CLEAN JOBS COLORADO¹ CLEAN ENERGY TRENDS AND INSIGHTS FOR A POST-CORONAVIRUS RECOVERY

Clean energy jobs in Colorado increased by more than 4% for the second year in a row, growing to 62,400 workers statewide at the end of 2019—before the COVID-19 pandemic rattled the nation's—and Colorado's economy. As the Mountain West's leader in clean energy jobs, Colorado ranked in the top 20 for clean energy jobs among all 50 states and the District of Columbia.

Colorado's clean economy remained a jobs engine in 2019, experiencing some of the fastest-growth rates in the country. Since 2017, the state has added more new jobs (5,400) than ten of the current top 20 states for overall clean energy jobs. Today, about one in every 50 jobs in Colorado is in a clean energy occupation.

Growth in recent years has been driven primarily by renewable energy (mostly solar and wind), clean energy storage, grid modernization, and energy efficiency high growth sectors that will be important as the state rebuilds its economy after the impact of COVID-19 economic shutdowns.

E2's Clean Jobs Colorado 2020 details the size, scope, and diversity of this important employment sector, the troubles it is currently facing due to the pandemic, and how focusing recovery policies on clean energy can get Colorado workers and businesses back on track and the state's economy up and running again for the long run.

Moving Colorado Forward

As Colorado leaders continue to assess policy options for economic recovery in the wake of COVID-19, this report sets out to illustrate why the state's once-booming clean energy economy is more critical to the future of Colorado's economy than ever before and needs to be prioritized if the state wants to not only recover but thrive in the post-coronavirus economy.

As with other parts of Colorado's economy, the state's clean energy sector has suffered significant losses. But unlike many sectors, clean energy offers Colorado an opportunity to not only replace the jobs that have been lost, but to create thousands of new jobs and speed the transition of workers whose industries were left exposed by the crisis. No industry is better suited to getting Coloradans back to work—and quickly—than the industry that was adding jobs to the economy more than twice as fast as overall statewide employment before the pandemic-fueled crisis. Even though the federal government in 2020 failed to pass economic recovery policies that invest in clean energy, state policymakers still can find opportunities through smart policies to get workers back on the job today building a better Colorado for tomorrow. Now is the time for Colorado's leaders to double-down on clean energy and the jobs it's already proven it can bring to the state, driving investments back into local businesses. building equity and economic opportunities in urban communities, making energy more affordable for all families, reducing pollution, and positioning Colorado as a national hub for the energy technologies that are driving the global economy.

State lawmakers can lay the foundation in 2021 for this clean energy future by continuing to take forward-looking actions by advancing energy efficiency programs for buildings and consumers; continuing to reduce emissions from the transportation by advancing charging infrastructure and adopting clean truck policies, and by helping the electricity sector meet its greenhouse gas emissions goals.

KEY FINDINGS

#6

COLORADO WAS NO. 6 IN RENEWABLE ENERGY JOBS AMONG ALL 50 STATES AND D.C.

9.6%

04 2019

JOB GROWTH SINCE 2017, EIGHT TIMES FASTER THAN OVERALL NATIONWIDE EMPLOYMENT COWTH

5X

CLEAN ENERGY JOBS IN COLORADO GREW FIVE TIMES FASTER THAN FOSSIL FUEL JOBS IN 2019

6k

COLORADO CLEAN ENERGY WORKERS REMAIN JOBLESS

SINCE COVID-19

1.2%

OF ALL CLEAN ENERGY WORKERS LEFT UNEMPLOYED BY COVID-19 ARE IN COLORADO 9%

OF COLORADO'S CLEAN ENERGY WORKFORCE AS OF Q4 2019 IS NOW OUT OF WORK

PRESENTED BY:





WWW.E2.ORG/CLEANJOBSCO #CLEANJOBSCA #CLEANJOBSAMERICA For more information, contact E2 Mountain States Advocate **Susan Nedell** at **snedell@e2.org**.

For questions regarding this report, visit E2's report FAQ at https://www.e2.org/reports/clean-jobs-america-faq.

COVID-19 & THE CURRENT SITUATION

Coming into 2020, Colorado's clean energy economy was looking forward to another record-breaking year with state clean energy employers projecting 5.4% job growth.

But like most sectors, the nation's clean energy sector was hit by the COVID-19 outbreak and Colorado was no exception. Energy efficiency workers lost their jobs after being shut out of homes and buildings to prevent the spread of the coronavirus. Solar and wind turbine companies furloughed workers after panels and parts were stranded in shut-down factories. Factory workers were let go as assembly lines for Energy Star appliances and electric and hybrid vehicles went dark.

Years of Job Growth

While recent months have brought some jobs back, nearly 6,000 former clean energy workers remain without a paycheck according to E2's latest analysis of unemployment data since March 2020–more than the sector's entire job growth since 2017.

Since June, about 1,500 Colorado workers have returned to jobs in clean energy. But overall the state has lost about 10% of it's clean energy workforce since the pandemic began in March. At the current growth rate, it would take decades for Colorado to reach its pre-COVID-19 employment levels.



A CLOSER LOOK CLEAN ENERGY UNEMPLOYMENT CLAIMS

By Sector

Sector	Jobs Lost	Percent of Workforce
Renewable energy	1,570	8.8%
Energy efficiency	3,359	9.3%
Clean vehicles	296	9.2%
Storage & Grid	282	9.2%
Clean Fuels*	455	7.5%

* Job losses in the clean fuels sector include woody biomass and corn ethanol, which are not included in clean energy employment data throughout the rest of this report

Localities Hardest Hit

Metro	Jobs Lost	Percent of Workforce
Denver- Aurora	7,653	22.0%
Counties	Jobs Lost	Percent of Workforce
Denver	902	6.7%
Jefferson	678	10.8%
Adams	607	11.7%
Arapahoe	590	7.7%
El Paso	425	8.2%
Larimer	225	6.2%

States Hardest Hit

Sector	Total Losses	Percent of Clean Energy Workforce
California	89,158	16.6%
Georgia	27,316	32.6%
Florida	26,521	16.0%
Texas	24,659	10.2%
Michigan	24,525	19.6%
North Carolina	21,214	18.8%
Pennsylvania	18,866	20.1%
Washington	18,444	21.7%
New York	17,239	10.8%
Ohio	16,494	14.4%

Colorado 5,961 (#27) 9.5% (#47)

BUILDING BACK BETTER A CASE FOR OPTIMISM

But we have reason to be optimistic. This is an industry that cannot be ignored. As history shows, it is a proven catalyst for quick job growth in the aftermath of the last economic crisis, growing from a few hundred thousand workers in 2008-2009 to nearly 3.4 million nationwide in 2019.

In fact, no part of the 2009 American Recovery and Reinvestment Act (ARRA) was more successful than the \$90 billion in federal investments in clean energy. In the years following ARRA, nearly 1 million clean energy jobs were created. Hundreds of new made-in-America businesses—game-changing companies such as Tesla which employed 45,000 workers before the COVID-19 pandemic—got their start with ARRA-era Department of Energy loans that were repaid in full. Businesses created more than 100,000 wind, solar and other clean energy projects, bringing new investments and markets to states like Colorado, which quickly took advantage and became a national leader in solar energy over the following decade.

For Colorado, a similar investment would be critical to its economic recovery. According to the recent report <u>Build Back Better:</u> <u>How a federal stimulus focusing on clean energy can create millions of jobs and restart America's economy</u> from E2 and E4Thefuture, a federal stimulus package targeting energy efficiency, renewables, and grid modernization would generate over 16,000 jobs and \$6.7 billion for Colorado's economy per year over five years.



If Congress Directs \$99.2 BILLION

In federal stimulus, policy initiatives, and other investments nationwide



jobs for at least five years across every region and state (a total of 81,500 job-years)



Colorado's Economy Generates

\$36.7 Billion

in economic activity (GDP) over the next five years

CLEAN JOBS COLORADO 2020 YEAR-IN-REVIEW

In 2019, Colorado's clean energy workforce grew 4.6% to add over 2,700 jobs, driven primarily by growth in renewable energy generation (5.0%) including solar (7.5%), grid and storage technologies (6.5%), and energy efficiency (5.1%).

The state saw growth in 19 of 22 subsectors, including over 5% growth in ten, with the largest percentage growth coming from other biofuels (30.5%). The Clean Vehicles sector was the only sector to see an overall decline in employment (-111 jobs) after growing 22.5% in 2018 (part of a nationwide trend). The sector's declines however were limited only to the plug-in hybrids and electric vehicles subsectors. Hybrid electric vehicles (2.4%), natural gas vehicles (3.0%), and hydrogen fuel cell vehicles (10.2%) all saw growth.

Swelling to over 62,000 workers statewide, Colorado's clean energy workforce at the end of 2019 was employed primarily by businesses with fewer than 20 employees and in the construction and professional services industries. 32.5% of workers were non-white or of Hispanic ethnicity while nearly 30% identified as women.



*While E2's clean energy job reports go back to 2014, due to recent methodology changes, we are unable to confidently provide comparable growth numbers before 2017.



INDUSTRY BREAKDOWN Q4 2019

CLEAN JOBS BY VALUE CHAIN



FASTEST GROWING TECHNOLOGIES 2018–2019



CLEAN JOBS BY BUSINESS SIZE Q4 2019

MORE THAN 3 OUT OF EVERY 5

CLEAN ENERGY WORKERS IN COLORADO ARE EMPLOYED BY BUSINESSES WITH FEWER THAN 20 EMPLOYEES

CLEAN ENERGY WORKERS BY BUSINESS SIZE: 1-4 EMPLOYEES: **34.0%** 5-19 EMPLOYEES: **29.3%** 20-99 EMPLOYEES: **26.7%** 100-499 EMPLOYEES: **7.4%** 500+ EMPLOYEES: **2.6%**

CLEAN JOBS BY DEMOGRAPHICS Q4 2019

Nearly 1 in 3 clean energy workers in Colorado were of non-white or Hispanic ethnicity in 2019*



CLEAN JOBS COLORADO 2020 ECONOMYWIDE VIEW

Viewed statewide, Colorado's clean energy economy has been a vital sector driving growth as overall statewide employment growth slowed in 2019. Clean energy grew nearly 10% since 2017–two times faster than overall statewide job growth (4.7%).

The sector accounted for 103% of the entire energy sector's net job growth in 2019 due to the combined job losses in traditional transmission and distribution, nuclear, other areas. At the end of 2019, clean energy made up about 40% of all energy sector jobs but has accounted for more than 80% of its job growth since 2017.

Additionally, clean energy employed nearly 30,000 more workers than fossil fuels statewide—adding more than 2,000 more jobs than the fossil fuel industry did in 2019.



CLEAN JOBS COLORADO 2020: NATIONWIDE VIEW

Colorado's natural advantages combined with its early policy leadership on renewable energy, energy efficiency, and more recently, clean vehicles has made it one of the top 20 states in the U.S. for clean energy employers. In 2019, Colorado employed the 18th most clean energy workers among all 50 states and the District of Columbia, accounting for 2.3% of all clean energy jobs nationwide and 25.3% of all Mountain West clean energy jobs.

While more populous states tend to lead the U.S. in total clean energy jobs—notably California, Texas, Florida, New York, and Illinois—Colorado continued to be on track in 2019 to overtake more populous states in the coming years.^{6,7} Colorado ranked higher in clean energy employment (18th) than it did in both population (21st) and overall employment (21st). And since 2017, Colorado's clean energy workforce grew faster than all but eight states in the U.S. The state's track-record for growth compared to its peers bodes well for the sector's recovery and potential after COVID-19.

Across sectors Colorado remained one of the most promising markets for renewable energy job growth, ranking among the top states in overall renewable energy jobs (6th), solar energy (11th), wind energy (3rd), geothermal (10th), and bioenergy/combined heat and power (8th).

COLORADO CLEAN ECONOMY NATIONWIDE HIGHLIGHTS Q4 2019

#18

In 2019, Colorado was No. 18 in clean energy workers among all 50 states and the District of Columbia –just ahead of Arizona and behind Wisconsin.

34,82

The Denver metro area ranks No. 20 for clean energy workers.

1 in 4

Over 25% of the Mountain West region's total clean energy jobs were located in Colorado in 2019 Colorado's nearly 7,500 wind energy workers place it 3rd nationally. Its 18,000 total renewable energy jobs rank 6th.

9.6%

Colorado's 9.6% growth in clean energy jobs since 2017 tied for the 7th fastest-growing clean energy economy in the country and 2nd-fastest in the Mountain West region, behind Nevada.

COLORADO CLEAN ECONOMY NATIONWIDE JOB GROWTH 2017-2019





A CLOSER LOOK MOUNTAIN WEST REGION BREAKDOWN Q4 2019



PROFILES IN GROWTH DELIVERING FRESH FOODS + SUSTAINABILITY

Bondadosa, Denver

In 2017 when Denver Food Rescue looked to expand its services to deliver fresh food to neighborhoods and families in need, they tapped entrepreneur Ricardo Tonatiuh Rocha, who had been organizing Latino communities around equity issues, in urban and rural Colorado.

Together, they founded the social enterprise, Bondadosa, which started as a tricycle-powered grocery delivery system. But through a number of pilot programs, the enterprise became what is today—a rapidly expanding logistics distributer partnering with local farmers and food manufacturers to solve many aspects of food justice in Denver and beyond.

Rocha's guiding principle is to serve the communities by providing healthy foods and jobs, while choosing sustainable methods along the way. In the fall of 2019, Bondadosa purchased two fully electric vehicles (EVs) for daily local deliveries. Then, Bondadosa averaged about 300 deliveries per month. By July 2020, Bondadosa performed a total of 15,264 deliveries; 3,247 of the deliveries were powered by those two EVs.

Rocha hires drivers from the same neighborhoods where the food is delivered and is able to pay them a living wage, because the all-electric fleet is very cost effective. The brutal stop and go mission of a delivery vehicle—a stop every four to seven minutes—wears out the brakes and burns through fuel and oil in a gas-powered car. Whereas an EV's electric engine does the braking and at the same time, recharges the battery at every stop, resulting in less wear and tear on the brakes and extending the battery's range.

The current 15,000 monthly deliveries now include traditional trucks (some refrigerated) to drive to a wider geographic area. But as more electric trucks become available in Colorado—the state is looking to adopt a Clean Truck Rule coupled with more fast charging EV stations throughout Denver and beyond—Rocha looks forward to adding all-electric heavy-duty vehicles to his fleet.

It's more cost-effective...and plus, the drivers say it's a lot more fun!

As society continues to invest in local food systems, there is an ever-expanding need for Bondadosa's services. And Rocha will be there, innovating at every turn.



POLICIES MATTER

Colorado is moving briskly on a path to reduce the state's greenhouse gas emissions and other pollutants as a result of the historic passage of two landmark bills in 2019. <u>House Bill-1261</u>—Colorado's Climate Action Plan—set goals to reduce greenhouse gas emissions (GHG) by at least 26% by 2025, 50% by 2030, and 90% by 2050, based on the statewide GHG emissions in 2005. Colorado's Air Quality Control Commission (AQCC) is statutorily tasked with leading the rulemaking, while coordinating with the Colorado Department of Health and Environment (CDPHE), the Public Utilities Commission (PUC), and additional state agencies. <u>Senate Bill-181</u> set a requirement for the Colorado Oil & Gas Conservation Commission (COGCC) to ensure oil and gas development and operations in Colorado will be regulated in a manner that protects public health, safety, welfare, the environment and wildlife resources.

Colorado can lay the foundation for this clean energy future by taking bold actions to tackle emissions at their sources, and at the same time build our economy back better, faster and more equitably. <u>In its GHG</u> <u>Roadmap</u>, the Polis Administration lays out how to achieve its emissions reductions goals while creating jobs in the clean economy and saving consumers money. These are policy recommendations to reach Colorado's Climate Action Plan goals:

Rapidly Reduce Emissions in the Electricity Sector

Currently, the electricity sector is responsible for 25% of the state's GHG emissions. With abundant solar and wind resources, plus the declining cost of energy storage, Colorado utilities are making some progress toward reducing their GHG emissions. Xcel Energy, the largest investor owned utility in the state that serves 60% of the state's population, made a commitment to reduce its carbon emissions 60% by 2026 and be 100% carbon-free by 2050. Tri-state Generation & Transmission Association, which serves 18 of 22 rural electric cooperatives in the state, aims to reduce its carbon emissions by 90% from generation it owns or operates in Colorado and by 70% from its Colorado wholesale electric sales by 2030.

A number of coal-fire generation plants have plans to retire early. <u>Comanche 1 &</u> <u>2 in Pueblo will shut down in 2022 and</u> <u>2025</u> and all three units of Craig Station will shut down by 2030. This transformation will be aided by Colorado's new Office of Just Transition and a new law that includes securitization to pay for these stranded assets.

Still, the sector needs to do more. The AQCC should adopt an enforceable carbon emissions rule for all electric utilities in the state, whether investor owned, municipal or a rural electric cooperative. As other sectors, such as buildings and transportation, electrify, the emission reduction benefits will compound, thus making this rule essential to meeting Colorado's GHG emission reduction goals. The electricity sector should reduce carbon emissions at a minimum 75% by 2025 and at least 90% by 2030. At the same time, the rule should prioritize early emission reductions in disadvantaged communities with high pollution burdens, to maximize reductions in harmful copollutants such as SO₂, NOx, and Particulate Matter.

Reduce Emissions from Buildings

In Colorado, buildings are another primary source of climate and air pollution. They account for roughly <u>one-quarter</u> of the state's GHG emissions and significantly contribute to <u>poor air quality</u>—both indoors and outdoors. By improving energy efficiency and electrifying our buildings, Colorado can lead the way in integrating our homes and businesses into our clean energy future. Energy efficiency programs can create thousands of clean jobs and generate millions of dollars in energy savings each year. The legislature can help by requiring most commercial, multifamily, and public buildings over 50,000 square feet to benchmark and report their energy use, building on policies that already exist in Denver, Boulder and Fort Collins. These policies work. In Denver, for example, tenants and owners of buildings tracking energy efficiency in Denver saw \$13.5 million in cost savings in 2017 alone. And this figure is expected to grow. Over a period of 10 years, continued investment in these programs will save Denver residents and building owners an estimated \$1.3 billion. A statewide program could build on benchmarking momentum by requiring lower-performing buildings to gradually improve their energy efficiency every five years.

The Colorado General Assembly can also require utilities to help customers transition from gas-powered to electric appliances in their homes and businesses through incentives and rebate programs. Energy efficient electric appliances, ranging from heat pump hot water heaters and clothes dryers, induction cook tops, and air source heat pumps for heating and cooling, can drastically cut indoor and outdoor air pollution while lowering monthly utility bills. As Colorado's electricity grid becomes cleaner, the benefits of switching to electric appliances will be multiplied. Moving to electric appliances is a simple solution to improve air quality, combat climate change, and continue to grow the state's clean energy economy.

The Public Utilities Commission should require aggressive increases in energy efficiency savings targets for Xcel Energy, Black Hills Energy and Tri-State Generation & Transmission. At the same time, utilities should expand energy efficiency programs for their low-income customers. These tend to be households that pay the highest share of their income for electricity even though they use less electricity and produce fewer greenhouse gas emissions than more affluent households. Energy efficiency programs can help make electricity more affordable for customers who are currently struggling to pay their bills; complementary policies can address the disproportionate energy burden born by these communities.

Reduce Emissions from the Transportation Sector

The transportation sector is now the largest contributor of GHG emissions in Colorado. That makes electrifying the transportation sector absolutely essential. Having recently adopted the Zero Emission Vehicle (ZEV) standard, Coloradans will soon find it easier to purchase a wide variety of electric vehicles (EVs) such as EV trucks and SUVs, but more work remains. The state should work with a multi-state coalition of LEV/ ZEV states to ensure that the waiver is reinstated, the rule is expanded, and the level of ZEV sales is appropriate to reach our Colorado's goals.

The next step to increasing EVs is to increase the number of EV charging. It is critical the Public Utilities Commission improve and approve Xcel and Black Hill's Transportation Electrification Plans (TEPS), which will help build electric chargers for Coloradans to charge their EVs at home, at work, and in public spaces. There should

FACES BEHIND THE NUMBERS POWERING RENEWABLE ENERGY'S GROWTH AT HOME AND ABROAD



NAME: Monique Dyers COMPANY: Ensight Energy Consulting POSITION: President & CEO FOUNDED: 2015 LOCATION: Denver, Colorado INDUSTRY: Renewable Energy

Dyers at a 252-megawatt wind energy development in Nuevo León, Mexico.

What was your career path that led you to establish your own consulting company? I started my career as an electrical design engineer at Caterpillar where I designed large generator sets used for commercial and industrial applications. After several years at Caterpillar, I made the decision to relocate to Colorado to lead Vestas generator development team.

It was at Vestas where I began my work in renewable energy space, managing generator and system integration developments and improvements. I went on to work as an energy consultant for several firms, where my focus involved advancing finance for utility-scale power and renewable energy projects, until I decided to break out on my own and start Ensight Energy Consulting.

How has running your own business enabled you to focus on other clean energy interests?

"Choose a job you love, and you'll never have to work a day in your life," is definitely a motto I live by. At Ensight, we support various distributed and utility scale generation projects from wind and solar to storage and hydropower, and advise clients on projects globally, including in the U.S., Mexico, Canada, Ireland, and sub-Saharan Africa.

But having my own firm has also allowed me to infuse community-focused projects into my consulting practice. Giving back to our local community is woven in the firm's fabric, it's encouraged. In particular, I'm passionate about ensuring that underrepresented communities have access to renewable energy.

Recently, and local to Colorado, our team served as technical advisor/owner's engineer to Denver Housing Authority (DHA) and other partners, in the development, construction, and operation of a 2-megawatt community solar garden to help low-income families reduce their energy bills and have access to renewable energy-offering our team the opportunity to support a community-focused project.

How has COVID-19 impacted your business and your outlook for the future?

So much has changed for small businesses, including Ensight. During the pandemic we've focused on understanding our client's needs and pivoting our services both here and abroad to accommodate the challenges COVID-19 has presented. For example, we recently completed our first virtual/remote construction monitoring site visit of a project with the use of drone technology.

It's a challenge to grow a company during the difficulties of a pandemic. But through these times, by continuing to work hard and provide superior service to our clients and partners, we've been able to find new opportunities, continue to support our clients, operate in a new normal—and help Colorado's clean energy sector.

POLICIES MATTER continued

be efforts to ensure there are programs to enable access for multifamily as well as lowincome buildings. Outside of homes, there should prioritize investment in EV charging infrastructure along urban interstate highway corridors.

With greater EV adoption, the state will be well on its way to reducing emissions for light duty vehicles. Through the TEPs, utilities could also invest in electric school buses, electric fleets, and other electric transportation options to support a cleaner, healthier Colorado.

Earlier this year, the state signed a multistate <u>Memorandum of Understanding</u>

to work collaboratively to advance the market for electric trucks and buses. The agencies also announced a public process to work with the industry and community stakeholders to develop a broad set of strategies to reduce emissions from heavyduty vehicles. As part of this strategy, Colorado should adopt an Advanced Clean Truck Rule, patterned after similar policies passed elsewhere in 2020. The rule would reduce toxic air pollution and GHG emissions by requiring medium- and heavyduty truck makers to sell an increasing number of clean, electric trucks in the state, rather than dirty diesel and gasoline vehicles. For families living near highways and industrial hubs, cleaning up truck emissions is long overdue.

Setting A Price on Carbon Emissions

Colorado should consider policies that put a price on carbon emissions to discourage the worst industrial polluters and generate funds to support decarbonization programs and infuse the worst-affected communities with capital to help mitigate pollution. However, to raise revenue, it may require changes to the Taxpayer Bill of Rights (TABOR).

FACES BEHIND THE NUMBERS BUILDING NET ZERO MULTI-FAMILY HOUSING PROJECTS



NAME: Marissa Adelstein COMPANY: s2e Technologies POSITION: Director of Business Development YEAR JOINED: 2018 LOCATION: Evergreen, Colorado INDUSTRY: Smartgrids & Renewable Energy

How did you come to work in sustainable business solutions?

For 10 years I have paired my personal beliefs and practices with a career focused on providing sustainable business solutions to both the agriculture and built environment industries in North and South America. Whether by volunteering for the local sustainability chapter or strategizing investment decisions for international net-zero energy projects in the private sector, I am increasingly dedicated to driving meaningful change to both the communities we live in and global climate preservation.

Why and how did you join a development company that focuses on Net Zero building?

I was lucky enough to meet the founders of S2e about five years ago while working in Mendoza, Argentina. We crossed paths as I was managing the construction and new business of an industrial-scale winery. Knowing that S2e was looking to expand their business to the U.S. from their headquarters in Ontario, Canada, I stayed curious about how I could help S2e bring their advancements in community development, technology, and renewable energy optimization to a new market. By early 2018 the stars aligned, and we started researching and honing ways to enter the U.S. market and move the needle on status quo real estate development.

Tell us about your project in Grand Junction and how it will help to build the clean economy in the region.

By integrating solar and storage systems, smart home appliance networks, and intelligent energy modeling optimization, we hope to operate an all-electric community in one of the sunniest municipalities in Colorado. S2e's 220-unit net zero multi-family apartment project in Grand Junction will be the first of its kind in the community--transforming a previously zoned commercial/industrial urban infill site into a thriving residential community within walking and biking distance to everything Grand Junction has to offer (downtown amenities, the Colorado Riverfront, vast trail networks, etc.).

This project will provide jobs in the local clean economy and be an example for sustainable, affordable living.

CLEAN JOBS COLORADO 2020: GEOGRAPHIC DRILLDOWN

Clean energy's impact in Colorado spreads to all 64 counties, metros, congressional districts, and municipalities. Despite the state's rapid recent growth, Colorado has significant market room for further expansion.

Colorado's clean energy economy makes up 2.3% of all statewide jobs, slightly higher than the national average (2.2%)—but below several neighboring states such as Wyoming (3.0%) and Utah (2.9%). Other states that Colorado will compete with for jobs in the coming years also have a higher density of the clean energy jobs, including California (3.0%), Oregon (2.9%), and Michigan (2.8%).

This unrealized capacity combined with the state's strong workforce in some of the most promising clean energy sectors such as renewable energy, grid modernization, storage, and clean vehicles, forecasts promising growth opportunities for Colorado's clean energy economy in the coming years as the state and country turn to rebuilding and recovery.



Clean Energy Jobs by Metro Areas⁸

Metro	Clean Energy Jobs*	Renewable Energy Generation Jobs	Energy Efficiency Jobs
Denver-Aurora	34,823	10,818	19,396
Boulder	7,372	2,582	3,905
Colorado Springs	4,666	994	2,995
Fort Collins-Loveland	3,566	832	2,227

Metro	Clean Energy Jobs*	Renewable Energy Generation Jobs	Energy Efficiency Jobs
Greeley	1,981	422	1,271
Grand Junction	1,268	282	801
Pueblo	868	183	559

Note: Nearly 7,900 additional clean energy jobs are located in Colorado's rural areas and not included in a metropolitan statistical area.

Clean Energy Jobs by Counties

		Renewable	
		Energy	Energy
	Clean	Generation	Efficiency
County	Energy Jobs*	Jobs	Jobs
Adams	5,179	912	3,224
Alamosa	190	59	74
Arapahoe	7,691	1,693	5,125
Archuleta	58	12	36
Васа	10	1	5
Bent	4	0	2
Boulder	5,077	2,317	2,308
Broomfield	1,596	1,139	350
Chaffee	160	24	121
Cheyenne	6	1	3
Clear Creek	24	7	15
Conejos	20	1	10
Costilla	15	1	2
Crowley	9	1	5
Custer	26	3	16
Delta	299	200	64
Denver	13,551	5,013	7,412
Dolores	7	1	2
Douglas	3,431	1,281	1,780
Eagle	592	95	454
Elbert	196	71	108
El Paso	5,153	1,014	3,415
Fremont	150	25	103
Garfield	720	162	487
Gilpin	14	3	9
Grand	121	19	89
Gunnison	152	29	110
Hinsdale	8	1	6
Huerfano	15	3	8
Jackson	24	16	5
Jefferson	6,303	1,631	3,532
Kiowa	6	1	2

	Renewable		
		Energy	Energy
	Clean	Generation	Efficiency
County	Energy Jobs*	Jobs	Jobs
Kit Carson	38	4	17
Lake	40	17	21
La Plata	498	78	355
Larimer	3,614	605	2,534
Las Animas	50	8	27
Lincoln	28	13	11
Logan	254	164	53
Mesa	1,164	214	733
Mineral	4	0	3
Moffat	47	9	27
Montezuma	85	12	49
Montrose	260	51	168
Morgan	146	50	60
Otero	58	7	20
Ouray	49	20	27
Park	57	10	40
Phillips	30	10	7
Pitkin	227	35	178
Prowers	102	35	28
Pueblo	1,212	224	787
Rio Blanco	40	6	23
Rio Grande	57	7	16
Routt	237	35	179
Saguache	35	2	5
San Juan	3	1	2
San Miguel	81	12	66
Sedgwick	5	1	2
Summit	264	48	194
Teller	89	16	58
Washington	13	3	6
Weld	2,483	418	1,336
Yuma	75	18	22

* Total includes all clean energy jobs categories, including solar, wind, EE, clean vehicles, battery storage, advanced biofuels, low-impact hydro and other areas.

Clean Energy Jobs by District

Data shows that distribution of clean energy jobs in Colorado crosses all political boundaries, with clean energy jobs in every congressional, state senate, and state assembly district.

U.S. Congressional District

District	Total Clean Energy Jobs	Renewable Energy Generation Jobs	Energy Efficiency Jobs
1 (Rep. DeGette)	19,965	6,084	11,314
2 (Rep. Neguse)	17,940	5,860	9,669
3 (Rep. Tipton)	7,281	1,657	4,582
4 (Rep. Buck)	7,885	2,244	4,600
5 (Rep. Lamborn)	4,976	1,049	3,203
6 (Rep. Crow)	1,784	409	1,121
7 (Rep. Perlmutter)	2,588	621	1,603

Clean Energy Jobs by District: State Senate

	Total Clean
District	Energy Jobs
1 (Sen. Sonnenberg)	3,021
2 (Sen. Hisey)	1,717
3 (Sen. Garcia)	776
4 (Sen. Smallwood)	3,241
5 (Sen. Donovan)	2,619
6 (Sen. Coram)	1,664
7 (Sen. Scott)	1,279
8 (Sen. Rankin)	2,614
9 (Sen. Lundeen)	2,051
10 (Sen. Hill)	431
11 (Sen. Lee)	1,123
12 (Sen. Gardner)	38

	Total Clean
District	Energy Jobs
13 (Sen. Cooke)	705
14 (Sen. Ginal)	1,126
15 (Sen. Woodward)	2,065
16 (Sen. Story)	6,092
17 (Sen. Foote)	3,778
18 (Sen. Fenberg)	2,307
19 (Sen. Zenzinger)	2,241
20 (Sen. Danielson)	1,097
21 (Sen. Moreno)	3,541
22 (Sen. Pettersen)	<10
23 (Sen. Marble)	186
24 (Sen. Winter)	330

District	Total Clean Energy Jobs
25 (Sen. Priola)	508
26 (Sen. Bridges)	3,410
27 (Sen. Tate)	<10
28 (Sen. Todd)	195
29 (Sen. Fields)	146
30 (Sen. Holbert)	433
31 (Sen. Hansen)	3,485
32 (Sen. Rodriguez)	1,960
33(Sen. Williams)	1,173
34 (Sen. Gonzales)	6,381
35 (Sen. Crowder)	688

Clean Energy Jobs by District: State Assembly

District	Total Clean Energy Jobs
1 (Rep. Lontine)	2,068
2 (Rep. Garnett)	2,897
3 (Rep. Froelich)	3,744
4 (Rep. Gonzales-Gutierrez)	2,160
5 (Rep. Valdez)	5,859
6 (Rep. Woodrow)	2,042
7 (Rep. Coleman)	1,912
8 (Rep. Herod)	<10
9 (Rep. Sirota)	489
10 (Rep. Hooton)	5,818
11 (Rep. Singer)	804
12 (Rep. Jaquez Lewis)	1,521

	Total Clean
District	Energy Jobs
13 (Rep. Becker)	807
14 (Rep. Sandridge)	1,053
15 (Rep. Williams)	631
16 (Rep. Liston)	970
17 (Rep. Exum)	1,273
18 (Rep. Snyder)	224
19 (Rep. Geitner)	392
20 (Rep. Carver)	27
21 (Rep. Landgraf)	12
22 (Rep. Larson)	481
23 (Rep. Kennedy)	2,979
24 (Rep. Duran)	1,016

District	Total Clean Energy Jobs
25 (Rep. Cutter)	278
26 (Rep. Roberts)	1,492
27 (Rep. Titone)	1,751
28 (Rep. Tipper)	<10
29 (Rep. Kraft-Tharp)	277
30 (Rep. Michaelson Jenet)	2,111
31 (Rep. Caraveo)	76
32 (Rep. Benavidez)	91
33 (Rep. Gray)	394
34 (Rep. Mullica)	38
35 (Rep. Bird)	<10
36 (Rep. Weissman)	373

Clean Energy Jobs by District: State Assembly continued

District	Total Clean Energy Jobs
37 (Rep. Sullivan)	<10
38 (Rep. Champion)	454
39 (Rep. Baisley)	2,669
40 (Rep. Buckner)	<10
41 (Rep. Melton)	<10
42 (Rep. Jackson)	<10
43 (Rep. Van Winkle)	<10
44 (Rep. Ransom)	<10
45 (Rep. Neville)	<10
46 (Rep. Esgar)	612

District	Total Clean Energy Jobs
47 (Rep. Buentello)	429
48 (Rep. Humphrey)	2,610
49 (Rep. Buck)	2,074
50 (Rep.Young)	94
51 (Rep. McKean)	<10
52 (Rep. Kipp)	<10
53 (Rep. Arndt)	<10
54 (Rep. Soper)	1,410
55 (Rep. Rich)	<10
56 (Rep. Bockenfeld)	196

Total Clean Energy Jobs
680
744
1,250
324
1,449
326
170
493
377

Methodology

The analysis expands on data from the 2020 U.S. Energy and Employment Report (USEER) produced by the Energy Futures Initiative (EFI) in partnership with the National Association of State Energy Officials (NASEO), using data collected and analyzed by the BW Research Partnership. The USEER analyzes data from the U.S. Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW) to track employment across many energy production, transmission, and distribution subsectors. In addition, the 2020 USEER relies on a unique supplemental survey of 30,000 business representatives across the United States. Created and conducted by BW Research and approved by the Office of Management and Budget and U.S. Department of Energy (DOE), this survey is used to identify energy-related employment within key subsectors of the broader industries as classified by the BLS and to assign them into their component energy and energy efficiency sectors.

E2 is a partner on the USEER, which was first released by the Department of Energy in 2016. The 2020 USEER was released on March 23, 2020 and is available at <u>www.usenergyjobs.org</u>.

An FAQ is also available here to answer any questions.



About E2

<u>E2 (Environmental Entrepreneurs)</u> is a national, nonpartisan group of business leaders, investors, and professionals from

every sector of the economy who advocate for smart policies that are good for the economy and good for the environment.

E2 members have founded or funded more than 2,500 companies, created more than 600,000 jobs, and manage more than \$100 billion in venture and private equity capital.

E2 releases more than a dozen clean energy employment reports annually– including Clean Jobs America—with state-specific reports covering more than 20 states every year. Clean energy jobs have grown every year since the first national report was released in 2016.

For additional insight into E2's Clean Jobs America 2020 or our other annual Clean Jobs America reports, visit <u>e2.org/reports</u>.



About COSSA

Established in 1989, the <u>Colorado Solar and Storage</u> <u>Association</u> is the award-winning nonprofit association leading Colorado's solar and storage industries. Our mission is to expand solar and storage markets and to generate jobs and prosperity for the people of Colorado. Together with hundreds of solar and storage business members we work to advance clean energy policies, remove market barriers, highlight emerging trends, and increase solar and storage education.

ENDNOTES

- 1 Unless otherwise stated, all data is from the 2020 U.S. Energy and Employment Report (USEER), March 2020, NASEO and EFI. All employment findings in USEER is based on survey and data analysis collected from Q4 2019 prior to any onset of the COVID-19 crisis. See Pages 201-206 for methodology questions.
- 2 USEER 2019 Employer Survey.
- 3 Based on the 2019 U.S. Energy and Employment Report individual state snapshot for Colorado, available at http://usenergyjos.org.
- 4 United States Bureau of Labor Statistics (BLS) Q2 employment (2017, 2018, 2019), all ownerships.
- 5 U.S. Bureau of Labor Statistics. Quarterly Census of Employment and Wages, available at: https://data.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables.
- 6 Population, Population Change, and Estimated Components of Population Change: April 1, 2010 to July 1, 2019 (NST-EST2019-alldata). Census.gov. United States Census Bureau. January 26, 2020.
- 7 United States Bureau of Labor Statistics (BLS) Q2 employment (2017, 2018, 2019), all ownerships.
- 8 Based on the metropolitan and nonmetropolitan area definitions used by the Bureau of Labor Statistics' OES survey, see the MSA definitions page available at https://www.bls.gov/oes/current/oessrcma.htm.

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Good for the Economy. Good for the Environment.

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