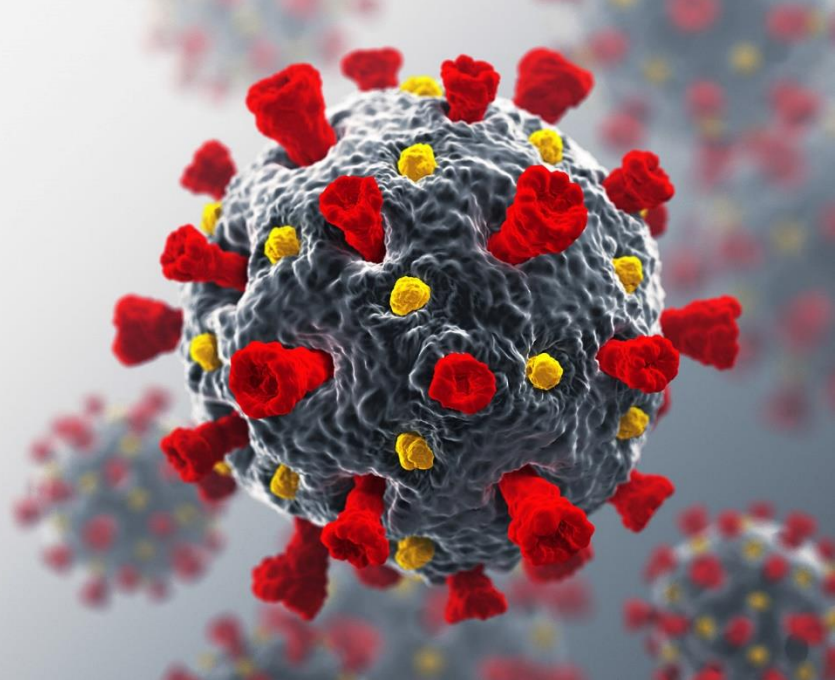


To: E2, E4TheFuture, and ACORE
From: Philip Jordan
Vice-President, BW Research Partnership
Date: October 7, 2020

MEMORANDUM

Clean Energy Employment Initial Impacts from
the COVID-19 Economic Crisis, September 2020



INTRODUCTION

BW Research finds that the U.S. clean energy sector added 12,500 jobs in September, leaving just under half a million (477,900) clean energy workers out of work since February of this year – an almost 14 percent decline over pre-COVID-19 employment levels. While the nation’s overall jobs recovery has stalled over the last several months, the clean energy sector has been particularly slow to rebound. In September, clean energy jobs grew nearly 60 percent slower than jobs overall nationwide. Concerns raised in memoranda from prior months continue, including record-breaking levels of new and continuing unemployment claims and the exhaustion of many programs from earlier stimulus.

The October 2 jobs report, which showed that the U.S. economy created 661,000 new jobs over the previous month, covers the first two weeks of September. While these new jobs primarily fall in industries unrelated to clean energy (leisure and hospitality, retail trade, and health services), job gains are also seen in clean energy adjacent industries, such as professional and business services. While the recent jobs report shows some positive trends for the economy, alarming trends remain.

Driven by job losses in education, public sector employment dropped significantly in this month’s jobs report, reversing the strong, positive trends seen in previous months. Public sector unemployment is expected to continue to worsen in the coming weeks as Census work concludes and state economies strain under falling revenues and increased COVID-related expenses. Weekly unemployment claims continue at an historic high pace. The October 1 weekly claims data showed a slight decline in initial jobless claims, but is still at a level higher than any week in the data’s recorded history prior to March, when new programs such as the Pandemic Unemployment Assistance Program are included.¹ At the same time, the long-term unemployment rate – defined as 27 weeks of consecutive unemployment – has risen sharply since March to 2.4 million, representing about 19 percent of the 12.6 million currently unemployed overall. Also alarming is the rise in permanent unemployment over the same period, which was a tiny fraction of the initial job losses in the spring but now represents 3.8 million job losses, 30 percent of the total unemployed.² Further, the “official” unemployment claims do not include people not currently looking for work, including, notably, parents who must remain home due to remote schooling of their children.

¹ Weekly unemployment claims data collection began in January 1967, <https://oui.doleta.gov/unemploy/claims.asp>.

² BLS Employment Situation Summary, Oct 2. <https://www.bls.gov/news.release/empsit.nr0.htm>.

This report shows no state or clean energy sector as a significant job loser or gainer. However, impacts of this pandemic are not being felt evenly throughout worker demographics. Black and Hispanic workers continue to suffer from disproportionately high levels of unemployment, and while unemployment rates for white workers have declined in September, Black and Hispanic workers unemployment rates have not changed.³

IMPACTS

Several recent analyses suggest that unemployment claims economy-wide do not represent the entirety of job losses, as many workers who are furloughed temporarily or are beneficiaries of the Paycheck Protection Program are not seeking other employment and therefore do not qualify for benefits. The data also do not include workers who had their hours slashed and are now significantly underemployed.

The September unemployment data show job growth was no more than a half percent for each of the clean energy sectors:

- Energy efficiency, the largest clean energy sector, experienced a 0.4 percent gain in employment, with the addition of approximately 8,400 jobs. The energy efficiency sector continues to suffer from 336,700 job losses impacting more than 14 percent of its workforce. For more information on state level energy efficiency impacts, see Appendix E: State Energy Efficiency Job Growth in September 2020.
- Renewable electric power generation saw a 0.4 percent rise in employment, with about 2,300 jobs regained in September. A total of 75,700 renewable electric power generation workers (13 percent of the sector's workforce) remain unemployed due to the pandemic.
- Clean fuels and clean transmission, distribution, and storage saw similarly small rebounds in September, gaining 400 and 500 jobs, respectively. The complete impact of the pandemic on clean fuels and clean transmission, distribution, and storage totals 10,000 and 21,400 lost jobs from their respective, pre-pandemic employment levels. Clean fuels jobs have dropped 9 percent since March, while clean transmission, distribution, and storage jobs have dropped 15 percent thus far.
- Clean vehicles added back less than half a percent of its workforce, or about 1,000 jobs in September. The clean vehicles sector continues to experience a 13 percent decline in jobs over its pre-COVID-19 employment levels. This translates to 34,200 ongoing job losses.

California had the largest monthly increase, with 2,600 jobs returning in September or 0.6 percent of its clean energy workforce. North Carolina saw the highest percentage of clean energy workforce growth but was still below 1 percent increase (0.7 percent) for a total gain of more than 600 jobs. New York, Texas, and Illinois also gained more than 600 clean energy jobs each in September. South Dakota, Montana, Idaho, Wyoming, and Alaska saw the smallest growth, all with less than 30 jobs gained over the past month. For growth by state, see Appendix A: State Clean Energy Job Growth in September 2020.

³ BLS Employment Situation Summary, Oct 2. <https://www.bls.gov/news.release/empsit.nr0.htm>.

This low level of job growth is especially concerning given the dramatic decline in clean energy jobs since the onset of COVID-19. Over 40 states continue to suffer double digit unemployment in clean energy with half a dozen states facing 20 percent or greater unemployment and one state, Georgia, facing more than 30 percent unemployment in the sector.

Counties that have lost more than 4,500 clean energy jobs since the beginning of March include Los Angeles County, CA; King County, WA; San Diego County, CA; Oakland County, MI; Harris County, TX; Wayne County, MI; and Orange County, CA. The counties that suffered hardest as a percent of their workforce are Kern County, CA; Fulton County, GA; DeKalb County, GA; Fresno County, CA; and Dakota County, MN. For losses by county, see Appendix C: Cumulative County Clean Energy Job Losses.

The MSAs that have lost the most clean energy jobs are among the largest economic hubs in the US: Los Angeles-Long Beach-Santa Ana, CA MSA; New York-Northern New Jersey-Long Island, NY-NJ-PA MSA; Chicago-Naperville-Joliet, IL-IN-WI MSA; and San Francisco-Oakland-Fremont, CA MSA. MSAs that have been hit hard as a percentage of their workforce include Cleveland-Elyria-Mentor, OH MSA; Las Vegas-Paradise, NV MSA; Pittsburgh, PA MSA; and New Orleans-Metairie-Kenner, LA MSA. For losses by MSA, see Appendix D: Cumulative MSA Clean Energy Job Losses.

METHODOLOGY

BLS employment reports for August and September, as well as the DOL unemployment weekly summaries, were used to calculate the labor impacts for the month. Please see prior months' memoranda for a more complete explanation of the methodology.

ABOUT BW RESEARCH

BW Research is a full-service applied research firm that is focused on supporting our clients with economic & workforce research, customer & community research, as well as strategic planning and evaluation services. For more information and analysis on economic impacts related to COVID-19, please visit: <http://bwresearch.com/covid>

APPENDIX A: STATE CLEAN ENERGY JOB GROWTH IN SEPTEMBER 2020

State	CE Job Growth	Percent Growth	State	CE Job Growth	Percent Growth
Alabama	108	0.3%	Montana	24	0.3%
Alaska	17	0.3%	Nebraska	58	0.3%
Arizona	191	0.3%	Nevada	71	0.2%
Arkansas	54	0.3%	New Hampshire	31	0.2%
California	2,612	0.6%	New Jersey	150	0.3%
Colorado	202	0.3%	New Mexico	56	0.5%
Connecticut	148	0.4%	New York	809	0.5%
Delaware	50	0.4%	North Carolina	624	0.7%
District of Columbia	54	0.4%	North Dakota	47	0.6%
Florida	483	0.3%	Ohio	447	0.4%
Georgia	159	0.3%	Oklahoma	53	0.3%
Hawaii	64	0.6%	Oregon	203	0.4%
Idaho	24	0.2%	Pennsylvania	407	0.5%
Illinois	645	0.5%	Rhode Island	78	0.6%
Indiana	256	0.3%	South Carolina	150	0.3%
Iowa	91	0.3%	South Dakota	26	0.2%
Kansas	80	0.3%	Tennessee	334	0.4%
Kentucky	114	0.4%	Texas	736	0.3%
Louisiana	88	0.4%	Utah	78	0.2%
Maine	38	0.3%	Vermont	37	0.2%
Maryland	240	0.3%	Virginia	257	0.3%
Massachusetts	541	0.5%	Washington	286	0.4%
Michigan	530	0.5%	West Virginia	36	0.4%
Minnesota	194	0.4%	Wisconsin	222	0.3%
Mississippi	74	0.4%	Wyoming	23	0.3%
Missouri	177	0.3%	US TOTAL	12,479	0.4%

APPENDIX B: CUMULATIVE STATE CLEAN ENERGY JOB LOSSES SINCE PRE-COVID

State	CE Jobs Lost	Percent Decline	State	CE Jobs Lost	Percent Decline
Alabama	7,618	16.8%	Montana	1,580	14.3%
Alaska	1,271	20.7%	Nebraska	2,644	12.0%
Arizona	7,304	11.7%	Nevada	4,049	11.9%
Arkansas	2,548	11.8%	New Hampshire	1,373	8.0%
California	81,826	14.9%	New Jersey	9,384	16.3%
Colorado	5,224	7.8%	New Mexico	1,934	15.4%
Connecticut	5,189	11.8%	New York	14,865	9.1%
Delaware	1,917	13.5%	North Carolina	19,533	17.0%
District of Columbia	2,435	15.7%	North Dakota	1,430	14.4%
Florida	25,166	15.0%	Ohio	15,519	13.4%
Georgia	26,899	31.2%	Oklahoma	4,409	18.6%
Hawaii	3,651	24.3%	Oregon	6,870	11.3%
Idaho	1,486	10.6%	Pennsylvania	17,883	18.4%
Illinois	10,909	8.4%	Rhode Island	3,166	19.4%
Indiana	11,816	13.2%	South Carolina	7,733	13.5%
Iowa	4,241	11.6%	South Dakota	639	5.1%
Kansas	2,763	10.4%	Tennessee	7,582	8.8%
Kentucky	11,030	28.2%	Texas	22,669	9.2%
Louisiana	7,465	23.3%	Utah	2,817	6.3%
Maine	1,782	13.0%	Vermont	2,102	11.5%
Maryland	9,831	11.6%	Virginia	11,215	11.3%
Massachusetts	13,890	12.2%	Washington	17,693	19.9%
Michigan	23,341	17.6%	West Virginia	1,451	13.8%
Minnesota	9,577	14.8%	Wisconsin	8,450	10.7%
Mississippi	3,440	15.5%	Wyoming	825	9.3%
Missouri	7,429	12.6%	US TOTAL	477,862	13.8%

APPENDIX C: CUMULATIVE COUNTY CLEAN ENERGY JOB LOSSES

State	County	CE Jobs Lost	% Decline
California	Los Angeles County	13,910	14.6%
Washington	King County	6,306	16.7%
California	San Diego County	4,884	9.3%
Michigan	Oakland County	4,844	15.8%
Texas	Harris County	4,805	8.2%
Michigan	Wayne County	4,683	23.3%
California	Orange County	4,670	8.2%
Illinois	Cook County	4,384	7.8%
California	Alameda County	4,153	8.6%
Georgia	Fulton County	3,891	27.6%
California	Santa Clara County	3,890	7.5%
Arizona	Maricopa County	3,693	7.5%
Massachusetts	Middlesex County	3,410	8.9%
California	Riverside County	3,008	12.1%
Minnesota	Hennepin County	2,949	11.8%
New York	New York County	2,825	5.9%
California	San Francisco County	2,589	6.8%
Texas	Dallas County	2,560	6.9%
Michigan	Macomb County	2,545	20.0%
North Carolina	Mecklenburg County	2,522	12.3%
Massachusetts	Suffolk County	2,421	10.0%
California	Kern County	2,242	27.7%
Ohio	Cuyahoga County	2,226	15.8%
Kentucky	Jefferson County	2,225	22.4%
Florida	Palm Beach County	2,167	12.1%
California	Fresno County	2,110	24.9%
California	Sacramento County	2,035	10.7%
North Carolina	Wake County	2,008	11.3%
Indiana	Marion County	1,969	11.8%
Florida	Miami-Dade County	1,945	10.1%
Pennsylvania	Allegheny County	1,920	15.1%
Georgia	Cobb County	1,817	23.4%
Georgia	Gwinnett County	1,781	24.0%
Pennsylvania	Philadelphia County	1,772	18.8%
Missouri	Jackson County	1,750	17.6%
Florida	Broward County	1,739	11.5%
Rhode Island	Providence County	1,719	18.0%
Florida	Hillsborough County	1,709	11.5%
Wisconsin	Dane County	1,673	17.0%
Utah	Utah County	1,653	13.3%

Oregon	Multnomah County	1,650	9.7%
Hawaii	Honolulu County	1,642	15.4%
Massachusetts	Essex County	1,642	11.7%
California	San Bernardino County	1,624	11.2%
Nevada	Clark County	1,614	10.2%
Florida	Orange County	1,599	11.0%
Oregon	Washington County	1,564	12.0%
Wisconsin	Waukesha County	1,558	17.4%
Michigan	Kent County	1,477	14.4%
California	Contra Costa County	1,470	9.1%
Washington	Snohomish County	1,424	18.0%
Virginia	Fairfax County	1,381	6.9%
Georgia	DeKalb County	1,333	27.0%
Wisconsin	Milwaukee County	1,332	10.7%
Florida	Duval County	1,315	12.4%
Connecticut	Hartford County	1,311	9.7%
Maryland	Baltimore County	1,290	9.9%
Missouri	St. Louis County	1,266	9.7%
Massachusetts	Norfolk County	1,241	10.0%
Ohio	Franklin County	1,191	8.8%
Massachusetts	Worcester County	1,186	12.4%
Delaware	New Castle County	1,154	12.0%
Texas	Tarrant County	1,133	6.9%
Maryland	Prince George's County	1,128	9.9%
Maryland	Montgomery County	1,125	7.7%
Connecticut	Fairfield County	1,118	9.7%
Pennsylvania	Montgomery County	1,115	12.3%
Ohio	Hamilton County	1,087	9.5%
Washington	Pierce County	1,070	14.9%
Pennsylvania	Lehigh County	1,057	13.7%
Tennessee	Shelby County	1,034	9.4%
Texas	Bexar County	1,029	6.6%
California	San Joaquin County	1,015	19.0%
California	Sonoma County	1,003	12.2%
Texas	Travis County	972	5.3%
New York	Suffolk County	964	6.6%
Florida	Pinellas County	947	11.3%
Massachusetts	Plymouth County	936	14.5%
Minnesota	Ramsey County	935	15.5%
New York	Onondaga County	929	23.7%
California	Ventura County	924	10.5%
Minnesota	Dakota County	905	24.7%
Connecticut	New Haven County	891	10.2%

Kansas	Johnson County	878	10.8%
Utah	Salt Lake County	864	5.1%
California	San Mateo County	832	6.4%
Oklahoma	Oklahoma County	830	12.4%
Illinois	DuPage County	824	6.1%
Colorado	Denver County	823	5.9%
North Carolina	Guilford County	808	12.6%
New Jersey	Morris County	803	14.8%
Alabama	Jefferson County	794	10.9%
Massachusetts	Hampden County	785	12.5%
South Carolina	Charleston County	771	12.9%
Massachusetts	Bristol County	767	14.2%
Louisiana	East Baton Rouge County	739	12.5%
Florida	Lee County	728	11.8%
New York	Nassau County	708	5.8%
Indiana	Lake County	702	13.0%
New Jersey	Bergen County	701	10.9%
Ohio	Lucas County	696	14.7%
New York	Erie County	691	7.8%
Iowa	Polk County	689	9.1%
New York	Queens County	672	5.8%
Illinois	Lake County	670	10.4%
New Jersey	Essex County	669	16.8%
Idaho	Ada County	663	11.8%
New Jersey	Monmouth County	656	11.8%
Ohio	Montgomery County	648	12.9%
California	Stanislaus County	642	16.4%
Alabama	Madison County	641	10.1%
New Jersey	Middlesex County	633	11.6%
Tennessee	Hamilton County	628	11.4%
Colorado	Jefferson County	624	8.9%
Louisiana	Jefferson County	621	14.5%
Pennsylvania	Lancaster County	619	13.6%
Tennessee	Davidson County	618	5.2%
New Hampshire	Hillsborough County	596	11.3%
Arizona	Pima County	594	8.5%
New Mexico	Bernalillo County	592	9.1%
California	Monterey County	589	17.5%
Minnesota	Anoka County	589	16.7%
Washington	Clark County	588	11.1%
Colorado	Adams County	573	10.7%
New York	Kings County	562	6.9%
Maryland	Anne Arundel County	559	6.9%

New York	Westchester County	559	6.4%
Colorado	Arapahoe County	556	7.1%
Washington	Spokane County	554	11.0%
South Carolina	Greenville County	552	7.7%
Nebraska	Douglas County	536	8.4%
Arkansas	Pulaski County	517	11.7%
California	Placer County	517	7.8%
Pennsylvania	Berks County	515	15.0%
Indiana	Allen County	505	9.4%
Florida	Polk County	493	13.5%
Pennsylvania	York County	490	13.3%
California	Santa Barbara County	489	10.4%
Missouri	St. Charles County	475	14.2%
Oregon	Clackamas County	474	9.1%
Texas	Collin County	472	6.4%
Ohio	Summit County	471	9.1%
Pennsylvania	Bucks County	470	9.1%
Oklahoma	Tulsa County	468	7.5%
Virginia	Loudoun County	463	8.9%
Tennessee	Knox County	461	7.5%
Kansas	Sedgwick County	459	10.1%
Ohio	Stark County	457	15.7%
South Carolina	Richland County	435	11.1%
Pennsylvania	Chester County	431	8.4%
New Jersey	Union County	428	14.0%
California	Tulare County	425	16.1%
Nevada	Washoe County	424	6.9%
Ohio	Butler County	423	16.1%
New York	Monroe County	418	7.2%
Oregon	Lane County	415	11.7%
Virginia	Prince William County	406	10.5%
Michigan	Washtenaw County	402	10.4%
New Jersey	Mercer County	400	12.8%
Colorado	El Paso County	389	7.1%
Pennsylvania	Delaware County	385	11.5%
Texas	Nueces County	384	12.1%
Florida	Sarasota County	370	10.1%
Illinois	Will County	369	7.7%
Illinois	Kane County	365	8.8%
New Jersey	Burlington County	364	11.5%
Texas	El Paso County	356	7.9%
New Jersey	Ocean County	344	10.4%
Texas	Montgomery County	343	9.8%

Florida	Brevard County	343	7.2%
Florida	Volusia County	342	11.9%
North Carolina	Forsyth County	341	10.3%
Utah	Davis County	329	8.5%
Michigan	Genesee County	325	10.9%
Alabama	Mobile County	324	8.2%
New Jersey	Camden County	316	10.8%
Texas	Hidalgo County	316	13.6%
Florida	Collier County	308	9.0%
Florida	Seminole County	301	6.3%
New York	Richmond County	300	13.4%
Louisiana	Orleans County	285	10.8%
Florida	Manatee County	278	11.6%
New York	Bronx County	274	8.9%
South Carolina	Horry County	263	12.1%
California	Solano County	257	8.5%
Texas	Denton County	253	6.1%
Texas	Brazoria County	250	10.7%
Texas	Williamson County	247	7.9%
New Jersey	Passaic County	246	12.4%
New Jersey	Hudson County	245	11.3%
Colorado	Larimer County	233	6.1%
Texas	Fort Bend County	222	7.2%
New York	Orange County	181	8.1%
Florida	Pasco County	177	8.1%
Florida	Marion County	174	8.9%
Texas	Cameron County	156	12.8%
Florida	Lake County	141	7.8%
Texas	Bell County	135	9.6%
Florida	Osceola County	113	9.6%
Arizona	Pinal County	82	11.0%

APPENDIX D: CUMULATIVE MSA CLEAN ENERGY JOB LOSSES

MSA	CE Jobs Lost	% Decline
Los Angeles-Long Beach-Santa Ana, CA MSA	40,859	27.9%
New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	28,211	18.3%
Chicago-Naperville-Joliet, IL-IN-WI MSA	24,451	23.8%
San Francisco-Oakland-Fremont, CA MSA	21,349	17.4%
Houston-Sugar Land-Baytown, TX MSA	17,289	26.6%
Washington-Arlington-Alexandria, DC-VA-MD-WV MSA	15,666	17.6%
Detroit-Warren-Livonia, MI MSA	13,304	24.0%
Dallas-Fort Worth-Arlington, TX MSA	13,255	22.6%
Seattle-Tacoma-Bellevue, WA MSA	13,165	27.2%
Miami-Fort Lauderdale-Pompano Beach, FL MSA	13,081	21.5%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA	13,066	26.4%
Atlanta-Sandy Springs-Marietta, GA MSA	12,448	22.6%
Boston-Cambridge-Quincy, MA-NH MSA	12,245	12.8%
Phoenix-Mesa-Scottsdale, AZ MSA	12,217	25.7%
San Diego-Carlsbad-San Marcos, CA MSA	11,769	20.3%
Riverside-San Bernardino-Ontario, CA MSA	9,807	25.5%
Cleveland-Elyria-Mentor, OH MSA	8,489	37.9%
Sacramento-Arden-Arcade-Roseville, CA MSA	7,644	23.7%
Baltimore-Towson, MD MSA	7,557	19.4%
Denver-Aurora, CO MSA	7,507	21.6%
Minneapolis-St. Paul-Bloomington, MN-WI MSA	7,475	17.8%
Las Vegas-Paradise, NV MSA	7,392	33.5%
Portland-Vancouver-Beaverton, OR-WA MSA	6,235	17.5%
Pittsburgh, PA MSA	5,718	31.6%
St. Louis, MO-IL MSA	5,681	21.0%
San Jose-Sunnyvale-Santa Clara, CA MSA	5,604	17.2%
Tampa-St. Petersburg-Clearwater, FL MSA	5,169	23.4%
Cincinnati-Middletown, OH-KY-IN MSA	5,029	24.7%
Austin-Round Rock, TX MSA	4,837	18.4%
Charlotte-Gastonia-Concord, NC-SC MSA	4,734	18.9%
San Antonio, TX MSA	4,691	22.0%
Kansas City, MO-KS MSA	4,113	19.7%
Indianapolis-Carmel, IN MSA	3,990	16.1%
Columbus, OH MSA	3,971	23.5%
Salt Lake City, UT MSA	3,755	20.7%
Orlando-Kissimmee, FL MSA	3,529	20.9%
Milwaukee-Waukesha-West Allis, WI MSA	3,504	17.1%
Virginia Beach-Norfolk-Newport News, VA-NC MSA	3,439	18.7%
Louisville/Jefferson County, KY-IN MSA	3,431	24.2%
Nashville-Davidson-Murfreesboro-Franklin, TN MSA	3,298	13.6%

Memphis, TN-AR-MS MSA	3,236	21.7%
New Orleans-Metairie-Kenner, LA MSA	3,221	30.4%
Raleigh-Cary, NC MSA	2,933	18.2%
Richmond, VA MSA	2,910	17.7%
Hartford-West Hartford-East Hartford, CT MSA	2,798	18.8%
Reno-Sparks, NV MSA	2,749	28.0%
Jacksonville, FL MSA	2,639	23.7%
Birmingham-Hoover, AL MSA	2,161	16.3%
Buffalo-Niagara Falls, NY MSA	2,147	24.3%
Albuquerque, NM MSA	1,982	27.6%
Rochester, NY MSA	1,849	22.3%
Providence-New Bedford-Fall River, RI-MA MSA	1,626	22.6%
Des Moines-West Des Moines, IA MSA	1,225	18.6%
Oklahoma City, OK MSA	1,109	12.9%
Honolulu, HI MSA	869	9.2%
Flint, MI MSA	792	20.8%

APPENDIX E: STATE ENERGY EFFICIENCY JOB GROWTH IN SEPTEMBER 2020

State	EE Job Growth	Percent Growth	State	EE Job Growth	Percent Growth
Alabama	73	0.3%	Montana	19	0.3%
Alaska	12	0.3%	Nebraska	37	0.3%
Arizona	135	0.3%	Nevada	24	0.2%
Arkansas	38	0.3%	New Hampshire	21	0.2%
California	1,513	0.6%	New Jersey	98	0.3%
Colorado	107	0.3%	New Mexico	26	0.5%
Connecticut	119	0.4%	New York	625	0.5%
Delaware	44	0.4%	North Carolina	478	0.7%
District of Columbia	45	0.4%	North Dakota	26	0.6%
Florida	354	0.3%	Ohio	311	0.4%
Georgia	115	0.3%	Oklahoma	33	0.3%
Hawaii	25	0.6%	Oregon	142	0.4%
Idaho	15	0.2%	Pennsylvania	290	0.5%
Illinois	449	0.5%	Rhode Island	62	0.6%
Indiana	152	0.3%	South Carolina	79	0.3%
Iowa	52	0.3%	South Dakota	16	0.2%
Kansas	53	0.3%	Tennessee	201	0.4%
Kentucky	74	0.4%	Texas	503	0.3%
Louisiana	64	0.4%	Utah	56	0.2%
Maine	24	0.3%	Vermont	23	0.2%
Maryland	201	0.3%	Virginia	206	0.3%
Massachusetts	334	0.5%	Washington	202	0.4%
Michigan	337	0.5%	West Virginia	24	0.4%
Minnesota	141	0.4%	Wisconsin	179	0.3%
Mississippi	51	0.4%	Wyoming	20	0.3%
Missouri	126	0.3%	US TOTAL	8,354	0.4%

APPENDIX F: CUMULATIVE STATE ENERGY EFFICIENCY JOB LOSSES SINCE PRE-COVID

State	EE Jobs Lost	Percent Decline	State	EE Jobs Lost	Percent Decline
Alabama	5,533	17.5%	Montana	1,322	15.0%
Alaska	1,010	21.5%	Nebraska	1,791	12.8%
Arizona	5,403	12.1%	Nevada	1,552	12.9%
Arkansas	1,938	12.5%	New Hampshire	1,001	8.4%
California	49,498	15.3%	New Jersey	6,389	16.8%
Colorado	2,993	8.3%	New Mexico	1,018	16.7%
Connecticut	4,399	12.2%	New York	11,689	9.2%
Delaware	1,715	13.7%	North Carolina	15,245	17.3%
District of Columbia	2,053	15.8%	North Dakota	841	15.1%
Florida	18,973	15.4%	Ohio	11,505	13.8%
Georgia	19,895	31.6%	Oklahoma	2,878	19.1%
Hawaii	1,646	27.1%	Oregon	5,188	12.1%
Idaho	1,024	11.3%	Pennsylvania	13,906	19.5%
Illinois	7,899	8.7%	Rhode Island	2,583	19.8%
Indiana	7,771	14.0%	South Carolina	4,285	13.9%
Iowa	2,648	12.5%	South Dakota	418	5.5%
Kansas	1,933	10.8%	Tennessee	5,314	9.9%
Kentucky	7,679	29.3%	Texas	16,258	9.6%
Louisiana	5,492	23.6%	Utah	2,145	6.6%
Maine	1,249	14.1%	Vermont	1,340	12.1%
Maryland	8,316	11.7%	Virginia	9,197	11.5%
Massachusetts	9,027	12.7%	Washington	13,516	20.8%
Michigan	15,333	18.0%	West Virginia	1,019	14.3%
Minnesota	7,161	15.2%	Wisconsin	6,920	10.9%
Mississippi	2,524	16.1%	Wyoming	723	9.6%
Missouri	5,514	13.0%	US TOTAL	336,670	14.3%

APPENDIX G: MONTHLY CLEAN ENERGY JOB LOSSES BY STATE

(Negative values denote job growth)

State	March	April	May	June	July	August	September	Total
Alabama	1,383	7,261	334	-1,062	-80	-110	-108	7,618
Alaska	328	1,073	88	-163	-17	-22	-17	1,271
Arizona	1,484	7,433	359	-1,440	-159	-184	-191	7,304
Arkansas	555	2,533	119	-480	-52	-72	-54	2,548
California	27,583	77,815	4,313	-19,831	-2,346	-3,097	-2,612	81,826
Colorado	1,326	5,952	252	-1,466	-333	-305	-202	5,224
Connecticut	1,037	5,191	323	-887	-131	-197	-148	5,189
Delaware	729	1,766	99	-539	-43	-45	-50	1,917
District of Columbia	935	1,843	119	-277	-57	-74	-54	2,435
Florida	3,963	25,949	2,563	-5,832	-397	-596	-483	25,166
Georgia	1,909	25,282	1,741	-1,579	-121	-174	-159	26,899
Hawaii	908	3,351	154	-612	-55	-32	-64	3,651
Idaho	580	1,229	54	-298	-26	-29	-24	1,486
Illinois	4,524	12,007	926	-4,733	-565	-604	-645	10,909
Indiana	3,766	10,954	511	-2,741	-217	-200	-256	11,816
Iowa	1,388	3,758	162	-860	-57	-58	-91	4,241
Kansas	1,023	2,436	125	-556	-82	-104	-80	2,763
Kentucky	2,180	9,383	559	-895	-30	-53	-114	11,030
Louisiana	2,135	6,220	294	-940	-67	-90	-88	7,465
Maine	682	1,382	130	-295	-26	-52	-38	1,782
Maryland	2,857	9,055	726	-2,146	-188	-233	-240	9,831
Massachusetts	6,726	12,147	776	-3,750	-620	-848	-541	13,890
Michigan	7,867	22,245	1,012	-6,465	-437	-351	-530	23,341
Minnesota	3,536	7,628	382	-1,478	-135	-162	-194	9,577
Mississippi	511	3,379	306	-577	-42	-63	-74	3,440
Missouri	2,108	6,864	340	-1,461	-111	-134	-177	7,429
Montana	622	1,213	51	-233	-23	-27	-24	1,580
Nebraska	806	2,495	143	-652	-38	-53	-58	2,644
Nevada	1,176	3,686	149	-767	-51	-73	-71	4,049
New Hampshire	498	1,134	63	-224	-34	-33	-31	1,373
New Jersey	3,252	8,115	422	-1,912	-160	-183	-150	9,384
New Mexico	711	1,759	80	-426	-62	-72	-56	1,934
New York	6,006	13,868	848	-3,314	-549	-1,185	-809	14,865
North Carolina	9,124	17,138	955	-5,837	-539	-683	-624	19,533
North Dakota	335	1,399	120	-311	-26	-40	-47	1,430
Ohio	6,929	12,879	612	-3,837	-286	-331	-447	15,519
Oklahoma	718	4,143	390	-697	-36	-56	-53	4,409
Oregon	1,747	7,206	516	-2,007	-183	-205	-203	6,870
Pennsylvania	8,283	12,780	571	-2,689	-256	-400	-407	17,883

Rhode Island	1,351	2,460	75	-532	-48	-62	-78	3,166
South Carolina	1,427	7,869	382	-1,570	-80	-144	-150	7,733
South Dakota	165	784	65	-305	-19	-25	-26	639
Tennessee	2,297	7,878	460	-2,284	-185	-250	-334	7,582
Texas	5,965	25,170	1,709	-7,997	-608	-833	-736	22,669
Utah	1,073	2,826	120	-987	-63	-74	-78	2,817
Vermont	651	2,029	68	-490	-51	-68	-37	2,102
Virginia	2,828	10,845	666	-2,236	-279	-351	-257	11,215
Washington	5,646	14,433	1,163	-2,729	-226	-309	-286	17,693
West Virginia	205	1,610	48	-325	-22	-28	-36	1,451
Wisconsin	3,020	7,814	532	-2,392	-141	-161	-222	8,450
Wyoming	281	747	58	-203	-16	-19	-23	825
US TOTAL	147,139	446,416	27,035	-106,320	-10,373	-13,556	-12,479	477,862

APPENDIX H: MONTHLY CLEAN ENERGY JOB LOSSES BY MAJOR TECHNOLOGY

(Negative values denote job growth)

State	March	April	May	June	July	August	September	Total
Renewable Electric Power Generation	23,739	71,705	4,272	-17,287	-1,918	-2,571	-2,273	75,669
Clean Transmission, Distribution, & Storage	6,517	19,666	1,166	-4,561	-428	-482	-510	21,368
Energy Efficiency	103,298	309,584	18,880	-71,786	-6,836	-8,116	-8,354	336,670
Clean Fuels	2,186	10,390	657	-2,351	-296	-205	-378	10,004
Clean Vehicles	11,399	35,070	2,059	-10,335	-896	-2,182	-965	34,151
Total	147,139	446,416	27,035	-106,320	-10,373	-13,556	-12,479	477,862