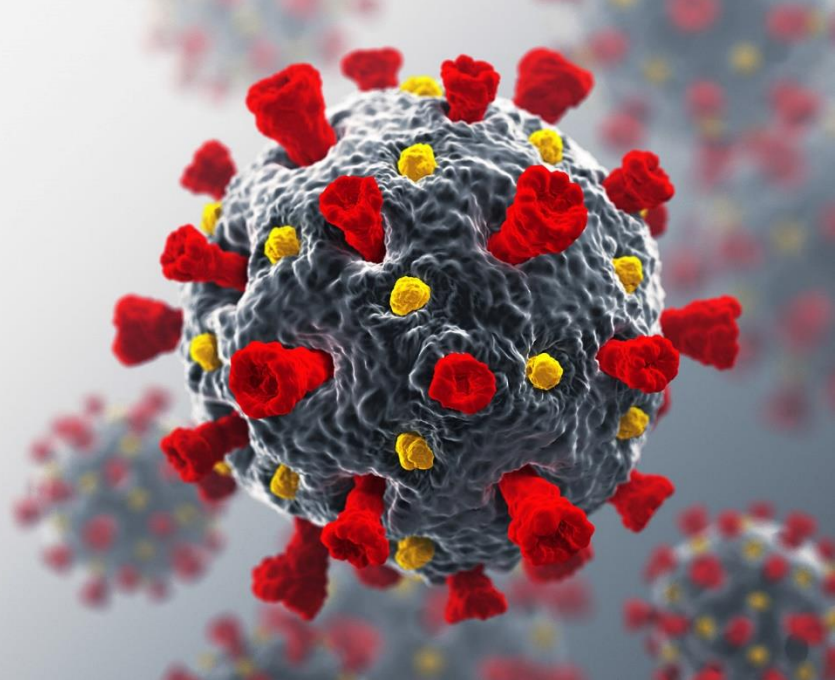


To: E2, E4TheFuture, and ACORE
From: Philip Jordan
Vice-President, BW Research Partnership
Date: August 12, 2020

MEMORANDUM

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



INTRODUCTION

BW Research finds that the U.S. clean energy sector added 3,200 jobs in July, leaving over half a million (511,080) clean energy workers out of work despite nationwide re-openings. There remains a nearly 15 percent decline over pre-COVID-19 employment levels.

Unfortunately for the clean energy sector, June's job growth was short-lived. Concerns mentioned in previous jobs reports, such as high continued unemployment, casual or paused re-openings, and the exhaustion of many programs from earlier stimulus, were realized in this month's stagnant jobs report. At the current pace, it would take nearly 15 years to recover the clean energy jobs lost since February.

The August 7 jobs report, which showed that the U.S. economy created 1.5 million new jobs over the previous month, covers the first two weeks of July. These new jobs primarily fall in industries unrelated to clean energy, such as government, food and accommodation, and education and health services. While the recent jobs report has some positive news for the economy, it also contains some alarming trends.

Initial weekly unemployment claims continue at an historic pace. The most recent week's claims data, released on August 6, showed a slight decline in initial jobless claims, but is still at a level more than 50 percent higher than any week in our history prior to March. At the same time, the long-term unemployment rate – defined as 27 weeks of consecutive unemployment – has risen sharply since March to 1.5 million, representing more than 9 percent of the 16.3 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 2.9 million job losses, or nearly 18 percent of the total unemployed.¹

The economy is currently reacting to viral resurgence as well as the drag from extended unemployment and related economic losses. Consumer confidence, while up from its lows in April and May, dropped six points in July. The continued viral spread, reversal of travel advisories and reopening plans, and the exhaustion of many of programs from earlier stimulus have added to this volatility.

¹ BLS Employment Situation Summary, Aug 7. <https://www.bls.gov/news.release/empsit.nr0.htm>.

This report shows no state nor 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 feel disproportionately high levels of unemployment, and while white workers have seen slight job growth over the past month, Black workers saw no change.²

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 July unemployment data shows job growth was no more than 0.1% for each of the clean energy sectors:

- Energy efficiency, the largest clean energy sector, experienced a 0.1 percent gain in employment, with the addition of approximately 2,100 jobs. The energy efficiency sector continues to suffer from 357,870 job losses impacting a full 15 percent of its workforce. For more information on state level energy efficiency impacts, see Appendix E: State Energy Efficiency Job Growth in July 2020.
- Renewable electric power generation saw a 0.1 percent rise in employment, with about 590 jobs regained in July. A total of 81,840 renewable electric power generation workers (14 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 July, gaining 90 and 130 jobs, respectively. The complete impact of the pandemic on clean fuels and clean transmission, distribution, and storage totals 10,790 and 22,660 lost jobs from their respective, pre-pandemic employment levels. Clean fuels jobs have dropped more than 10 percent since March, while clean transmission, distribution, and storage jobs have dropped more than 15 percent thus far.
- Clean vehicles added back 0.1 percent of its workforce, or fewer than 280 jobs in July. The clean vehicles sector continues to experience a nearly 15 percent decline in jobs over its pre-COVID-19 employment levels. This translates to 37,920 ongoing job losses.

California had the largest increase in July, with 0.2 percent of its clean energy workforce or 720 jobs returning in July. Massachusetts, Texas, Illinois, New York, North Carolina, Michigan, Florida, and Colorado all gained more than 100 clean energy jobs each in July. Wyoming, Alaska, South Dakota, West Virginia, Montana, North Dakota, Idaho, Maine, and Kentucky saw the smallest growth, all with less than 10 jobs gained over the past month. For growth by state, see Appendix A: State Clean Energy Job Growth in July 2020.

Counties that have lost more than 5,000 clean energy jobs since the beginning of March include Los Angeles County, CA; King County, WA; San Diego County, CA; Harris County, TX; Orange County, CA; and Oakland County, MI. The counties that suffered hardest as a percent of their workforce are Kern County,

² BLS Employment Situation Summary, Aug 7. <https://www.bls.gov/news.release/empsit.nr0.htm>.

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; New Orleans-Metairie-Kenner, LA MSA; and Los Angeles-Long Beach-Santa Ana, CA MSA. For losses by MSA, see Appendix D: Cumulative MSA Clean Energy Job Losses.

METHODOLOGY

BLS employment reports for June and July, 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 JULY 2020

State	CE Job Growth	Percent Growth	State	CE Job Growth	Percent Growth
Alabama	25	0.1%	Montana	7	0.1%
Alaska	5	0.1%	Nebraska	12	0.1%
Arizona	49	0.1%	Nevada	16	0.1%
Arkansas	16	0.1%	New Hampshire	10	0.1%
California	723	0.2%	New Jersey	49	0.1%
Colorado	103	0.2%	New Mexico	19	0.2%
Connecticut	40	0.1%	New York	169	0.1%
Delaware	13	0.1%	North Carolina	166	0.2%
District of Columbia	18	0.1%	North Dakota	8	0.1%
Florida	122	0.1%	Ohio	88	0.1%
Georgia	37	0.1%	Oklahoma	11	0.1%
Hawaii	17	0.2%	Oregon	56	0.1%
Idaho	8	0.1%	Pennsylvania	79	0.1%
Illinois	174	0.2%	Rhode Island	15	0.1%
Indiana	67	0.1%	South Carolina	25	0.1%
Iowa	18	0.1%	South Dakota	6	0.0%
Kansas	25	0.1%	Tennessee	57	0.1%
Kentucky	9	0.0%	Texas	187	0.1%
Louisiana	21	0.1%	Utah	19	0.0%
Maine	8	0.1%	Vermont	16	0.1%
Maryland	58	0.1%	Virginia	86	0.1%
Massachusetts	191	0.2%	Washington	69	0.1%
Michigan	134	0.1%	West Virginia	7	0.1%
Minnesota	42	0.1%	Wisconsin	43	0.1%
Mississippi	13	0.1%	Wyoming	5	0.1%
Missouri	34	0.1%	US TOTAL	3,195	0.1%

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

State	CE Jobs Lost	Percent Decline	State	CE Jobs Lost	Percent Decline
Alabama	7,891	17.4%	Montana	1,647	14.9%
Alaska	1,321	21.5%	Nebraska	2,781	12.6%
Arizona	7,788	12.5%	Nevada	4,227	12.5%
Arkansas	2,710	12.6%	New Hampshire	1,461	8.5%
California	89,158	16.2%	New Jersey	9,828	17.1%
Colorado	5,962	8.9%	New Mexico	2,105	16.8%
Connecticut	5,624	12.8%	New York	17,239	10.5%
Delaware	2,042	14.4%	North Carolina	21,214	18.5%
District of Columbia	2,603	16.8%	North Dakota	1,535	15.4%
Florida	26,521	15.8%	Ohio	16,494	14.2%
Georgia	27,316	31.6%	Oklahoma	4,543	19.2%
Hawaii	3,784	25.2%	Oregon	7,405	12.2%
Idaho	1,558	11.1%	Pennsylvania	18,866	19.4%
Illinois	12,550	9.7%	Rhode Island	3,339	20.4%
Indiana	12,423	13.9%	South Carolina	8,083	14.1%
Iowa	4,430	12.1%	South Dakota	704	5.6%
Kansas	3,003	11.3%	Tennessee	8,294	9.7%
Kentucky	11,218	28.7%	Texas	24,659	10.0%
Louisiana	7,689	24.0%	Utah	3,013	6.8%
Maine	1,890	13.8%	Vermont	2,242	12.3%
Maryland	10,434	12.3%	Virginia	12,017	12.1%
Massachusetts	15,708	13.8%	Washington	18,444	20.7%
Michigan	24,525	18.4%	West Virginia	1,531	14.6%
Minnesota	10,026	15.5%	Wisconsin	8,931	11.3%
Mississippi	3,606	16.2%	Wyoming	878	9.9%
Missouri	7,816	13.2%	US TOTAL	511,075	14.8%

APPENDIX C: CUMULATIVE COUNTY CLEAN ENERGY JOB LOSSES

State	County	CE Jobs Lost	% Decline
California	Los Angeles County	15,057	15.8%
Washington	King County	6,565	17.4%
California	San Diego County	5,317	10.2%
Texas	Harris County	5,235	8.9%
California	Orange County	5,090	8.9%
Michigan	Oakland County	5,048	16.5%
Illinois	Cook County	4,969	8.8%
Michigan	Wayne County	4,862	24.2%
California	Alameda County	4,524	9.4%
California	Santa Clara County	4,242	8.2%
Georgia	Fulton County	3,957	28.1%
Arizona	Maricopa County	3,942	8.0%
Massachusetts	Middlesex County	3,771	9.9%
California	Riverside County	3,265	13.1%
New York	New York County	3,208	6.7%
Minnesota	Hennepin County	3,093	12.4%
California	San Francisco County	2,825	7.4%
Texas	Dallas County	2,793	7.6%
North Carolina	Mecklenburg County	2,707	13.2%
Massachusetts	Suffolk County	2,674	11.0%
Michigan	Macomb County	2,647	20.8%
California	Kern County	2,395	29.5%
Ohio	Cuyahoga County	2,360	16.7%
Florida	Palm Beach County	2,304	12.9%
Kentucky	Jefferson County	2,262	22.8%
California	Fresno County	2,260	26.6%
California	Sacramento County	2,212	11.6%
North Carolina	Wake County	2,157	12.2%
Florida	Miami-Dade County	2,072	10.8%
Indiana	Marion County	2,068	12.3%
Pennsylvania	Allegheny County	2,029	16.0%
Pennsylvania	Philadelphia County	1,869	19.8%
Missouri	Jackson County	1,850	18.6%
Florida	Broward County	1,850	12.3%
Georgia	Cobb County	1,850	23.8%
Florida	Hillsborough County	1,818	12.3%
Wisconsin	Dane County	1,817	18.4%
Georgia	Gwinnett County	1,813	24.4%
Massachusetts	Essex County	1,809	12.9%
Utah	Utah County	1,792	14.5%

Oregon	Multnomah County	1,771	10.4%
California	San Bernardino County	1,764	12.1%
Rhode Island	Providence County	1,756	18.4%
Hawaii	Honolulu County	1,706	16.0%
Florida	Orange County	1,701	11.7%
Nevada	Clark County	1,690	10.6%
Oregon	Washington County	1,654	12.7%
Wisconsin	Waukesha County	1,610	18.0%
California	Contra Costa County	1,600	9.9%
Michigan	Kent County	1,523	14.8%
Washington	Snohomish County	1,482	18.7%
Virginia	Fairfax County	1,471	7.3%
Connecticut	Hartford County	1,414	10.4%
Wisconsin	Milwaukee County	1,407	11.3%
Florida	Duval County	1,398	13.2%
Maryland	Baltimore County	1,375	10.6%
Massachusetts	Norfolk County	1,371	11.0%
Georgia	DeKalb County	1,356	27.5%
Missouri	St. Louis County	1,335	10.2%
Massachusetts	Worcester County	1,306	13.7%
Ohio	Franklin County	1,269	9.4%
Texas	Tarrant County	1,236	7.6%
Delaware	New Castle County	1,231	12.8%
Connecticut	Fairfield County	1,206	10.4%
Maryland	Prince George's County	1,203	10.6%
Maryland	Montgomery County	1,201	8.2%
Pennsylvania	Montgomery County	1,180	13.0%
Ohio	Hamilton County	1,158	10.1%
Tennessee	Shelby County	1,130	10.3%
Texas	Bexar County	1,123	7.2%
Washington	Pierce County	1,115	15.5%
Pennsylvania	Lehigh County	1,112	14.5%
California	San Joaquin County	1,094	20.5%
New York	Suffolk County	1,094	7.4%
Texas	Travis County	1,063	5.8%
California	Sonoma County	1,060	12.8%
New York	Onondaga County	1,017	26.0%
Florida	Pinellas County	1,007	12.0%
California	Ventura County	1,004	11.4%
Minnesota	Ramsey County	980	16.3%
Minnesota	Dakota County	972	26.5%
Massachusetts	Plymouth County	969	15.0%
Connecticut	New Haven County	960	10.9%

Illinois	DuPage County	937	6.9%
Utah	Salt Lake County	928	5.5%
Kansas	Johnson County	925	11.4%
California	San Mateo County	909	6.9%
Colorado	Denver County	902	6.5%
Oklahoma	Oklahoma County	858	12.8%
North Carolina	Guilford County	849	13.3%
New Jersey	Morris County	849	15.6%
Alabama	Jefferson County	835	11.5%
Massachusetts	Hampden County	814	13.0%
South Carolina	Charleston County	810	13.6%
New York	Nassau County	804	6.6%
Massachusetts	Bristol County	800	14.8%
Louisiana	East Baton Rouge County	798	13.5%
New York	Erie County	782	8.8%
Florida	Lee County	774	12.6%
New York	Queens County	764	6.6%
Iowa	Polk County	741	9.8%
New Jersey	Bergen County	738	11.5%
Indiana	Lake County	729	13.5%
Ohio	Lucas County	729	15.4%
Illinois	Lake County	710	11.0%
Tennessee	Davidson County	710	5.9%
New Jersey	Monmouth County	708	12.7%
Ohio	Montgomery County	702	13.9%
New Jersey	Essex County	702	17.7%
Idaho	Ada County	698	12.4%
Alabama	Madison County	678	10.7%
Colorado	Jefferson County	678	9.6%
California	Stanislaus County	672	17.2%
New Mexico	Bernalillo County	666	10.3%
New Jersey	Middlesex County	666	12.2%
Tennessee	Hamilton County	651	11.8%
Pennsylvania	Lancaster County	649	14.2%
New Hampshire	Hillsborough County	645	12.3%
Louisiana	Jefferson County	644	15.1%
New York	Kings County	637	7.8%
New York	Westchester County	634	7.3%
Arizona	Pima County	634	9.1%
California	Monterey County	623	18.5%
Minnesota	Anoka County	617	17.5%
Washington	Clark County	613	11.5%
Colorado	Adams County	607	11.3%

South Carolina	Greenville County	604	8.4%
Maryland	Anne Arundel County	600	7.4%
Colorado	Arapahoe County	590	7.5%
Washington	Spokane County	586	11.6%
Nebraska	Douglas County	573	9.0%
California	Placer County	549	8.2%
Arkansas	Pulaski County	548	12.4%
Indiana	Allen County	539	10.0%
Pennsylvania	Berks County	537	15.7%
Florida	Polk County	523	14.3%
Texas	Collin County	516	7.0%
California	Santa Barbara County	515	10.9%
Kansas	Sedgwick County	515	11.3%
Oregon	Clackamas County	513	9.9%
Pennsylvania	York County	513	13.9%
Oklahoma	Tulsa County	511	8.2%
Virginia	Loudoun County	503	9.6%
Missouri	St. Charles County	502	15.0%
Ohio	Summit County	489	9.4%
Pennsylvania	Bucks County	488	9.4%
New Jersey	Union County	486	15.9%
Tennessee	Knox County	484	7.8%
Ohio	Stark County	478	16.4%
Nevada	Washoe County	475	7.7%
New York	Monroe County	474	8.1%
South Carolina	Richland County	473	12.1%
Pennsylvania	Chester County	472	9.2%
California	Tulare County	441	16.7%
Ohio	Butler County	438	16.6%
Oregon	Lane County	437	12.3%
New Jersey	Mercer County	433	13.9%
Virginia	Prince William County	432	11.2%
Michigan	Washtenaw County	431	11.2%
Colorado	El Paso County	425	7.7%
Texas	Nueces County	410	12.9%
Pennsylvania	Delaware County	402	12.1%
Illinois	Will County	397	8.3%
Illinois	Kane County	396	9.5%
New Jersey	Burlington County	393	12.4%
Florida	Sarasota County	391	10.7%
Texas	El Paso County	388	8.6%
North Carolina	Forsyth County	368	11.1%
Florida	Brevard County	368	7.8%

New Jersey	Ocean County	367	11.1%
Texas	Montgomery County	364	10.4%
Florida	Volusia County	362	12.6%
Utah	Davis County	357	9.2%
Texas	Hidalgo County	342	14.7%
Alabama	Mobile County	340	8.6%
New Jersey	Camden County	339	11.6%
Michigan	Genesee County	337	11.3%
Florida	Collier County	330	9.7%
New York	Richmond County	321	14.3%
Florida	Seminole County	317	6.7%
New York	Bronx County	309	10.1%
Louisiana	Orleans County	298	11.3%
Florida	Manatee County	291	12.2%
California	Solano County	286	9.5%
South Carolina	Horry County	279	12.8%
Texas	Denton County	276	6.7%
Texas	Brazoria County	272	11.7%
Texas	Williamson County	270	8.7%
New Jersey	Hudson County	267	12.3%
New Jersey	Passaic County	261	13.2%
Colorado	Larimer County	255	6.6%
Texas	Fort Bend County	242	7.9%
New York	Orange County	198	8.9%
Florida	Pasco County	194	8.9%
Florida	Marion County	184	9.4%
Texas	Cameron County	163	13.3%
Florida	Lake County	156	8.6%
Texas	Bell County	144	10.2%
Florida	Osceola County	125	10.7%
Arizona	Pinal County	94	12.5%

APPENDIX D: CUMULATIVE MSA CLEAN ENERGY JOB LOSSES

MSA	CE Jobs Lost	% Decline
Los Angeles-Long Beach-Santa Ana, CA MSA	42,283	28.9%
New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	29,731	19.3%
Chicago-Naperville-Joliet, IL-IN-WI MSA	25,211	24.5%
San Francisco-Oakland-Fremont, CA MSA	22,231	18.1%
Houston-Sugar Land-Baytown, TX MSA	17,655	27.2%
Washington-Arlington-Alexandria, DC-VA-MD-WV MSA	16,105	18.1%
Detroit-Warren-Livonia, MI MSA	13,680	24.7%
Dallas-Fort Worth-Arlington, TX MSA	13,534	23.1%
Miami-Fort Lauderdale-Pompano Beach, FL MSA	13,509	22.2%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA	13,446	27.2%
Seattle-Tacoma-Bellevue, WA MSA	13,396	27.7%
Boston-Cambridge-Quincy, MA-NH MSA	13,098	13.6%
Atlanta-Sandy Springs-Marietta, GA MSA	12,713	23.1%
Phoenix-Mesa-Scottsdale, AZ MSA	12,441	26.2%
San Diego-Carlsbad-San Marcos, CA MSA	12,212	21.0%
Riverside-San Bernardino-Ontario, CA MSA	10,104	26.3%
Cleveland-Elyria-Mentor, OH MSA	8,618	38.5%
Sacramento-Arden-Arcade-Roseville, CA MSA	7,864	24.4%
Baltimore-Towson, MD MSA	7,744	19.9%
Minneapolis-St. Paul-Bloomington, MN-WI MSA	7,701	18.3%
Denver-Aurora, CO MSA	7,653	22.0%
Las Vegas-Paradise, NV MSA	7,580	34.4%
Portland-Vancouver-Beaverton, OR-WA MSA	6,454	18.1%
Pittsburgh, PA MSA	5,843	32.3%
St. Louis, MO-IL MSA	5,824	21.5%
San Jose-Sunnyvale-Santa Clara, CA MSA	5,804	17.8%
Tampa-St. Petersburg-Clearwater, FL MSA	5,288	24.0%
Cincinnati-Middletown, OH-KY-IN MSA	5,129	25.2%
Austin-Round Rock, TX MSA	4,955	18.8%
Charlotte-Gastonia-Concord, NC-SC MSA	4,860	19.4%
San Antonio, TX MSA	4,798	22.5%
Kansas City, MO-KS MSA	4,210	20.2%
Indianapolis-Carmel, IN MSA	4,116	16.6%
Columbus, OH MSA	4,061	24.0%
Salt Lake City, UT MSA	3,815	21.0%
Orlando-Kissimmee, FL MSA	3,680	21.8%
Milwaukee-Waukesha-West Allis, WI MSA	3,615	17.6%
Virginia Beach-Norfolk-Newport News, VA-NC MSA	3,537	19.2%
Louisville/Jefferson County, KY-IN MSA	3,488	24.6%
Nashville-Davidson-Murfreesboro-Franklin, TN MSA	3,446	14.3%

Memphis, TN-AR-MS MSA	3,347	22.4%
New Orleans-Metairie-Kenner, LA MSA	3,290	31.1%
Raleigh-Cary, NC MSA	3,003	18.6%
Richmond, VA MSA	2,995	18.2%
Hartford-West Hartford-East Hartford, CT MSA	2,884	19.4%
Reno-Sparks, NV MSA	2,792	28.5%
Jacksonville, FL MSA	2,691	24.2%
Birmingham-Hoover, AL MSA	2,220	16.7%
Buffalo-Niagara Falls, NY MSA	2,211	25.0%
Albuquerque, NM MSA	2,030	28.3%
Rochester, NY MSA	1,905	22.9%
Providence-New Bedford-Fall River, RI-MA MSA	1,680	23.4%
Des Moines-West Des Moines, IA MSA	1,254	19.1%
Oklahoma City, OK MSA	1,150	13.4%
Honolulu, HI MSA	929	9.8%
Flint, MI MSA	820	21.5%

APPENDIX E: STATE ENERGY EFFICIENCY JOB GROWTH IN JULY 2020

State	EE Job Growth	Percent Growth	State	EE Job Growth	Percent Growth
Alabama	16	0.1%	Montana	6	0.1%
Alaska	4	0.1%	Nebraska	7	0.1%
Arizona	34	0.1%	Nevada	6	0.1%
Arkansas	11	0.1%	New Hampshire	7	0.1%
California	427	0.2%	New Jersey	31	0.1%
Colorado	51	0.2%	New Mexico	9	0.2%
Connecticut	32	0.1%	New York	133	0.1%
Delaware	11	0.1%	North Carolina	128	0.2%
District of Columbia	14	0.1%	North Dakota	5	0.1%
Florida	83	0.1%	Ohio	60	0.1%
Georgia	26	0.1%	Oklahoma	7	0.1%
Hawaii	6	0.1%	Oregon	38	0.1%
Idaho	5	0.1%	Pennsylvania	59	0.1%
Illinois	113	0.1%	Rhode Island	11	0.1%
Indiana	40	0.1%	South Carolina	12	0.0%
Iowa	10	0.1%	South Dakota	4	0.1%
Kansas	17	0.1%	Tennessee	36	0.1%
Kentucky	6	0.0%	Texas	132	0.1%
Louisiana	15	0.1%	Utah	14	0.0%
Maine	5	0.1%	Vermont	10	0.1%
Maryland	46	0.1%	Virginia	67	0.1%
Massachusetts	117	0.2%	Washington	49	0.1%
Michigan	84	0.1%	West Virginia	4	0.1%
Minnesota	30	0.1%	Wisconsin	33	0.1%
Mississippi	8	0.1%	Wyoming	4	0.1%
Missouri	25	0.1%	US TOTAL	2,105	0.1%

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

State	EE Jobs Lost	Percent Decline	State	EE Jobs Lost	Percent Decline
Alabama	5,706	18.1%	Montana	1,372	15.5%
Alaska	1,045	22.2%	Nebraska	1,879	13.5%
Arizona	5,724	12.8%	Nevada	1,611	13.4%
Arkansas	2,046	13.2%	New Hampshire	1,055	8.9%
California	53,561	16.6%	New Jersey	6,648	17.5%
Colorado	3,359	9.3%	New Mexico	1,095	17.9%
Connecticut	4,733	13.1%	New York	13,453	10.6%
Delaware	1,820	14.5%	North Carolina	16,506	18.8%
District of Columbia	2,185	16.8%	North Dakota	899	16.1%
Florida	19,861	16.1%	Ohio	12,154	14.6%
Georgia	20,176	32.1%	Oklahoma	2,956	19.6%
Hawaii	1,704	28.0%	Oregon	5,553	12.9%
Idaho	1,065	11.8%	Pennsylvania	14,596	20.4%
Illinois	8,965	9.8%	Rhode Island	2,713	20.8%
Indiana	8,124	14.6%	South Carolina	4,455	14.5%
Iowa	2,760	13.0%	South Dakota	455	6.0%
Kansas	2,090	11.7%	Tennessee	5,735	10.6%
Kentucky	7,798	29.7%	Texas	17,547	10.4%
Louisiana	5,645	24.3%	Utah	2,282	7.0%
Maine	1,311	14.8%	Vermont	1,425	12.9%
Maryland	8,783	12.3%	Virginia	9,802	12.2%
Massachusetts	10,107	14.2%	Washington	14,030	21.6%
Michigan	16,062	18.8%	West Virginia	1,068	14.9%
Minnesota	7,479	15.9%	Wisconsin	7,288	11.5%
Mississippi	2,634	16.8%	Wyoming	766	10.1%
Missouri	5,784	13.6%	US TOTAL	357,871	15.2%

APPENDIX G: MONTHLY CLEAN ENERGY JOB LOSSES BY STATE

(Negative values denote job growth)

State	March	April	May	June	July	Total
Alabama	1,383	7,261	334	-1,062	-25	7,891
Alaska	328	1,073	88	-163	-5	1,321
Arizona	1,484	7,433	359	-1,440	-49	7,787
Arkansas	555	2,533	119	-480	-16	2,711
California	27,583	77,815	4,313	-19,831	-723	89,158
Colorado	1,326	5,952	252	-1,466	-103	5,961
Connecticut	1,037	5,191	323	-887	-40	5,624
Delaware	729	1,766	99	-539	-13	2,042
District of Columbia	935	1,843	119	-277	-18	2,603
Florida	3,963	25,949	2,563	-5,832	-122	26,521
Georgia	1,909	25,282	1,741	-1,579	-37	27,316
Hawaii	908	3,351	154	-612	-17	3,784
Idaho	580	1,229	54	-298	-8	1,557
Illinois	4,524	12,007	926	-4,733	-174	12,550
Indiana	3,766	10,954	511	-2,741	-67	12,423
Iowa	1,388	3,758	162	-860	-18	4,430
Kansas	1,023	2,436	125	-556	-25	3,003
Kentucky	2,180	9,383	559	-895	-9	11,218
Louisiana	2,135	6,220	294	-940	-21	7,689
Maine	682	1,382	130	-295	-8	1,891
Maryland	2,857	9,055	726	-2,146	-58	10,434
Massachusetts	6,726	12,147	776	-3,750	-191	15,708
Michigan	7,867	22,245	1,012	-6,465	-134	24,524
Minnesota	3,536	7,628	382	-1,478	-42	10,026
Mississippi	511	3,379	306	-577	-13	3,606
Missouri	2,108	6,864	340	-1,461	-34	7,817
Montana	622	1,213	51	-233	-7	1,646
Nebraska	806	2,495	143	-652	-12	2,780
Nevada	1,176	3,686	149	-767	-16	4,228
New Hampshire	498	1,134	63	-224	-10	1,460
New Jersey	3,252	8,115	422	-1,912	-49	9,828
New Mexico	711	1,759	80	-426	-19	2,105
New York	6,006	13,868	848	-3,314	-169	17,239
North Carolina	9,124	17,138	955	-5,837	-166	21,214
North Dakota	335	1,399	120	-311	-8	1,535
Ohio	6,929	12,879	612	-3,837	-88	16,495
Oklahoma	718	4,143	390	-697	-11	4,543
Oregon	1,747	7,206	516	-2,007	-56	7,405
Pennsylvania	8,283	12,780	571	-2,689	-79	18,866

Rhode Island	1,351	2,460	75	-532	-15	3,339
South Carolina	1,427	7,869	382	-1,570	-25	8,083
South Dakota	165	784	65	-305	-6	703
Tennessee	2,297	7,878	460	-2,284	-57	8,294
Texas	5,965	25,170	1,709	-7,997	-187	24,659
Utah	1,073	2,826	120	-987	-19	3,013
Vermont	651	2,029	68	-490	-16	2,242
Virginia	2,828	10,845	666	-2,236	-86	12,018
Washington	5,646	14,433	1,163	-2,729	-69	18,444
West Virginia	205	1,610	48	-325	-7	1,531
Wisconsin	3,020	7,814	532	-2,392	-43	8,931
Wyoming	281	747	58	-203	-5	878
US TOTAL	147,139	446,416	27,035	-106,320	-3,195	511,075

APPENDIX H: MONTHLY CLEAN ENERGY JOB LOSSES BY MAJOR TECHNOLOGY

(Negative values denote job growth)

State	March	April	May	June	July	Total
Renewable Electric Power Generation	23,739	71,705	4,272	-17,287	-591	81,839
Clean Transmission, Distribution, & Storage	6,517	19,666	1,166	-4,561	-132	22,656
Energy Efficiency	103,298	309,584	18,880	-71,786	-2,105	357,871
Clean Fuels	2,186	10,390	657	-2,351	-91	10,791
Clean Vehicles	11,399	35,070	2,059	-10,335	-276	37,917
Total	147,139	446,416	27,035	-106,320	-3,195	511,075