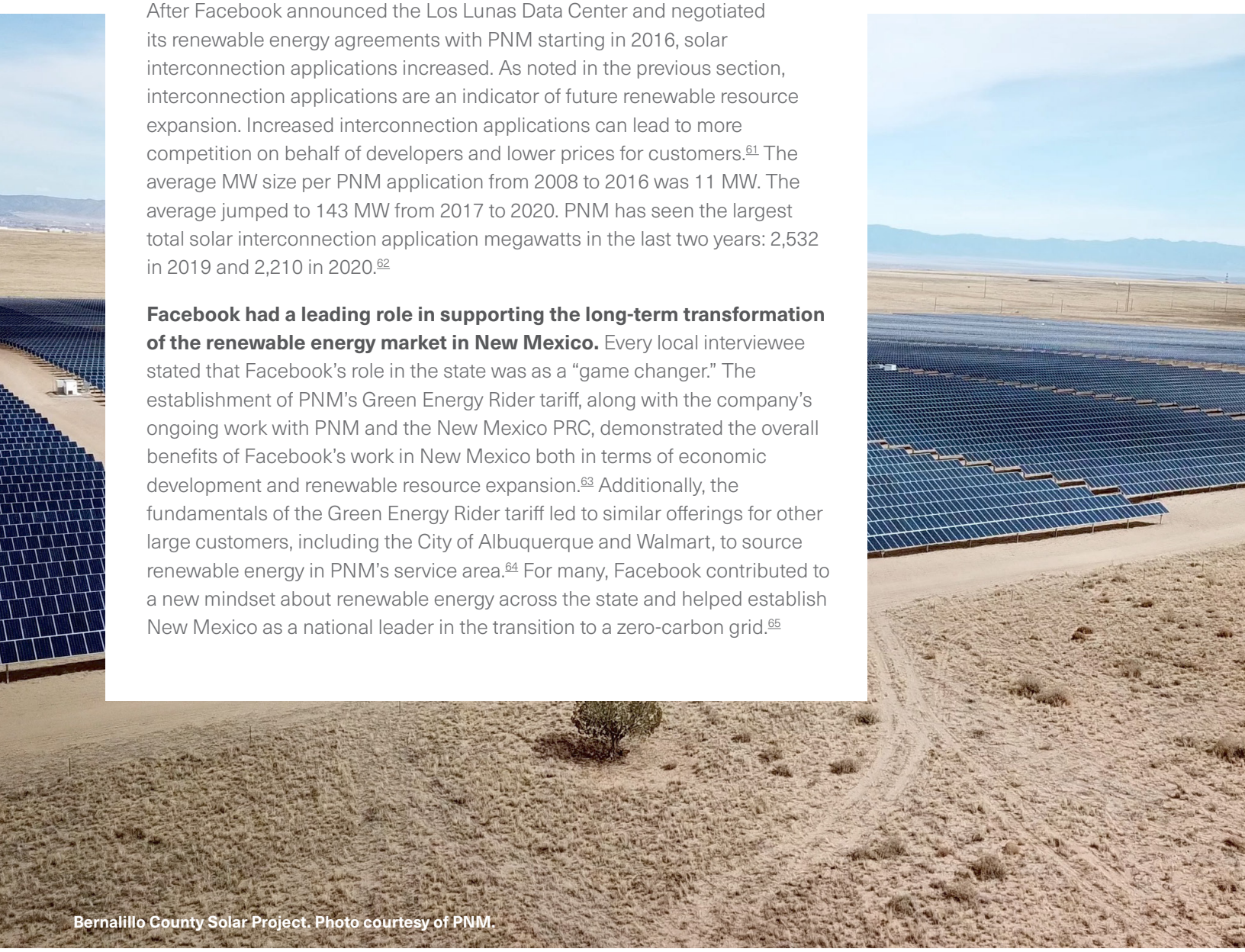


Facebook projects added to a maturing wind industry and strengthened an early-stage solar industry in New Mexico. Facebook's long-term agreements for new wind projects added to an already established wind industry in the state. Wind power in New Mexico dates back to 2003 and grew from less than 3% of state capacity to more than 20% by 2019.[59] The company's long-term agreements for new solar projects have helped advance the solar power market in the state. Before Facebook's arrival, stakeholders interviewed for this study described a mindset that solar was too expensive to meet renewable portfolio standards. In fact, according to U.S. Energy Information Administration generation capacity data, there was no solar capacity reported in New Mexico before 2010, and it grew slowly from 2010 to 2015.[60] Even with recognition that solar costs were declining, Facebook helped demonstrate that solar resources could be in a range competitive with fossil fuel resources, and by 2019, solar accounted for 675 MW, or 7% of the state's power generation capacity.

> *"Everyone was talking about cheaper renewables, but not seeing the evidence. Facebook set a record at that time."*
>
> —Local interviewee

After Facebook announced the Los Lunas Data Center and negotiated its renewable energy agreements with PNM starting in 2016, solar interconnection applications increased. As noted in the previous section, interconnection applications are an indicator of future renewable resource expansion. Increased interconnection applications can lead to more competition on behalf of developers and lower prices for customers.[61] The average MW size per PNM application from 2008 to 2016 was 11 MW. The average jumped to 143 MW from 2017 to 2020. PNM has seen the largest total solar interconnection application megawatts in the last two years: 2,532 in 2019 and 2,210 in 2020.[62]

Facebook had a leading role in supporting the long-term transformation of the renewable energy market in New Mexico. Every local interviewee stated that Facebook's role in the state was as a "game changer." The establishment of PNM's Green Energy Rider tariff, along with the company's ongoing work with PNM and the New Mexico PRC, demonstrated the overall benefits of Facebook's work in New Mexico both in terms of economic development and renewable resource expansion.[63] Additionally, the fundamentals of the Green Energy Rider tariff led to similar offerings for other large customers, including the City of Albuquerque and Walmart, to source renewable energy in PNM's service area.[64] For many, Facebook contributed to a new mindset about renewable energy across the state and helped establish New Mexico as a national leader in the transition to a zero-carbon grid.[65]



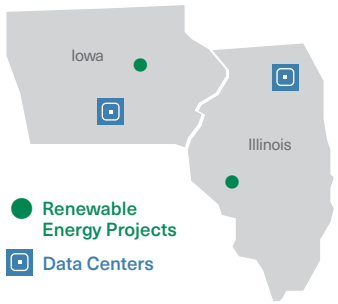
Bernalillo County Solar Project. Photo courtesy of PNM.

Appendices 1–5

Appendix 1: Regional Fact Sheets

This appendix provides regional summaries of the economic impacts of solar and wind projects supported by Facebook based on the location of its data centers. The following one-pagers are intended to serve as stand-alone documents and are designed to invite readers to explore the full report for a robust understanding of Facebook's U.S. renewable energy efforts and impacts.

Illinois and Iowa



Facebook supports 2 projects that total 311 MW of wind energy across Illinois and Iowa:

- The 140 MW wind farm in Grundy County, IA, is the result of a partnership with MidAmerican Energy.
- The 170 MW wind farm in Morgan County, IL, represents 3% of the state's 2019 reported wind capacity.[66]

Construction of these projects will support 900 direct, on-site jobs. The construction phase includes an estimated $548 million in construction expenditures with $164 million sourced within the region to produce one-time impacts.

Operations will support 6 direct, on-site operations jobs. The operations phase includes an estimated $8 million in operating expenditures that produce ongoing annual impacts, including $2 million in labor income and $7 million in regional GDP.

2
Utility-Scale Wind Projects

311
total MW

Over
1,600
Total Construction Phase Jobs (2014–2021)

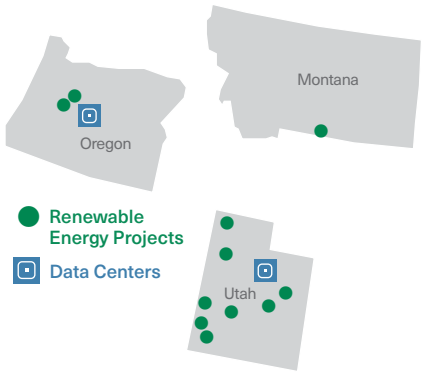
$98 million
Total Construction Phase Labor Income

$158 million
Total Construction Phase Regional GDP

Economic Impacts for Facebook-Supported Projects in Illinois and Iowa
Millions of 2020 Dollars, Undiscounted; Number of Jobs

	Construction (Cumulative)		Operations (Annual)	
	Direct	Total	Direct	Total
Jobs	900	1,622	6	25
Labor Income	$59	$98	$1	$2
GDP	$89	$158	$5	$7

Montana, Oregon, and Utah



Facebook supports 10 solar projects and 1 wind project located across 8 counties in Montana, Oregon, and Utah.

- In Oregon, Facebook and Pacific Power have partnered to support the Prineville Data Center with 100% renewable energy through Pacific Power's Schedule 272 Renewable Energy Rider.
- In Utah, Facebook and Rocky Mountain Power worked closely to develop an innovative new renewable energy tariff called Schedule 34. Schedule 34 paved the way for utilities to sell green electricity to customers at stable long-term fixed prices. According to Rocky Mountain Power, Facebook's additional solar capacity is equivalent to 63% of the solar energy currently produced in the state.[67]
- When announced, the Facebook addition of 239 MW in Montana was the largest in the state and represents 30% of the state's 2019 reported wind capacity.[68]

Construction of these projects will support over 1,900 direct, on-site jobs. The construction phase includes an estimated $1.2 billion in construction expenditures with approximately $355 million sourced within the region to produce one-time impacts.

Operations will support nearly 60 direct, on-site operations jobs. The operations phase includes an estimated $21 million in operating expenditures that produce ongoing annual impacts, including $8 million in labor income and $18 million in regional GDP.

11
Utility-Scale Projects

1,033
total MW

Over
3,500
Total Construction Phase Jobs (2020–2022)

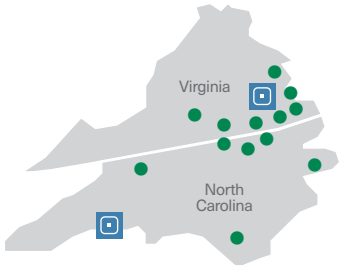
$195 million
Total Construction Phase Labor Income

$350 million
Total Construction Phase regional GDP

Economic Impacts for Facebook-Supported Projects in Montana, Oregon, and Utah
Millions of 2020 Dollars, Undiscounted; Number of Jobs

	Construction (Cumulative)		Operations (Annual)	
	Direct	Total	Direct	Total
Jobs	1,941	3,504	56	133
Labor Income	$117	$195	$4	$8
GDP	$213	$349	$10	$18

North Carolina and Virginia



Renewable Energy Projects

Data Centers

Facebook supports 13 solar projects that total 950 MW across North Carolina and Virginia.

- Facebook worked with Dominion Energy to develop an innovative renewable rate option called Schedule RF, which allows business customers the option to support new renewable energy sources. The companies have executed over 340 MW of solar projects under Schedule RF.
- Facebook-supported projects in Virginia represent 86% of the state's 2019 reported solar capacity.[69]

Construction of these projects supported 2,600 direct, on-site jobs. The construction phase includes an estimated $1.4 billion in construction expenditures with approximately $429 million sourced within the region to produce one-time impacts.

Operations supports over 60 direct, on-site operations jobs. The operations phase includes an estimated $16 million in operating expenditures that produce ongoing annual impacts, including $8 million in labor income and $15 million in regional GDP.

13
Utility-Scale Solar Projects

950
total MW

Over
4,400
Total Construction Phase Jobs (2017–2020)

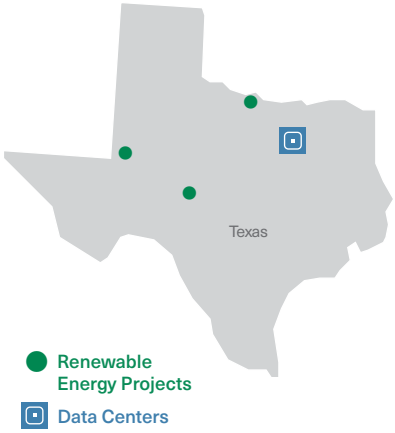
$247 million
Total Construction Phase Labor Income

$415 million
Total Construction Phase regional GDP

Economic Impacts for Facebook-Supported Projects in North Carolina and Virginia
Millions of 2020 Dollars, Undiscounted; Number of Jobs

	Construction (Cumulative)		Operations (Annual)	
	Direct	Total	Direct	Total
Jobs	2,600	**4,432**	62	**120**
Labor Income	$148	**$247**	$4	**$8**
GDP	$241	**$415**	$8	**$15**

Texas



Facebook supports 2 wind projects and 1 solar project in Texas.

- Texas is home to Facebook's first and only current project where the company established a tax equity financing agreement. The 300 MW project was one of the largest solar projects in the nation at the time of its announcement.[70]
- This solar project represents 12% of the state's 2019 reported solar capacity.[71]

Construction of these projects supported over 1,400 direct, on-site jobs. The construction phase includes an estimated $869 million in construction expenditures with approximately $290 million sourced within the state to produce one-time impacts.

Operations supports over 20 direct, on-site operations jobs. The operations phase includes an estimated $15 million in operating expenditures that produce ongoing annual impacts, including $6 million in labor income and $16 million in regional GDP.

3
Utility-Scale Projects

704
total MW

Over
3,000
Total Construction Phase Jobs (2014–2019)

$193 million
Total Construction Phase Labor Income

$311 million
Total Construction Phase state GDP

Economic Impacts for Facebook-Supported Projects in Texas
Millions of 2020 Dollars, Undiscounted; Number of Jobs

	Construction (Cumulative)		Operations (Annual)	
	Direct	Total	Direct	Total
Jobs	1,480	3,001	21	75
Labor Income	$106	$193	$3	$6
GDP	$161	$311	$9	$16

Indiana and Ohio

Renewable Energy Projects

Data Centers

Facebook supports 3 projects that total 439 MW across Indiana and Ohio.

- According to Ohio's reported solar capacity in 2019, the Facebook-supported 300 MW would almost triple the state's solar capacity.[72]

Construction of these projects will support over 1,000 direct, on-site jobs. The construction phase includes an estimated $589 million in construction expenditures with approximately $174 million sourced within the region to produce one-time impacts.

Operations will support nearly 20 direct, on-site operations jobs. The operations phase includes an estimated $8 million in operating expenditures that produce ongoing annual impacts, including $3 million in labor income and $7 million in regional GDP.

3
Utility-Scale Projects

439
total MW

Over
1,900
Total Construction Phase Jobs (2020–2022)

$118 million
Total Construction Phase Labor Income

$186 million
Total Construction Phase regional GDP

Economic Impacts for Facebook-Supported Projects in Indiana and Ohio
Millions of 2020 Dollars, Undiscounted; Number of Jobs

	Construction (Cumulative)		Operations (Annual)	
	Direct	Total	Direct	Total
Jobs	1,025	**1,944**	19	**48**
Labor Income	$69	**$118**	$1	**$3**
GDP	$99	**$186**	$3	**$7**

Georgia

Facebook supports 6 solar projects that total 435 MW in Georgia.

- A 103 MW project supports the regional economy through its purchase of more than 350,000 solar modules manufactured by Hanwha Q CELLS, one of the largest producers of solar panels in the western hemisphere.[73]
- Facebook-supported projects represent 28% of Georgia's 2019 reported solar capacity.[74]

Construction of these projects will support over 1,000 direct, on-site jobs. The construction phase includes an estimated $479 million in construction expenditures with approximately $228 million sourced within the state to produce one-time impacts.

Operations will support nearly 30 direct, on-site operations jobs. The operations phase includes an estimated $7 million in operating expenditures that produce ongoing annual impacts, including $4 million in labor income and $7 million in regional GDP.

6
Utility-Scale Solar Projects

435
total MW

Over
2,100
Total Construction Phase Jobs (2019–2022)

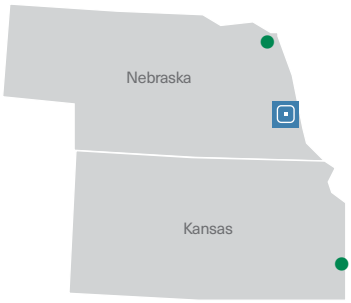
$127 million
Total Construction Phase Labor Income

$228 million
Total Construction Phase state GDP

Economic Impacts for Facebook-Supported Projects in Georgia
Millions of 2020 Dollars, Undiscounted; Number of Jobs

	Construction (Cumulative)		Operations (Annual)	
	Direct	Total	Direct	Total
Jobs	1,078	**2,147**	28	**60**
Labor Income	$68	**$127**	$2	**$4**
GDP	$126	**$228**	$4	**$7**

Kansas and Nebraska



Facebook supports 2 projects that total 515 MW of wind energy in Kansas and Nebraska.

- Facebook partnered with Omaha Public Power District to use the Rate 261M, which was designed to support customers who are seeking renewable energy solutions.
- In 2019, Nebraska was 1 of 15 states with existing wind capacity that exceeded 2,000 MW. The Facebook-supported project represented 15% of the state wind capacity that year.[75]
- The Facebook-supported project in Kansas represents 3% of the state's 2019 reported wind capacity.[76]

Construction of these project will support nearly 1,300 direct, on-site jobs. The construction phase includes an estimated $691 million in construction expenditures with approximately $193 million sourced within the region to produce one-time impacts.

Operations will support 5 direct, on-site operations jobs. The operations phase includes an estimated $13 million in operating expenditures that produce ongoing annual impacts, including $5 million in labor income and $14 million in regional GDP.

2
Utility-Scale Wind Projects

515
total MW

Over
2,100
Total Construction Phase Jobs (2018–2021)

$117 million
Total Construction Phase Labor Income

$170 million
Total Construction Phase regional GDP

Economic Impacts for Facebook-Supported Projects in Kansas and Nebraska
Millions of 2020 Dollars, Undiscounted; Number of Jobs

	Construction (Cumulative)		Operations (Annual)	
	Direct	Total	Direct	Total
Jobs	1,296	**2,181**	5	**34**
Labor Income	$73	**$117**	$3	**$5**
GDP	$93	**$170**	$10	**$14**

Appendix 2: Glossary

Renewable Energy: Key Terms

Electric Power Grid: Electric power grids in the United States are complex systems in which power is generated and transported to end users. Grids are made up of power plants, high-voltage power lines, low-voltage power lines, and distribution transformers nationwide.[77]

Integrated Resource Plan: Integrated resource plans are electricity system planning documents developed by publicly owned utilities that detail their resource needs, policy goals, physical and operational constraints, and proposed resource choices (including customer-side preferred resources).[78]

Interconnection Application: An interconnection application is a document that is used to determine if a renewable energy project can be legally connected to an electricity grid. The application is one aspect of a set of requirements and procedures that is used to ensure that a new project meets interconnection standards that are usually implemented at the state level.[79]

Megawatt (MW): A megawatt is a unit of electric capacity or electric load. Megawatt AC refers to alternating current, and megawatt DC refers to direct current. This distinction is important for solar energy because solar panels generate electricity in the form of direct currents, and electricity grids run on alternating currents. Solar installations require inverters to convert the power produced from DC to AC.

Offtaker: An energy offtaker is a costumer who has agreed to purchase a designated amount of energy.

Renewable Energy: Renewable energy is energy from sources that are naturally replenished but limited in availability per unit of time.[80] Throughout this study, renewable energy refers to solar and wind energy.

Utility Scale: Utility-scale renewable energy projects are usually defined as 10 MW or larger.[81]

Economic Impact: Key Terms

Direct Impacts (or Effects): These impacts result from spending in industries that construct new power and communication structures and equipment such as turbines and inverters (construction phase) and industries that provide electric power generation (operations phase).

Gross Domestic Product: GDP measures the total national income from producing goods and services, not just labor income (e.g., wages, salaries, benefits, payroll taxes). GDP adds items like corporate profits, rental income, and sales and property taxes.[82] GDP is also equivalent to total business sales (revenues), less purchases from third-party suppliers (intermediate goods).

Indirect or Supply Chain Impacts (or Effects): These impacts include industries that sell to other businesses. During the construction phase, sales include building components, concrete, screws, nuts, bolts, machinery and equipment rental, and engineering and related services. During the operations phase, sales include electricity transmission and distribution, water, sewage and other systems, and business-related services.

Induced or Household Purchase Impacts (or Effects): These impacts include industries that sell to households, including retailers, grocery stores, and personal services. Induced effects occur during both the construction and operations phases.

Jobs: Jobs include an industry-specific mix of full-time, part-time, and seasonal employment. An annual average accounts for seasonality and follows the same definition used by the Bureau of Labor Statistics and the Bureau of Economic Analysis. In IMPLAN, job impacts are not equal to full-time equivalent positions.

Labor Income: Labor income measures the total employee payroll costs for the employer. Payroll costs include wages and salaries, all benefits (e.g., health, retirement), and payroll taxes (e.g., both sides of social security, unemployment insurance taxes). Payroll costs are also referred to as fully loaded payroll. Labor income also includes payments received by self-employed individuals and unincorporated business owners.

Appendix 3: Economic Impact Modeling Appendix: Data Sources, Assumptions, Approach

The appendix provides additional information about the study's data sources, assumptions, and approach. A summary of the analysis steps is also provided for quick reference in the following pages.

Facebook enters into long-term agreements that support the development of new renewable energy megawatts to generate power for its data center operations, establishing predictable electricity costs and revenues over a fixed period. Facebook provided RTI International with information about the size of its commitments and the U.S. location for each of the 55 projects that currently serve its U.S. data centers.

Project development supports direct economic activities, including construction and provision of equipment and ongoing operations. RTI International estimated overall project costs (construction and operations) using historical data and trends from publicly available sources.

- Solar installed cost and operations cost trends ($/watt DC) came from Berkeley Lab's 2020 update of utility-scale solar data and trends.[83] On average, in the United States in 2019, costs were $1,173/kW for project development and $16/kW for operations. RTI International converted AC nameplate capacity to DC estimated capacity using an Inverter Loading Ratio (ILR) of 1.3.
- Wind installed cost and operations cost trends data ($/kW) came from the Berkeley Lab's 2020 update of land-based wind technology data and trends.[84] Adjustments were made to reflect regional differences and project size reported by Berkeley Labs. On average, in the United States in 2019, costs were $1,465/kW for project development and $34/kW for operations.
- Battery storage costs came from the NREL's 2020 Annual Technology Baseline report;[85] RTI International used the 4-hour, moderate scenario costs for battery construction and fixed operations and maintenance. On average, in the United States in 2018, costs were $1,325/kW for project development and $31/kW for operations.
- For projections for installed costs and operations for 2020 and beyond, RTI International used NREL's 2020 Annual Technology Baseline reports, which estimate an average annual cost reduction of 3.9% for solar and 1.8% for wind.
- All costs are expressed in 2020 dollars.[86]

Engineering characteristics (e.g., construction materials, labor, and equipment cost shares) were derived from default values from NREL's JEDI unpublished versions of their solar model and from their Wind Model (JEDI Land-Based Wind Model rel. W6.28.19). The JEDI default data rely on historical trends on solar and wind equipment imports except when a project developer provided specific local purchase information. For example, solar modules were assumed to be imported unless specific local purchase information was provided.

Economic Impact Modeling Appendix: Data Sources, Assumptions, Approach

Additional economic activity throughout the economy results from the direct activities (indirect and induced effects).

- *Indirect or supply chain effects* include industries that sell to other businesses. During the construction phase, sales include building components, concrete, screws, nuts, bolts, machinery and equipment rental, and engineering and related services. During the operations phase, sales include water, sewage and other systems, and business-related services.
- *Induced or household purchase effects* include industries that sell to households, including retailers, grocery stores, and personal services. Induced effects occur during construction and operations phases.

Indirect and induced effects are quantified using the IMPLAN input-output (I-O) economic model, expressed as economic multipliers. IMPLAN's economic multipliers describe the rates of change for economic indicators. A typical example is an employment multiplier that describes the total jobs generated because of 1 job in the target industry. If an employment multiplier is 2x, every direct job supports 2 jobs in the total economy: the original job and 1 additional job. RTI International mapped each project cost component to one of IMPLAN's 546 industries to model the economic impacts. For example, estimated turbines costs (excluding blades and towers) were mapped to IMPLAN code 281: Turbine and turbine generator set units manufacturing.

The analysis evaluated economic impacts using U.S. and state multipliers. The U.S. economic impact results used the national economic multipliers that include trade and income interactions among all U.S. states. Separate model runs used state-specific economic multipliers that account for cross-state differences in the direct labor and intermediate use within a given IMPLAN sector.

State-level analyses only capture the impacts of activity that occurs within state boundaries. Therefore, state-level multipliers do not account for the trade between states that is captured by using national economic multipliers. As a result, the sum of state-level impacts for states with projects will not equal the nationwide impact total.

Economic Impact Modeling Appendix: Data Sources, Assumptions, Approach

The reader should be aware of the following model limitations when interpreting the economic impact results:

- **Differences in the U.S. and state-level economic impact totals:** The U.S. economic impact totals account for the additional economic ripple effects across all states associated with trade between states. State economic multipliers only capture within-state economic activity and do not account for interstate trade flows. As a result, state-level totals provide a lower bound estimate of the full state-level economic impact.
- **Project cost estimates:** Project development and operations costs were estimated by RTI International based on published industry benchmarks and publicly available government renewable energy statistics. Actual investment for each project will vary by specific engineering characteristics, size, and regional differences in labor and material costs.
- **Input-output model limitations and assumptions:**
  - > Job impacts are reported by work location, which may or may not reflect worker residence location.
  - > In most cases, supply chain impacts associated with solar and wind equipment purchases are based on historical industry data in each state and the United States. The developer provided equipment sourcing information for several Georgia projects, and RTI International incorporated the state and national estimates.
  - > Worker productivity and wages were based on IMPLAN model data and reflect historical state and industry averages.

Summary of Analysis Steps:

Step 1: Project size and location information were used to estimate overall construction and operations costs.

Step 2: Engineering information was used to map spending to IMPLAN construction and equipment sectors. For construction expenditures, 100% was assumed to occur in the state where the construction project takes place. JEDI default information used historical trends on solar and wind equipment imports unless a project developer provided specific local purchase information for equipment expenditures.

Step 3: IMPLAN national and state economic multipliers were applied to spending to determine direct, indirect, and induced effects for the construction phase.

Step 4: Operations were mapped to IMPLAN's sectors for electric power generation from solar and wind. For operations expenditures, 100% was assumed to occur on-site at the facility.

Step 5: IMPLAN national and state economic multipliers were applied to operations spending to determine direct, indirect, and induced effects for the operations phase.

Appendix 4:
Facebook-Supported Renewable Energy Project List
Projects Listed Alphabetically by State

Project Name	Project Type	Size (MW)	Location	
			County	State
Colbert County Solar	Solar	227	Colbert	AL
Appling Solar	Solar	25	Appling	GA
Calhoun County Solar	Solar	80	Calhoun	GA
Colquitt County Solar	Solar	20	Colquitt	GA
Bancroft Station Solar	Solar	103	Early	GA
Snipesville II Solar	Solar	107	Jeff Davis	GA
Lumpkin Solar	Solar	100	Stewart	GA
Wellsburg Wind	Wind	141	Grundy	IA
Lincoln Land Wind	Wind	170	Morgan	IL
Headwaters II Wind	Wind	139	Randolph	IN
Jayhawk Wind	Wind	197	Bourbon and Crawford	KS
Logan County Solar	Solar	145	Logan	KY
Lowndes County Solar	Solar	150	Lowndes	MS
Pryor Mountain Wind	Wind	239	Carbon	MT
Bladen County Solar	Solar	50	Bladen	NC
Chestnut Solar	Solar	75	Halifax	NC
Gutenberg Solar	Solar	80	Northampton	NC
Pecan Solar	Solar	75	Northampton	NC
Warren County Solar	Solar	50	Warren	NC
Washington County Solar	Solar	80	Washington	NC
Rattlesnake Creek Wind	Wind	318	Dixon	NE
Bernalillo County Solar 1	Solar	10	Bernalillo	NM
Bernalillo County Solar 2	Solar	10	Bernalillo	NM
Route 66 Solar	Solar	50	Cibola	NM
Casa Mesa	Wind	50	Quay	NM
Encino Solar	Solar	50	Sandoval	NM

Project contracted through a green tariff.

Project Name	Project Type	Size (MW)	Location	
			County	State
Sandoval County Solar	Solar	50	Sandoval	NM
Britton Solar	Solar	50	Torrance	NM
La Joya Wind	Wind	165	Torrance	NM
Valencia County Solar	Solar	10	Valencia	NM
Valencia County Solar 2	Solar	190	Valencia	NM
Ohio Solar	Solar	150	Confidential	OH
Hardin Solar	Solar	150	Hardin	OH
Millican Solar	Solar	60	Crook	OR
Prineville Solar	Solar	40	Crook	OR
Lincoln County Solar	Solar	150	Lincoln	TN
Madison County Solar	Solar	70	Madison	TN
Prospero Solar	Solar	300	Andrews	TX
Shannon Wind	Wind	204	Clay	TX
Aviator Wind East	Wind	200	Coke	TX
Beaver County Solar	Solar	99	Beaver	UT
Rocket Solar	Solar	80	Box Elder	UT
Graphite Solar	Solar	80	Carbon	UT
Emery County Solar	Solar	100	Emery	UT
Cove Mountain Solar	Solar	58	Iron	UT
Cove Mountain Solar 2	Solar	122	Iron	UT
Sevier County Solar	Solar	80	Sevier	UT
Horseshoe Solar	Solar	75	Tooele	UT
Altavista Solar	Solar	80	Campbell	VA
Gloucester Solar	Solar	20	Gloucester	VA
Sadler Solar	Solar	100	Greensville	VA
Grasshopper Solar	Solar	80	Mecklenburg	VA
Colonial Trail West	Solar	142	Surry	VA
Spring Grove 1 Solar	Solar	98	Surry	VA
Montross Solar	Solar	20	Westmoreland	VA

Project contracted through a green tariff.

Appendix 5:
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Facebook's U.S. Renewable Energy Impact Study

May 2021

Colbert County, AL Solar Project. Photo courtesy of Orsted.

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