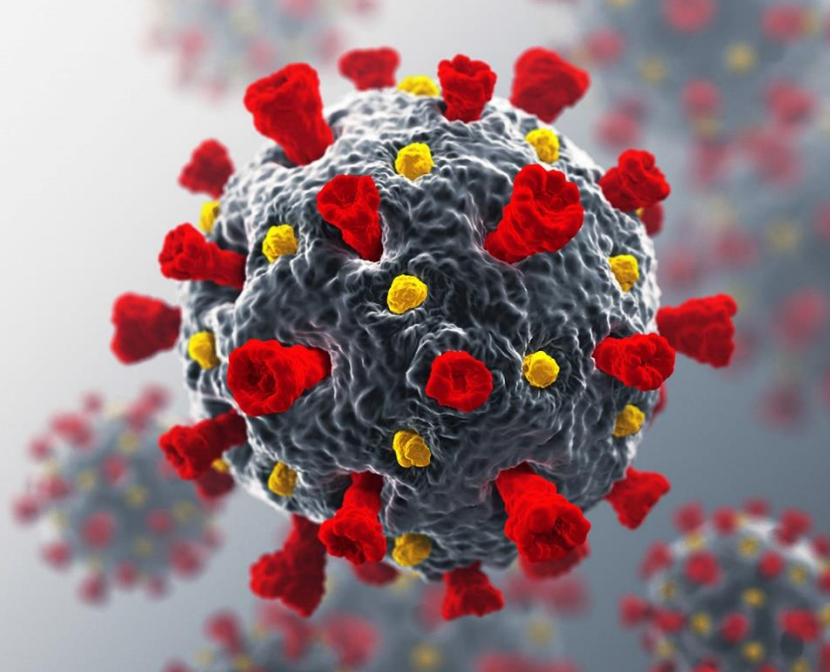


To: E2, E4TheFuture, and ACORE
From: Philip Jordan
Vice-President, BW Research Partnership
Date: February 8, 2021

MEMORANDUM

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



INTRODUCTION

BW Research finds that the U.S. clean energy sector's workforce grew by only 0.4 percent in December, with the addition of 13,300 jobs. This leaves 338,500 clean energy workers out of work since February 2020 – a 10 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 ended 2020 with less of a rebound than expected. Concerns raised in memoranda from prior months continue, including record-breaking levels of new and continuing unemployment claims.

The January 8th jobs report, which showed that the U.S. private economy lost 95,000 jobs over the previous month, covers the first two weeks of December. These lost jobs were primarily outside of clean energy and fall in industries like leisure and hospitality, educational services, and other services. While the recent jobs report shows an employment plateau for the economy at-large, alarming trends remain.

Driven by job losses at the state and local level, public sector employment dropped significantly in this month's jobs report, continuing the dramatic decline over the past three months. This is likely due to state economies straining under falling revenues and increased COVID-related expenses. Weekly unemployment claims continue at an historically high pace. The January 7th weekly claims data showed a slight increase 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 4.0 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 3.4 million job losses, 31 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.

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

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

² Bureau of Labor Statistics (BLS) Employment Situation Summary, Jan 8. <https://www.bls.gov/news.release/empsit.nr0.htm>.

workers continue to suffer from disproportionately high levels of unemployment overall, and Hispanic workers suffered increased unemployment rates in December.³ Women – particularly women of color – lost jobs in December overall while men gained jobs.⁴

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 December unemployment data show job growth was no more than one percent for each of the clean energy sectors:

- Energy efficiency, the largest clean energy sector, experienced a half percent gain in employment, with the addition of 9,700 jobs. The energy efficiency sector continues to suffer from 238,400 job losses impacting 10 percent of its workforce. For more information on state level energy efficiency impacts, see Appendix E: State Energy Efficiency Job Growth in December 2020.
- Renewable electric power generation saw a less than half percent rise in employment, with about 2,200 jobs regained in December. A total of 53,200 renewable electric power generation workers (9 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 December, gaining 500 and 600 jobs, respectively. The complete impact of the pandemic on clean fuels and clean transmission, distribution, and storage totals 7,000 and 15,200 lost jobs from their respective, pre-pandemic employment levels. Clean fuels jobs have dropped more than 6 percent since March, while clean transmission, distribution, and storage jobs have dropped 10 percent thus far.
- Clean vehicles added back less than half a percent of its workforce, or about 300 jobs in December. The clean vehicles sector continues to experience a more than 9 percent decline in jobs over its pre-COVID-19 employment levels. This translates to 24,800 ongoing job losses.

California had the largest monthly increase with 2,600 jobs returning in December, or a half percent of its clean energy workforce. Hawaii saw the highest percentage of clean energy workforce growth at 0.9 percent for a total gain of more than 100 jobs. Texas, New York, North Carolina, and Florida also gained more than 600 clean energy jobs each in December. South Dakota, Alaska, Wyoming, New Hampshire, Montana, Vermont, and West Virginia saw the smallest growth, all with less than 40 jobs gained over the past month. For growth by state, see Appendix A: State Clean Energy Job Growth in December 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 20 states continue to suffer double digit job losses in clean energy with five

³ BLS Employment Situation Summary, Jan 8. <https://www.bls.gov/news.release/empsit.nr0.htm>.

⁴ Id.

states facing 15 percent or greater unemployment and one state, Georgia, facing nearly 24 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; Oakland County, MI; Wayne County, MI; and San Diego County, CA. 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 Metropolitan Statistical Areas (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 Metropolitan Statistical Area (MSA) Clean Energy Job Losses.

METHODOLOGY

Bureau of Labor Statistics (BLS) employment reports for November and December, as well as the Department of Labor (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 DECEMBER 2020

State	CE Job Growth	Percent Growth	State	CE Job Growth	Percent Growth
Alabama	106	0.3%	Montana	33	0.3%
Alaska	28	0.6%	Nebraska	86	0.4%
Arizona	250	0.4%	Nevada	92	0.3%
Arkansas	101	0.5%	New Hampshire	33	0.2%
California	2,617	0.5%	New Jersey	115	0.2%
Colorado	312	0.5%	New Mexico	73	0.7%
Connecticut	215	0.5%	New York	801	0.5%
Delaware	46	0.4%	North Carolina	679	0.7%
District of Columbia	79	0.6%	North Dakota	48	0.5%
Florida	651	0.4%	Ohio	354	0.3%
Georgia	239	0.4%	Oklahoma	75	0.4%
Hawaii	113	0.9%	Oregon	219	0.4%
Idaho	44	0.3%	Pennsylvania	320	0.4%
Illinois	526	0.4%	Rhode Island	71	0.5%
Indiana	235	0.3%	South Carolina	129	0.3%
Iowa	78	0.2%	South Dakota	26	0.2%
Kansas	98	0.4%	Tennessee	238	0.3%
Kentucky	91	0.3%	Texas	1,198	0.5%
Louisiana	146	0.6%	Utah	127	0.3%
Maine	43	0.3%	Vermont	35	0.2%
Maryland	374	0.5%	Virginia	318	0.3%
Massachusetts	469	0.5%	Washington	308	0.4%
Michigan	408	0.4%	West Virginia	36	0.4%
Minnesota	169	0.3%	Wisconsin	206	0.3%
Mississippi	79	0.4%	Wyoming	29	0.4%
Missouri	148	0.3%	US TOTAL	13,315	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	5,665	12.5%	Montana	1,157	10.5%
Alaska	940	15.3%	Nebraska	1,863	8.5%
Arizona	5,056	8.1%	Nevada	2,958	8.7%
Arkansas	1,770	8.2%	New Hampshire	994	5.8%
California	56,370	10.2%	New Jersey	7,009	12.2%
Colorado	3,323	4.9%	New Mexico	1,367	10.9%
Connecticut	3,573	8.1%	New York	9,337	5.7%
Delaware	1,359	9.6%	North Carolina	13,348	11.6%
District of Columbia	1,697	10.9%	North Dakota	999	10.0%
Florida	18,006	10.7%	Ohio	11,116	9.6%
Georgia	20,676	23.9%	Oklahoma	3,291	13.9%
Hawaii	2,585	17.2%	Oregon	4,775	7.9%
Idaho	1,044	7.4%	Pennsylvania	13,204	13.6%
Illinois	6,938	5.3%	Rhode Island	2,291	14.0%
Indiana	8,649	9.7%	South Carolina	5,755	10.0%
Iowa	3,137	8.6%	South Dakota	434	3.5%
Kansas	1,921	7.3%	Tennessee	5,276	6.2%
Kentucky	8,485	21.7%	Texas	14,732	6.0%
Louisiana	5,525	17.3%	Utah	1,873	4.2%
Maine	1,286	9.4%	Vermont	1,556	8.5%
Maryland	6,728	7.9%	Virginia	7,910	7.9%
Massachusetts	9,496	8.3%	Washington	13,096	14.7%
Michigan	17,191	12.9%	West Virginia	1,035	9.9%
Minnesota	7,060	10.9%	Wisconsin	6,092	7.7%
Mississippi	2,501	11.3%	Wyoming	567	6.4%
Missouri	5,461	9.2%	US TOTAL	338,475	9.8%

APPENDIX C: CUMULATIVE COUNTY CLEAN ENERGY JOB LOSSES

State	County	CE Jobs Lost	% Decline
California	Los Angeles County	12,908	13.6%
Washington	King County	6,032	16.0%
Michigan	Oakland County	4,764	15.6%
Michigan	Wayne County	4,606	22.9%
California	San Diego County	4,513	8.6%
California	Orange County	4,312	7.6%
Texas	Harris County	4,231	7.2%
Illinois	Cook County	3,959	7.0%
California	Alameda County	3,836	8.0%
Georgia	Fulton County	3,737	26.5%
California	Santa Clara County	3,589	6.9%
Arizona	Maricopa County	3,351	6.8%
Massachusetts	Middlesex County	3,262	8.5%
Minnesota	Hennepin County	2,831	11.4%
California	Riverside County	2,786	11.2%
Michigan	Macomb County	2,503	19.6%
New York	New York County	2,476	5.2%
California	San Francisco County	2,387	6.3%
North Carolina	Mecklenburg County	2,383	11.6%
Massachusetts	Suffolk County	2,317	9.5%
Texas	Dallas County	2,250	6.1%
Kentucky	Jefferson County	2,151	21.7%
Ohio	Cuyahoga County	2,125	15.1%
California	Kern County	2,103	25.9%
Florida	Palm Beach County	2,009	11.2%
California	Fresno County	1,974	23.3%
Indiana	Marion County	1,898	11.3%
North Carolina	Wake County	1,896	10.7%
California	Sacramento County	1,883	9.9%
Pennsylvania	Allegheny County	1,845	14.6%
Florida	Miami-Dade County	1,801	9.4%
Georgia	Cobb County	1,742	22.4%
Georgia	Gwinnett County	1,708	23.0%
Pennsylvania	Philadelphia County	1,706	18.1%
Rhode Island	Providence County	1,662	17.4%
Florida	Broward County	1,612	10.7%
Missouri	Jackson County	1,584	16.0%
Florida	Hillsborough County	1,584	10.7%
Massachusetts	Essex County	1,572	11.2%
Utah	Utah County	1,544	12.4%

Nevada	Clark County	1,540	9.7%
Wisconsin	Dane County	1,536	15.6%
Oregon	Multnomah County	1,531	9.0%
Hawaii	Honolulu County	1,512	14.2%
California	San Bernardino County	1,503	10.3%
Wisconsin	Waukesha County	1,493	16.7%
Florida	Orange County	1,481	10.2%
Oregon	Washington County	1,458	11.2%
Michigan	Kent County	1,423	13.8%
Washington	Snohomish County	1,363	17.2%
California	Contra Costa County	1,358	8.4%
Virginia	Fairfax County	1,282	6.4%
Georgia	DeKalb County	1,280	25.9%
Wisconsin	Milwaukee County	1,274	10.2%
Florida	Duval County	1,219	11.5%
Missouri	St. Louis County	1,218	9.3%
Connecticut	Hartford County	1,191	8.8%
Massachusetts	Norfolk County	1,188	9.5%
Maryland	Baltimore County	1,148	8.8%
Massachusetts	Worcester County	1,136	11.9%
Ohio	Franklin County	1,134	8.4%
Delaware	New Castle County	1,089	11.3%
Pennsylvania	Montgomery County	1,070	11.8%
Ohio	Hamilton County	1,035	9.0%
Washington	Pierce County	1,023	14.3%
Connecticut	Fairfield County	1,015	8.8%
Maryland	Prince George's County	1,004	8.8%
Maryland	Montgomery County	999	6.8%
Texas	Tarrant County	996	6.1%
Pennsylvania	Lehigh County	984	12.8%
California	Sonoma County	981	11.9%
Tennessee	Shelby County	967	8.8%
California	San Joaquin County	946	17.7%
Massachusetts	Plymouth County	919	14.3%
Texas	Bexar County	904	5.8%
Minnesota	Ramsey County	884	14.7%
Florida	Pinellas County	877	10.4%
Kansas	Johnson County	859	10.6%
California	Ventura County	854	9.7%
Texas	Travis County	852	4.7%
New York	Onondaga County	852	21.8%
New York	Suffolk County	846	5.7%
Minnesota	Dakota County	837	22.8%

Connecticut	New Haven County	809	9.2%
Utah	Salt Lake County	787	4.7%
Oklahoma	Oklahoma County	785	11.7%
New Jersey	Morris County	785	14.4%
North Carolina	Guilford County	779	12.2%
Alabama	Jefferson County	777	10.7%
California	San Mateo County	767	5.9%
Massachusetts	Hampden County	757	12.1%
South Carolina	Charleston County	757	12.7%
Colorado	Denver County	744	5.3%
Illinois	DuPage County	743	5.5%
Massachusetts	Bristol County	738	13.7%
Indiana	Lake County	687	12.7%
New Jersey	Bergen County	687	10.7%
Louisiana	East Baton Rouge County	679	11.5%
Florida	Lee County	674	11.0%
Ohio	Lucas County	661	14.0%
New Jersey	Essex County	656	16.5%
Illinois	Lake County	643	10.0%
Iowa	Polk County	640	8.5%
Idaho	Ada County	625	11.1%
New Jersey	Monmouth County	622	11.1%
New Jersey	Middlesex County	620	11.3%
New York	Nassau County	620	5.1%
Alabama	Madison County	613	9.7%
California	Stanislaus County	611	15.6%
New York	Erie County	607	6.9%
Ohio	Montgomery County	606	12.0%
Tennessee	Hamilton County	602	10.9%
Pennsylvania	Lancaster County	597	13.1%
New York	Queens County	589	5.1%
Louisiana	Jefferson County	584	13.7%
Washington	Clark County	576	10.8%
California	Monterey County	559	16.6%
Minnesota	Anoka County	557	15.8%
Tennessee	Davidson County	556	4.6%
Colorado	Jefferson County	547	7.8%
Colorado	Adams County	542	10.1%
Arizona	Pima County	540	7.7%
Colorado	Arapahoe County	538	6.8%
New Mexico	Bernalillo County	536	8.2%
Washington	Spokane County	530	10.5%
New Hampshire	Hillsborough County	529	10.1%

South Carolina	Greenville County	526	7.3%
Pennsylvania	Berks County	499	14.5%
Nebraska	Douglas County	496	7.8%
Maryland	Anne Arundel County	496	6.1%
New York	Kings County	493	6.0%
California	Placer County	493	7.4%
New York	Westchester County	490	5.6%
Arkansas	Pulaski County	481	10.9%
Indiana	Allen County	479	8.9%
California	Santa Barbara County	464	9.8%
Pennsylvania	York County	463	12.6%
Missouri	St. Charles County	463	13.8%
Florida	Polk County	457	12.5%
Ohio	Summit County	455	8.8%
Pennsylvania	Bucks County	451	8.7%
Oregon	Clackamas County	444	8.6%
Tennessee	Knox County	441	7.2%
Ohio	Stark County	434	14.9%
Kansas	Sedgwick County	431	9.5%
Virginia	Loudoun County	426	8.2%
Oklahoma	Tulsa County	424	6.8%
South Carolina	Richland County	415	10.6%
Texas	Collin County	415	5.7%
California	Tulare County	412	15.6%
Pennsylvania	Chester County	403	7.9%
Ohio	Butler County	400	15.2%
New Jersey	Union County	400	13.1%
Oregon	Lane County	388	11.0%
Michigan	Washtenaw County	382	9.9%
New Jersey	Mercer County	378	12.1%
Virginia	Prince William County	378	9.8%
New York	Monroe County	367	6.3%
Nevada	Washoe County	365	5.9%
Pennsylvania	Delaware County	360	10.8%
Florida	Sarasota County	359	9.9%
Texas	Nueces County	358	11.3%
Colorado	El Paso County	352	6.4%
Illinois	Will County	347	7.3%
New Jersey	Burlington County	346	10.9%
Illinois	Kane County	342	8.2%
Texas	Montgomery County	334	9.5%
Florida	Volusia County	332	11.6%
Florida	Brevard County	317	6.7%

New Jersey	Ocean County	315	9.5%
Texas	El Paso County	313	6.9%
North Carolina	Forsyth County	313	9.5%
Michigan	Genesee County	311	10.5%
Alabama	Mobile County	307	7.8%
New Jersey	Camden County	294	10.1%
Utah	Davis County	288	7.4%
New York	Richmond County	286	12.8%
Texas	Hidalgo County	281	12.1%
Louisiana	Orleans County	276	10.5%
Florida	Collier County	275	8.1%
Florida	Seminole County	274	5.8%
Florida	Manatee County	269	11.2%
South Carolina	Horry County	254	11.7%
New York	Bronx County	241	7.8%
New Jersey	Passaic County	234	11.8%
Texas	Brazoria County	231	9.9%
New Jersey	Hudson County	231	10.7%
California	Solano County	229	7.6%
Texas	Williamson County	227	7.3%
Texas	Denton County	222	5.4%
Colorado	Larimer County	204	5.3%
Texas	Fort Bend County	195	6.4%
Florida	Marion County	169	8.6%
Florida	Pasco County	167	7.7%
New York	Orange County	167	7.5%
Texas	Cameron County	146	12.0%
Texas	Bell County	132	9.4%
Florida	Lake County	129	7.1%
Florida	Osceola County	102	8.7%
Arizona	Pinal County	74	9.9%

APPENDIX D: CUMULATIVE METROPOLITAN STATISTICAL AREA (MSA) CLEAN ENERGY JOB LOSSES

MSA	CE Jobs Lost	% Decline
Los Angeles-Long Beach-Santa Ana, CA MSA	30,282	20.7%
New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	20,264	13.2%
Chicago-Naperville-Joliet, IL-IN-WI MSA	18,244	17.7%
San Francisco-Oakland-Fremont, CA MSA	15,545	12.7%
Houston-Sugar Land-Baytown, TX MSA	12,963	20.0%
Washington-Arlington-Alexandria, DC-VA-MD-WV MSA	11,563	13.0%
Seattle-Tacoma-Bellevue, WA MSA	10,145	21.0%
Dallas-Fort Worth-Arlington, TX MSA	9,936	17.0%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA	9,914	20.0%
Detroit-Warren-Livonia, MI MSA	9,855	17.8%
Miami-Fort Lauderdale-Pompano Beach, FL MSA	9,569	15.7%
Atlanta-Sandy Springs-Marietta, GA MSA	9,434	17.1%
Phoenix-Mesa-Scottsdale, AZ MSA	9,291	19.6%
Boston-Cambridge-Quincy, MA-NH MSA	8,693	9.1%
San Diego-Carlsbad-San Marcos, CA MSA	8,674	14.9%
Riverside-San Bernardino-Ontario, CA MSA	7,325	19.1%
Cleveland-Elyria-Mentor, OH MSA	6,629	29.6%
Sacramento-Arden-Arcade-Roseville, CA MSA	5,732	17.8%
Denver-Aurora, CO MSA	5,701	16.4%
Minneapolis-St. Paul-Bloomington, MN-WI MSA	5,632	13.4%
Baltimore-Towson, MD MSA	5,597	14.4%
Las Vegas-Paradise, NV MSA	5,518	25.0%
Portland-Vancouver-Beaverton, OR-WA MSA	4,575	12.8%
Pittsburgh, PA MSA	4,428	24.4%
St. Louis, MO-IL MSA	4,329	16.0%
San Jose-Sunnyvale-Santa Clara, CA MSA	4,142	12.7%
Tampa-St. Petersburg-Clearwater, FL MSA	3,922	17.8%
Cincinnati-Middletown, OH-KY-IN MSA	3,841	18.8%
Austin-Round Rock, TX MSA	3,597	13.7%
Charlotte-Gastonia-Concord, NC-SC MSA	3,537	14.1%
San Antonio, TX MSA	3,498	16.4%
Kansas City, MO-KS MSA	3,134	15.0%
Columbus, OH MSA	3,016	17.9%
Indianapolis-Carmel, IN MSA	2,946	11.9%
Salt Lake City, UT MSA	2,867	15.8%
Louisville/Jefferson County, KY-IN MSA	2,624	18.5%
Milwaukee-Waukesha-West Allis, WI MSA	2,589	12.6%
Virginia Beach-Norfolk-Newport News, VA-NC MSA	2,565	13.9%
Orlando-Kissimmee, FL MSA	2,564	15.2%

New Orleans-Metairie-Kenner, LA MSA	2,420	22.9%
Nashville-Davidson-Murfreesboro-Franklin, TN MSA	2,419	10.0%
Memphis, TN-AR-MS MSA	2,402	16.1%
Raleigh-Cary, NC MSA	2,203	13.7%
Richmond, VA MSA	2,166	13.2%
Reno-Sparks, NV MSA	2,115	21.6%
Hartford-West Hartford-East Hartford, CT MSA	2,082	14.0%
Jacksonville, FL MSA	2,019	18.2%
Buffalo-Niagara Falls, NY MSA	1,640	18.5%
Birmingham-Hoover, AL MSA	1,606	12.1%
Albuquerque, NM MSA	1,508	21.0%
Rochester, NY MSA	1,408	16.9%
Providence-New Bedford-Fall River, RI-MA MSA	1,222	17.0%
Des Moines-West Des Moines, IA MSA	936	14.2%
Oklahoma City, OK MSA	797	9.3%
Flint, MI MSA	586	15.4%
Honolulu, HI MSA	490	5.2%

APPENDIX E: STATE ENERGY EFFICIENCY JOB GROWTH IN DECEMBER 2020

State	EE Job Growth	Percent Growth	State	EE Job Growth	Percent Growth
Alabama	77	0.3%	Montana	29	0.4%
Alaska	23	0.6%	Nebraska	54	0.4%
Arizona	190	0.5%	Nevada	36	0.3%
Arkansas	76	0.5%	New Hampshire	24	0.2%
California	1,697	0.6%	New Jersey	87	0.3%
Colorado	172	0.5%	New Mexico	41	0.8%
Connecticut	191	0.6%	New York	674	0.6%
Delaware	42	0.4%	North Carolina	543	0.7%
District of Columbia	69	0.6%	North Dakota	28	0.6%
Florida	502	0.5%	Ohio	273	0.4%
Georgia	182	0.4%	Oklahoma	53	0.4%
Hawaii	37	0.8%	Oregon	159	0.4%
Idaho	29	0.4%	Pennsylvania	263	0.4%
Illinois	383	0.4%	Rhode Island	57	0.5%
Indiana	158	0.3%	South Carolina	73	0.3%
Iowa	44	0.2%	South Dakota	17	0.2%
Kansas	69	0.4%	Tennessee	169	0.3%
Kentucky	64	0.3%	Texas	926	0.6%
Louisiana	114	0.6%	Utah	98	0.3%
Maine	29	0.4%	Vermont	22	0.2%
Maryland	327	0.5%	Virginia	268	0.4%
Massachusetts	307	0.5%	Washington	237	0.4%
Michigan	272	0.4%	West Virginia	26	0.4%
Minnesota	128	0.3%	Wisconsin	170	0.3%
Mississippi	56	0.4%	Wyoming	26	0.4%
Missouri	112	0.3%	US TOTAL	9,706	0.5%

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

State	EE Jobs Lost	Percent Decline	State	EE Jobs Lost	Percent Decline
Alabama	4,120	13.1%	Montana	968	10.9%
Alaska	746	15.9%	Nebraska	1,266	9.1%
Arizona	3,743	8.4%	Nevada	1,134	9.5%
Arkansas	1,348	8.7%	New Hampshire	726	6.1%
California	34,009	10.5%	New Jersey	4,769	12.6%
Colorado	1,924	5.3%	New Mexico	720	11.8%
Connecticut	3,023	8.4%	New York	7,298	5.8%
Delaware	1,217	9.7%	North Carolina	10,411	11.8%
District of Columbia	1,432	11.0%	North Dakota	588	10.5%
Florida	13,589	11.0%	Ohio	8,238	9.9%
Georgia	15,295	24.3%	Oklahoma	2,145	14.3%
Hawaii	1,179	19.4%	Oregon	3,613	8.4%
Idaho	722	8.0%	Pennsylvania	10,250	14.3%
Illinois	5,048	5.5%	Rhode Island	1,873	14.4%
Indiana	5,688	10.2%	South Carolina	3,190	10.4%
Iowa	1,963	9.3%	South Dakota	284	3.7%
Kansas	1,345	7.5%	Tennessee	3,698	6.9%
Kentucky	5,914	22.6%	Texas	10,506	6.2%
Louisiana	4,059	17.5%	Utah	1,426	4.4%
Maine	903	10.2%	Vermont	992	9.0%
Maryland	5,690	8.0%	Virginia	6,487	8.1%
Massachusetts	6,186	8.7%	Washington	10,010	15.4%
Michigan	11,300	13.2%	West Virginia	727	10.2%
Minnesota	5,278	11.2%	Wisconsin	4,994	7.9%
Mississippi	1,838	11.7%	Wyoming	497	6.6%
Missouri	4,052	9.5%	US TOTAL	238,417	10.1%

APPENDIX G: MONTHLY CLEAN ENERGY JOB LOSSES BY STATE

State	Feb - Oct	Nov	Dec	Total
Alabama	-5,835	64	106	-5,665
Alaska	-977	9	28	-940
Arizona	-5,413	107	250	-5,056
Arkansas	-1,916	44	101	-1,770
California	-60,340	1,353	2,617	-56,370
Colorado	-3,760	124	312	-3,323
Connecticut	-3,858	70	215	-3,573
Delaware	-1,426	21	46	-1,359
District of Columbia	-1,812	35	79	-1,697
Florida	-18,944	287	651	-18,006
Georgia	-20,999	84	239	-20,676
Hawaii	-2,738	40	113	-2,585
Idaho	-1,108	20	44	-1,044
Illinois	-7,699	235	526	-6,938
Indiana	-8,995	111	235	-8,649
Iowa	-3,246	31	78	-3,137
Kansas	-2,057	38	98	-1,921
Kentucky	-8,636	61	91	-8,485
Louisiana	-5,745	74	146	-5,525
Maine	-1,347	19	43	-1,286
Maryland	-7,286	185	374	-6,728
Massachusetts	-10,187	222	469	-9,496
Michigan	-17,770	172	408	-17,191
Minnesota	-7,305	76	169	-7,060
Mississippi	-2,619	40	79	-2,501
Missouri	-5,678	70	148	-5,461
Montana	-1,205	14	33	-1,157
Nebraska	-1,983	34	86	-1,863
Nevada	-3,093	43	92	-2,958
New Hampshire	-1,040	14	33	-994
New Jersey	-7,186	62	115	-7,009
New Mexico	-1,467	27	73	-1,367
New York	-10,515	376	801	-9,337
North Carolina	-14,378	352	679	-13,348
North Dakota	-1,071	23	48	-999
Ohio	-11,635	165	354	-11,116
Oklahoma	-3,402	36	75	-3,291
Oregon	-5,097	103	219	-4,775
Pennsylvania	-13,690	166	320	-13,204
Rhode Island	-2,390	28	71	-2,291

South Carolina	-5,941	57	129	-5,755
South Dakota	-472	12	26	-434
Tennessee	-5,669	155	238	-5,276
Texas	-16,401	471	1,198	-14,732
Utah	-2,052	52	127	-1,873
Vermont	-1,606	15	35	-1,556
Virginia	-8,375	147	318	-7,910
Washington	-13,532	129	308	-13,096
West Virginia	-1,087	17	36	-1,035
Wisconsin	-6,411	113	206	-6,092
Wyoming	-610	13	29	-567
US TOTAL	-358,004	6,214	13,315	-338,475

APPENDIX H: MONTHLY CLEAN ENERGY JOB CHANGE BY MAJOR TECHNOLOGY

State	Feb - Oct	Nov	Dec	Total
Renewable Electric Power Generation	-56,489	1,063	2,190	-53,237
Clean Transmission, Distribution, & Storage	-16,048	265	594	-15,189
Energy Efficiency	-252,384	4,260	9,706	-238,417
Clean Fuels	-7,490	117	496	-6,877
Clean Vehicles	-25,594	509	329	-24,755
Total	-358,004	6,214	13,315	-338,475