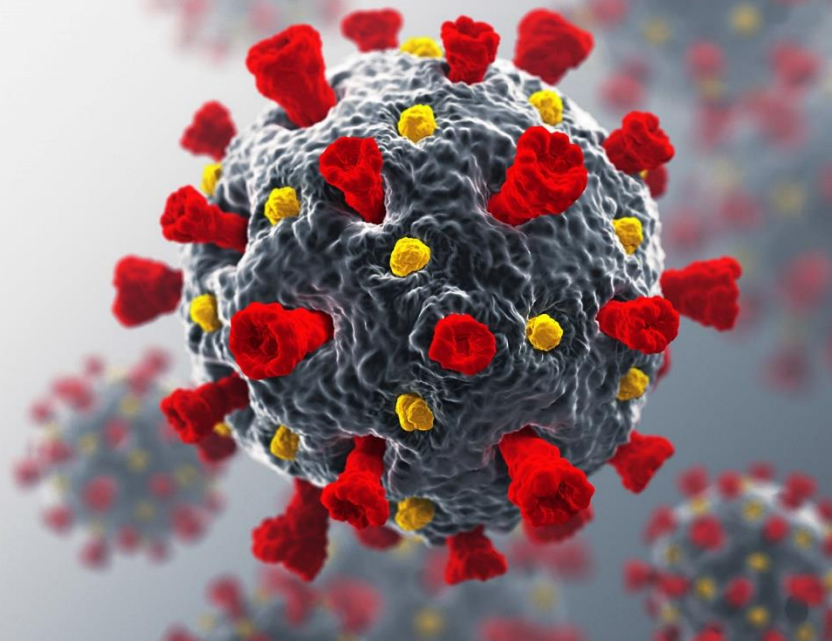


To: E2, E4TheFuture, and ACORE
From: Philip Jordan
Vice-President, BW Research Partnership
Date: December 8, 2020

MEMORANDUM

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



INTRODUCTION

BW Research finds that the U.S. clean energy sector added 7,900 jobs in November, leaving 446,000 clean energy workers out of work since February of this year – a 13 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. 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 December 4th jobs report, which showed that the U.S. private economy created 344,000 new jobs over the previous month, covers the first two weeks of November. These new jobs were primarily outside of clean energy and fall in industries like health care, transportation and warehousing, and professional and business services. While the recent jobs report shows some positive trends for the economy, alarming trends remain.

Driven by job losses at the federal level, public sector employment dropped significantly in this month’s jobs report, continuing October and September’s dramatic decline. This is likely due to state economies straining under falling revenues and increased COVID-related expenses. Weekly unemployment claims continue at an historic high pace. The December 3rd weekly claims data showed no change in initial jobless claims, and is still at a higher level 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 3.9 million, representing 37 percent of the 10.7 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 3.7 million job losses, 35 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, Dec 4. <https://www.bls.gov/news.release/empsit.nr0.htm>.

This report shows no state or clean energy sector as an especially 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.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 November 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 less than a half percent gain in employment, with the addition of 5,400 jobs. The energy efficiency sector continues to suffer from 314,500 job losses impacting more than 13 percent of its workforce. For more information on state level energy efficiency impacts, see Appendix E: State Energy Efficiency Job Growth in November 2020.
- Renewable electric power generation saw a less than half percent rise in employment, with about 1,300 jobs regained in November. A total of 70,400 renewable electric power generation workers (12 percent of the sector's workforce) remain unemployed due to the pandemic.
- Clean fuels and clean transmission, distribution, and storage saw similarly small changes in November, gaining 150 and 300 jobs, respectively. The complete impact of the pandemic on clean fuels and clean transmission, distribution, and storage totals 9,500 and 20,000 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 almost 14 percent thus far.
- Clean vehicles added back less than half a percent of its workforce, or about 600 jobs in November. The clean vehicles sector continues to experience a more than 12 percent decline in jobs over its pre-COVID-19 employment levels. This translates to 31,900 ongoing job losses.

California had the largest monthly increase with 1,700 jobs returning in November, which was still less than a half percent of its clean energy workforce. North Carolina saw the highest percentage of clean energy workforce growth at 0.5 percent for a total gain of more than 400 jobs. Texas, New York, and North Carolina also gained more than 400 clean energy jobs each in November. Alaska, South Dakota, Wyoming, New Hampshire, Montana, and Vermont saw the smallest growth, all with less than 20 jobs gained over the past month. For growth by state, see Appendix A: State Clean Energy Job Growth in November 2020.

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 job losses in clean energy with five

³ BLS Employment Situation Summary, Dec 4. <https://www.bls.gov/news.release/empsit.nr0.htm>.

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; and Oakland County, MI. The counties that suffered hardest as a percent of their workforce are Fulton County, GA; DeKalb County, GA; and Kern County, CA. 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 October and November, 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 NOVEMBER 2020

State	CE Job Growth	Percent Growth	State	CE Job Growth	Percent Growth
Alabama	81	0.2%	Montana	18	0.2%
Alaska	11	0.2%	Nebraska	43	0.2%
Arizona	137	0.2%	Nevada	55	0.2%
Arkansas	57	0.3%	New Hampshire	18	0.1%
California	1,712	0.4%	New Jersey	78	0.2%
Colorado	160	0.3%	New Mexico	34	0.3%
Connecticut	89	0.2%	New York	484	0.3%
Delaware	27	0.2%	North Carolina	442	0.5%
District of Columbia	45	0.3%	North Dakota	29	0.3%
Florida	363	0.3%	Ohio	209	0.2%
Georgia	100	0.2%	Oklahoma	45	0.2%
Hawaii	49	0.4%	Oregon	132	0.2%
Idaho	26	0.2%	Pennsylvania	207	0.3%
Illinois	303	0.3%	Rhode Island	35	0.3%
Indiana	141	0.2%	South Carolina	72	0.1%
Iowa	39	0.1%	South Dakota	16	0.1%
Kansas	49	0.2%	Tennessee	199	0.3%
Kentucky	73	0.3%	Texas	605	0.3%
Louisiana	91	0.4%	Utah	67	0.2%
Maine	24	0.2%	Vermont	19	0.1%
Maryland	236	0.3%	Virginia	188	0.2%
Massachusetts	283	0.3%	Washington	161	0.2%
Michigan	215	0.2%	West Virginia	21	0.2%
Minnesota	96	0.2%	Wisconsin	144	0.2%
Mississippi	50	0.3%	Wyoming	17	0.2%
Missouri	89	0.2%	US TOTAL	7,880	0.3%

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

State	CE Jobs Lost	Percent Decline	State	CE Jobs Lost	Percent Decline
Alabama	7,395	16.3%	Montana	1,524	13.8%
Alaska	1,234	20.1%	Nebraska	2,514	11.4%
Arizona	6,844	10.9%	Nevada	3,913	11.5%
Arkansas	2,424	11.3%	New Hampshire	1,319	7.6%
California	76,638	13.9%	New Jersey	9,109	15.9%
Colorado	4,760	7.1%	New Mexico	1,860	14.8%
Connecticut	4,889	11.1%	New York	13,329	8.1%
Delaware	1,806	12.8%	North Carolina	18,340	16.0%
District of Columbia	2,297	14.8%	North Dakota	1,358	13.6%
Florida	24,000	14.3%	Ohio	14,774	12.7%
Georgia	26,540	30.7%	Oklahoma	4,308	18.2%
Hawaii	3,477	23.2%	Oregon	6,466	10.7%
Idaho	1,403	10.0%	Pennsylvania	17,340	17.8%
Illinois	9,770	7.5%	Rhode Island	3,029	18.5%
Indiana	11,414	12.8%	South Carolina	7,551	13.2%
Iowa	4,114	11.2%	South Dakota	596	4.8%
Kansas	2,613	9.9%	Tennessee	7,186	8.4%
Kentucky	10,913	27.9%	Texas	20,765	8.4%
Louisiana	7,253	22.7%	Utah	2,590	5.8%
Maine	1,706	12.4%	Vermont	2,040	11.2%
Maryland	9,212	10.8%	Virginia	10,600	10.7%
Massachusetts	12,968	11.4%	Washington	17,124	19.2%
Michigan	22,671	17.0%	West Virginia	1,377	13.1%
Minnesota	9,248	14.3%	Wisconsin	8,140	10.3%
Mississippi	3,320	14.9%	Wyoming	770	8.7%
Missouri	7,194	12.2%	US TOTAL	454,024	13.1%

APPENDIX C: CUMULATIVE COUNTY CLEAN ENERGY JOB LOSSES

State	County	CE Jobs Lost	% Decline
California	Los Angeles County	12,298	12.9%
Washington	King County	5,947	15.8%
Michigan	Oakland County	4,548	14.9%
Michigan	Wayne County	4,427	22.0%
California	San Diego County	4,277	8.2%
California	Orange County	4,081	7.1%
Texas	Harris County	4,010	6.8%
Georgia	Fulton County	3,785	26.9%
California	Alameda County	3,632	7.6%
Illinois	Cook County	3,589	6.4%
California	Santa Clara County	3,394	6.5%
Arizona	Maricopa County	3,258	6.6%
Massachusetts	Middlesex County	3,058	8.0%
Minnesota	Hennepin County	2,760	11.1%
California	Riverside County	2,647	10.6%
Michigan	Macomb County	2,399	18.8%
New York	New York County	2,374	5.0%
California	San Francisco County	2,256	5.9%
North Carolina	Mecklenburg County	2,243	10.9%
Massachusetts	Suffolk County	2,175	9.0%
Kentucky	Jefferson County	2,157	21.7%
Texas	Dallas County	2,128	5.8%
California	Kern County	2,028	25.0%
Ohio	Cuyahoga County	2,025	14.3%
Florida	Palm Beach County	1,956	10.9%
California	Fresno County	1,899	22.4%
Indiana	Marion County	1,823	10.9%
Pennsylvania	Allegheny County	1,793	14.1%
California	Sacramento County	1,786	9.4%
North Carolina	Wake County	1,782	10.1%
Georgia	Cobb County	1,765	22.7%
Florida	Miami-Dade County	1,751	9.1%
Georgia	Gwinnett County	1,731	23.3%
Rhode Island	Providence County	1,664	17.5%
Pennsylvania	Philadelphia County	1,660	17.6%
Florida	Broward County	1,569	10.4%
Missouri	Jackson County	1,561	15.7%
Florida	Hillsborough County	1,541	10.4%
Nevada	Clark County	1,497	9.4%
Hawaii	Honolulu County	1,485	14.0%

Massachusetts	Essex County	1,479	10.5%
Wisconsin	Waukesha County	1,463	16.3%
Oregon	Multnomah County	1,459	8.5%
Utah	Utah County	1,454	11.7%
Wisconsin	Dane County	1,442	14.6%
Florida	Orange County	1,441	9.9%
Oregon	Washington County	1,430	11.0%
California	San Bernardino County	1,426	9.8%
Michigan	Kent County	1,396	13.6%
Washington	Snohomish County	1,345	17.0%
Georgia	DeKalb County	1,296	26.3%
California	Contra Costa County	1,286	8.0%
Virginia	Fairfax County	1,245	6.2%
Wisconsin	Milwaukee County	1,218	9.8%
Florida	Duval County	1,188	11.2%
Connecticut	Hartford County	1,180	8.7%
Missouri	St. Louis County	1,180	9.0%
Maryland	Baltimore County	1,120	8.6%
Massachusetts	Norfolk County	1,115	9.0%
Ohio	Franklin County	1,074	8.0%
Massachusetts	Worcester County	1,069	11.2%
Delaware	New Castle County	1,052	10.9%
Pennsylvania	Montgomery County	1,038	11.4%
Washington	Pierce County	1,008	14.0%
Connecticut	Fairfield County	1,006	8.7%
Ohio	Hamilton County	981	8.5%
Maryland	Prince George's County	980	8.6%
Maryland	Montgomery County	974	6.7%
Pennsylvania	Lehigh County	956	12.4%
Texas	Tarrant County	942	5.8%
California	Sonoma County	938	11.4%
Tennessee	Shelby County	910	8.3%
California	San Joaquin County	905	17.0%
Massachusetts	Plymouth County	903	14.0%
Minnesota	Ramsey County	869	14.4%
Texas	Bexar County	855	5.5%
Florida	Pinellas County	854	10.2%
Kansas	Johnson County	829	10.2%
New York	Onondaga County	817	20.9%
New York	Suffolk County	812	5.5%
California	Ventura County	810	9.2%
Texas	Travis County	805	4.4%
Connecticut	New Haven County	802	9.1%

Minnesota	Dakota County	800	21.8%
Oklahoma	Oklahoma County	782	11.7%
North Carolina	Guilford County	763	11.9%
New Jersey	Morris County	749	13.8%
Massachusetts	Hampden County	747	11.9%
Alabama	Jefferson County	742	10.2%
Utah	Salt Lake County	734	4.3%
South Carolina	Charleston County	729	12.2%
California	San Mateo County	724	5.5%
Massachusetts	Bristol County	721	13.4%
Colorado	Denver County	720	5.2%
Illinois	DuPage County	671	4.9%
Indiana	Lake County	667	12.3%
New Jersey	Bergen County	658	10.2%
Florida	Lee County	657	10.7%
Ohio	Lucas County	649	13.7%
Louisiana	East Baton Rouge County	645	10.9%
New Jersey	Essex County	631	15.9%
Illinois	Lake County	622	9.7%
Idaho	Ada County	615	10.9%
Iowa	Polk County	609	8.0%
California	Stanislaus County	601	15.3%
New Jersey	Monmouth County	597	10.7%
New York	Nassau County	594	4.8%
New Jersey	Middlesex County	594	10.9%
Tennessee	Hamilton County	590	10.7%
Alabama	Madison County	586	9.2%
New York	Erie County	583	6.6%
Pennsylvania	Lancaster County	581	12.7%
Louisiana	Jefferson County	577	13.5%
New York	Queens County	565	4.8%
Washington	Clark County	558	10.5%
Ohio	Montgomery County	557	11.1%
Minnesota	Anoka County	547	15.5%
California	Monterey County	541	16.1%
Colorado	Jefferson County	540	7.7%
Colorado	Adams County	535	10.0%
Arizona	Pima County	525	7.5%
Washington	Spokane County	517	10.2%
Colorado	Arapahoe County	516	6.6%
New Hampshire	Hillsborough County	505	9.6%
Tennessee	Davidson County	494	4.1%
New Mexico	Bernalillo County	491	7.6%

Pennsylvania	Berks County	488	14.2%
South Carolina	Greenville County	484	6.7%
Nebraska	Douglas County	478	7.5%
Maryland	Anne Arundel County	475	5.9%
New York	Kings County	473	5.8%
California	Placer County	473	7.1%
New York	Westchester County	470	5.4%
Arkansas	Pulaski County	469	10.6%
Pennsylvania	York County	454	12.3%
California	Santa Barbara County	453	9.6%
Indiana	Allen County	452	8.4%
Florida	Polk County	445	12.2%
Ohio	Summit County	443	8.5%
Missouri	St. Charles County	438	13.1%
Pennsylvania	Bucks County	437	8.4%
Tennessee	Knox County	427	6.9%
Ohio	Stark County	425	14.6%
Oregon	Clackamas County	418	8.1%
California	Tulare County	405	15.3%
Virginia	Loudoun County	403	7.7%
Kansas	Sedgwick County	403	8.9%
Oklahoma	Tulsa County	401	6.5%
Ohio	Butler County	395	15.0%
South Carolina	Richland County	394	10.1%
Texas	Collin County	392	5.3%
Oregon	Lane County	381	10.8%
Pennsylvania	Chester County	376	7.4%
Virginia	Prince William County	370	9.6%
New Jersey	Union County	366	11.9%
New Jersey	Mercer County	362	11.6%
Michigan	Washtenaw County	357	9.3%
Pennsylvania	Delaware County	354	10.6%
New York	Monroe County	353	6.0%
Texas	Nueces County	349	11.0%
Nevada	Washoe County	346	5.6%
Florida	Sarasota County	342	9.4%
Colorado	El Paso County	341	6.2%
Illinois	Will County	332	6.9%
New Jersey	Burlington County	332	10.4%
Illinois	Kane County	320	7.7%
Texas	Montgomery County	318	9.1%
Florida	Volusia County	317	11.0%
North Carolina	Forsyth County	306	9.2%

Michigan	Genesee County	305	10.2%
Florida	Brevard County	304	6.4%
New Jersey	Ocean County	302	9.1%
Alabama	Mobile County	301	7.6%
Texas	El Paso County	297	6.6%
New Jersey	Camden County	282	9.7%
New York	Richmond County	276	12.3%
Utah	Davis County	273	7.0%
Florida	Collier County	270	7.9%
Louisiana	Orleans County	269	10.2%
Texas	Hidalgo County	268	11.5%
Florida	Seminole County	262	5.5%
Florida	Manatee County	261	10.9%
South Carolina	Horry County	244	11.2%
New York	Bronx County	232	7.5%
New Jersey	Passaic County	227	11.5%
New Jersey	Hudson County	223	10.3%
California	Solano County	219	7.3%
Texas	Brazoria County	218	9.3%
Texas	Williamson County	212	6.8%
Texas	Denton County	210	5.1%
Colorado	Larimer County	198	5.2%
Texas	Fort Bend County	185	6.0%
Florida	Marion County	160	8.2%
New York	Orange County	159	7.1%
Florida	Pasco County	153	7.0%
Texas	Cameron County	144	11.8%
Texas	Bell County	126	8.9%
Florida	Lake County	121	6.7%
Florida	Osceola County	92	7.8%
Arizona	Pinal County	68	9.0%

APPENDIX D: CUMULATIVE MSA CLEAN ENERGY JOB LOSSES

MSA	CE Jobs Lost	% Decline
Los Angeles-Long Beach-Santa Ana, CA MSA	38,798	26.5%
New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	26,472	17.2%
Chicago-Naperville-Joliet, IL-IN-WI MSA	23,339	22.7%
San Francisco-Oakland-Fremont, CA MSA	20,057	16.3%
Houston-Sugar Land-Baytown, TX MSA	16,581	25.5%
Washington-Arlington-Alexandria, DC-VA-MD-WV MSA	14,882	16.7%
Seattle-Tacoma-Bellevue, WA MSA	12,819	26.5%
Dallas-Fort Worth-Arlington, TX MSA	12,724	21.7%
Detroit-Warren-Livonia, MI MSA	12,724	22.9%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA	12,609	25.5%
Miami-Fort Lauderdale-Pompano Beach, FL MSA	12,284	20.1%
Atlanta-Sandy Springs-Marietta, GA MSA	12,018	21.8%
Phoenix-Mesa-Scottsdale, AZ MSA	11,830	24.9%
Boston-Cambridge-Quincy, MA-NH MSA	11,347	11.8%
San Diego-Carlsbad-San Marcos, CA MSA	11,150	19.2%
Riverside-San Bernardino-Ontario, CA MSA	9,368	24.4%
Cleveland-Elyria-Mentor, OH MSA	8,297	37.0%
Sacramento-Arden-Arcade-Roseville, CA MSA	7,322	22.7%
Denver-Aurora, CO MSA	7,305	21.0%
Baltimore-Towson, MD MSA	7,183	18.5%
Minneapolis-St. Paul-Bloomington, MN-WI MSA	7,179	17.1%
Las Vegas-Paradise, NV MSA	7,042	31.9%
Portland-Vancouver-Beaverton, OR-WA MSA	5,899	16.5%
Pittsburgh, PA MSA	5,575	30.8%
St. Louis, MO-IL MSA	5,504	20.3%
San Jose-Sunnyvale-Santa Clara, CA MSA	5,319	16.3%
Tampa-St. Petersburg-Clearwater, FL MSA	4,990	22.6%
Cincinnati-Middletown, OH-KY-IN MSA	4,869	23.9%
Austin-Round Rock, TX MSA	4,623	17.6%
Charlotte-Gastonia-Concord, NC-SC MSA	4,544	18.2%
San Antonio, TX MSA	4,489	21.1%
Kansas City, MO-KS MSA	3,998	19.2%
Columbus, OH MSA	3,830	22.7%
Indianapolis-Carmel, IN MSA	3,792	15.3%
Salt Lake City, UT MSA	3,641	20.1%
Milwaukee-Waukesha-West Allis, WI MSA	3,332	16.2%
Louisville/Jefferson County, KY-IN MSA	3,331	23.5%
Orlando-Kissimmee, FL MSA	3,309	19.6%
Virginia Beach-Norfolk-Newport News, VA-NC MSA	3,285	17.8%
Nashville-Davidson-Murfreesboro-Franklin, TN MSA	3,110	12.9%

New Orleans-Metairie-Kenner, LA MSA	3,085	29.1%
Memphis, TN-AR-MS MSA	3,073	20.6%
Raleigh-Cary, NC MSA	2,826	17.5%
Richmond, VA MSA	2,777	16.9%
Hartford-West Hartford-East Hartford, CT MSA	2,686	18.1%
Reno-Sparks, NV MSA	2,672	27.2%
Jacksonville, FL MSA	2,562	23.0%
Buffalo-Niagara Falls, NY MSA	2,088	23.6%
Birmingham-Hoover, AL MSA	2,054	15.4%
Albuquerque, NM MSA	1,913	26.6%
Rochester, NY MSA	1,797	21.6%
Providence-New Bedford-Fall River, RI-MA MSA	1,565	21.8%
Des Moines-West Des Moines, IA MSA	1,190	18.1%
Oklahoma City, OK MSA	1,038	12.1%
Flint, MI MSA	752	19.8%
Honolulu, HI MSA	701	7.4%

APPENDIX E: STATE ENERGY EFFICIENCY JOB GROWTH IN NOVEMBER 2020

State	EE Job Growth	Percent Growth	State	EE Job Growth	Percent Growth
Alabama	57	0.2%	Montana	15	0.2%
Alaska	9	0.2%	Nebraska	29	0.2%
Arizona	98	0.2%	Nevada	20	0.2%
Arkansas	42	0.3%	New Hampshire	12	0.1%
California	1,005	0.4%	New Jersey	51	0.2%
Colorado	87	0.3%	New Mexico	17	0.3%
Connecticut	74	0.2%	New York	373	0.3%
Delaware	24	0.2%	North Carolina	341	0.5%
District of Columbia	37	0.3%	North Dakota	17	0.4%
Florida	265	0.3%	Ohio	150	0.2%
Georgia	73	0.2%	Oklahoma	29	0.2%
Hawaii	26	0.6%	Oregon	100	0.3%
Idaho	17	0.2%	Pennsylvania	158	0.3%
Illinois	212	0.3%	Rhode Island	28	0.3%
Indiana	89	0.2%	South Carolina	39	0.1%
Iowa	25	0.1%	South Dakota	10	0.1%
Kansas	33	0.2%	Tennessee	134	0.3%
Kentucky	49	0.3%	Texas	419	0.3%
Louisiana	66	0.4%	Utah	49	0.2%
Maine	16	0.2%	Vermont	12	0.1%
Maryland	195	0.3%	Virginia	150	0.2%
Massachusetts	176	0.3%	Washington	120	0.2%
Michigan	138	0.2%	West Virginia	14	0.2%
Minnesota	71	0.2%	Wisconsin	116	0.2%
Mississippi	37	0.3%	Wyoming	15	0.2%
Missouri	65	0.2%	US TOTAL	5,400	0.3%

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

State	EE Jobs Lost	Percent Decline	State	EE Jobs Lost	Percent Decline
Alabama	5,313	16.8%	Montana	1,260	14.3%
Alaska	972	20.7%	Nebraska	1,672	12.0%
Arizona	4,968	11.1%	Nevada	1,478	12.3%
Arkansas	1,801	11.6%	New Hampshire	949	8.0%
California	45,331	14.0%	New Jersey	6,151	16.2%
Colorado	2,649	7.3%	New Mexico	963	15.8%
Connecticut	4,071	11.3%	New York	10,103	8.0%
Delaware	1,593	12.7%	North Carolina	13,971	15.9%
District of Columbia	1,902	14.7%	North Dakota	780	14.0%
Florida	17,845	14.4%	Ohio	10,798	13.0%
Georgia	19,557	31.1%	Oklahoma	2,781	18.5%
Hawaii	1,541	25.3%	Oregon	4,780	11.1%
Idaho	951	10.5%	Pennsylvania	13,315	18.6%
Illinois	6,887	7.6%	Rhode Island	2,445	18.8%
Indiana	7,407	13.3%	South Carolina	4,145	13.5%
Iowa	2,542	12.0%	South Dakota	379	5.0%
Kansas	1,794	10.1%	Tennessee	4,895	9.1%
Kentucky	7,546	28.8%	Texas	14,464	8.5%
Louisiana	5,269	22.7%	Utah	1,922	5.9%
Maine	1,180	13.3%	Vermont	1,287	11.7%
Maryland	7,606	10.7%	Virginia	8,547	10.7%
Massachusetts	8,258	11.6%	Washington	12,959	20.0%
Michigan	14,755	17.3%	West Virginia	952	13.3%
Minnesota	6,842	14.5%	Wisconsin	6,554	10.3%
Mississippi	2,399	15.3%	Wyoming	661	8.7%
Missouri	5,273	12.4%	US TOTAL	314,464	13.3%

APPENDIX G: MONTHLY CLEAN ENERGY JOB LOSSES BY STATE

(Negative values denote job growth)

State	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Total
Alabama	1,383	7,261	334	-1,062	-80	-110	-108	-223	-81	7,314
Alaska	328	1,073	88	-163	-17	-22	-17	-37	-11	1,223
Arizona	1,484	7,433	359	-1,440	-159	-184	-191	-460	-137	6,707
Arkansas	555	2,533	119	-480	-52	-72	-54	-124	-57	2,368
California	27,583	77,815	4,313	-19,831	-2,346	-3,097	-2,612	-5,188	-1,712	74,927
Colorado	1,326	5,952	252	-1,466	-333	-305	-202	-464	-160	4,599
Connecticut	1,037	5,191	323	-887	-131	-197	-148	-300	-89	4,800
Delaware	729	1,766	99	-539	-43	-45	-50	-111	-27	1,779
District of Columbia	935	1,843	119	-277	-57	-74	-54	-138	-45	2,252
Florida	3,963	25,949	2,563	-5,832	-397	-596	-483	-1,167	-363	23,636
Georgia	1,909	25,282	1,741	-1,579	-121	-174	-159	-358	-100	26,440
Hawaii	908	3,351	154	-612	-55	-32	-64	-174	-49	3,428
Idaho	580	1,229	54	-298	-26	-29	-24	-83	-26	1,378
Illinois	4,524	12,007	926	-4,733	-565	-604	-645	-1,140	-303	9,467
Indiana	3,766	10,954	511	-2,741	-217	-200	-256	-403	-141	11,273
Iowa	1,388	3,758	162	-860	-57	-58	-91	-126	-39	4,076
Kansas	1,023	2,436	125	-556	-82	-104	-80	-149	-49	2,564
Kentucky	2,180	9,383	559	-895	-30	-53	-114	-117	-73	10,839
Louisiana	2,135	6,220	294	-940	-67	-90	-88	-212	-91	7,162
Maine	682	1,382	130	-295	-26	-52	-38	-76	-24	1,682
Maryland	2,857	9,055	726	-2,146	-188	-233	-240	-619	-236	8,976
Massachusetts	6,726	12,147	776	-3,750	-620	-848	-541	-921	-283	12,686
Michigan	7,867	22,245	1,012	-6,465	-437	-351	-530	-670	-215	22,456
Minnesota	3,536	7,628	382	-1,478	-135	-162	-194	-329	-96	9,152
Mississippi	511	3,379	306	-577	-42	-63	-74	-120	-50	3,270
Missouri	2,108	6,864	340	-1,461	-111	-134	-177	-235	-89	7,105
Montana	622	1,213	51	-233	-23	-27	-24	-56	-18	1,506
Nebraska	806	2,495	143	-652	-38	-53	-58	-131	-43	2,471
Nevada	1,176	3,686	149	-767	-51	-73	-71	-136	-55	3,858
New Hampshire	498	1,134	63	-224	-34	-33	-31	-54	-18	1,301
New Jersey	3,252	8,115	422	-1,912	-160	-183	-150	-275	-78	9,031
New Mexico	711	1,759	80	-426	-62	-72	-56	-73	-34	1,827
New York	6,006	13,868	848	-3,314	-549	-1,185	-809	-1,536	-484	12,846
North Carolina	9,124	17,138	955	-5,837	-539	-683	-624	-1,193	-442	17,898
North Dakota	335	1,399	120	-311	-26	-40	-47	-72	-29	1,329
Ohio	6,929	12,879	612	-3,837	-286	-331	-447	-744	-209	14,565
Oklahoma	718	4,143	390	-697	-36	-56	-53	-101	-45	4,262
Oregon	1,747	7,206	516	-2,007	-183	-205	-203	-404	-132	6,334
Pennsylvania	8,283	12,780	571	-2,689	-256	-400	-407	-542	-207	17,133

Rhode Island	1,351	2,460	75	-532	-48	-62	-78	-136	-35	2,994
South Carolina	1,427	7,869	382	-1,570	-80	-144	-150	-182	-72	7,479
South Dakota	165	784	65	-305	-19	-25	-26	-44	-16	580
Tennessee	2,297	7,878	460	-2,284	-185	-250	-334	-397	-199	6,987
Texas	5,965	25,170	1,709	-7,997	-608	-833	-736	-1,904	-605	20,160
Utah	1,073	2,826	120	-987	-63	-74	-78	-228	-67	2,523
Vermont	651	2,029	68	-490	-51	-68	-37	-62	-19	2,021
Virginia	2,828	10,845	666	-2,236	-279	-351	-257	-615	-188	10,413
Washington	5,646	14,433	1,163	-2,729	-226	-309	-286	-569	-161	16,963
West Virginia	205	1,610	48	-325	-22	-28	-36	-74	-21	1,356
Wisconsin	3,020	7,814	532	-2,392	-141	-161	-222	-310	-144	7,996
Wyoming	281	747	58	-203	-16	-19	-23	-55	-17	753
US TOTAL	147,139	446,416	27,035	-106,320	-10,373	-13,556	-12,479	-23,838	-7,880	446,144

APPENDIX H: MONTHLY CLEAN ENERGY JOB LOSSES BY MAJOR TECHNOLOGY

(Negative values denote job growth)

State	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Total
Renewable Electric Power Generation	23,739	71,705	4,272	-17,287	-1,918	-2,571	-2,273	-3,965	-1,348	70,356
Clean Transmission, Distribution, & Storage	6,517	19,666	1,166	-4,561	-428	-482	-510	-1,042	-336	19,990
Energy Efficiency	103,298	309,584	18,880	-71,786	-6,836	-8,116	-8,354	-16,806	-5,400	314,464
Clean Fuels	2,186	10,390	657	-2,351	-296	-205	-378	-409	-150	9,445
Clean Vehicles	11,399	35,070	2,059	-10,335	-896	-2,182	-965	-1,615	-646	31,889
Total	147,139	446,416	27,035	-106,320	-10,373	-13,556	-12,479	-23,838	-7,880	446,144