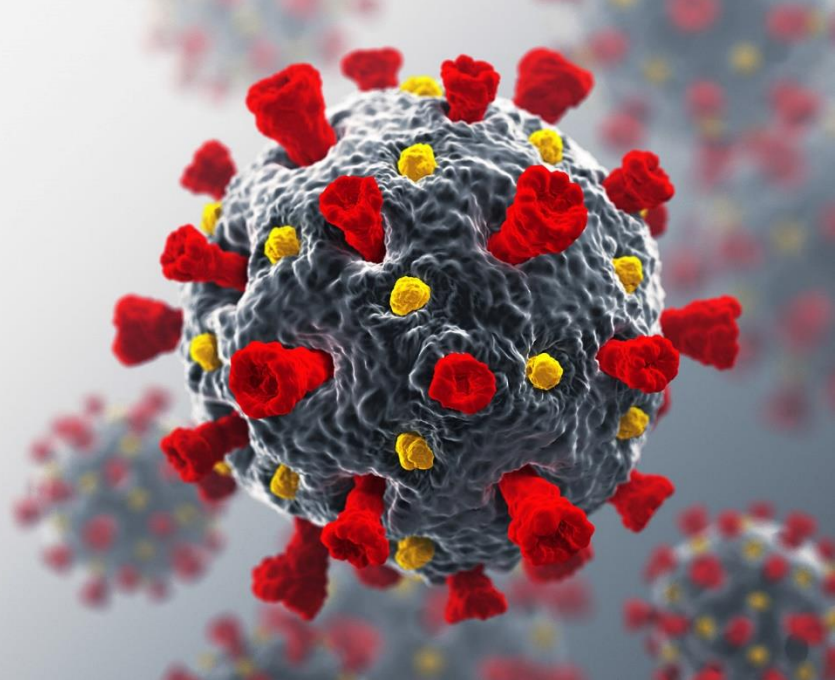


To: E2, E4TheFuture, and ACORE
From: Philip Jordan
Vice-President, BW Research Partnership
Date: May 12, 2020

MEMORANDUM

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



INTRODUCTION

The COVID-19 pandemic brought historic job losses over the month of March. In April, these losses doubled. Initial unemployment claims for April total 23.1 million, while the impact of the COVID-19 pandemic on the US workforce currently totals 33.7 million.

April brought clean energy job losses triple those seen in March, for an estimated 447,200 new clean energy jobs lost. This totals 594,300 clean energy jobs lost since the beginning of the pandemic, or a 17 percent drop in clean energy employment. The cumulative losses represent more than double the past 3 years of industry-wide clean energy employment growth, now erased. Due to updates in reported March employment statistics, the estimated 106,400 clean energy jobs lost during March has been revised up to 147,100 jobs (see Appendix B: State Clean Energy Job Losses in March 2020, Revised). Unfortunately, these impacts do not include many temporarily furloughed or underemployed workers. Dependent on back-to-work orders, job losses in clean energy will likely continue to grow into the coming months but at a decreasing rate.

IMPACTS

While the clean energy industry faced a significant initial drop in March and a staggering tripling of those declines in April, job losses will likely continue to increase. Now that stay-at-home orders have been extended and non-essential work has been shut down, job losses are being seen more comprehensively across the economy, in industries like healthcare services, manufacturing, and retail trade. Clean energy related manufacturing plants that produce everything from electric vehicles and batteries to ENERGY STAR® appliances, building materials, high-efficiency lighting equipment and solar panels and wind turbine parts also were closed to prevent the spread of COVID-19. Residential construction and specialty trade contracting has also seen increased declines, bringing energy efficiency work to a crawl. As a result, clean energy companies began expanding furloughs and layoffs, which created a glut of unemployment filings among clean energy workers throughout the course of April.

Several recent analyses suggest that the 33.7 million unemployment claims economy-wide do not represent the entirety of job losses, as many workers who are furloughed temporarily 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 Federal Reserve Bank of St. Louis estimates that job losses may exceed 52 million by the end of the second quarter of 2020.¹

Our previous projection of a half million or 15 percent of all clean energy jobs lost by the end of June has already been surpassed. Based on that analysis, along with forecasts from clean energy trade groups and reports from individual companies, we conservatively project that the clean energy sector will lose about a quarter of its workforce or 850,000 jobs by the end of the second quarter if no actions are taken to support the clean energy industry and its workers.

The April unemployment data shows every clean energy sector is being impacted by the economic crisis.

- Energy efficiency, the largest clean energy sector, had the most job losses in April, shedding about 310,200 jobs or almost 14 percent. This represents 7 out of every 10 clean energy jobs lost over the past month. Since the start of the pandemic, the energy efficiency sector has shed 413,500 jobs. For more information on state level energy efficiency impacts, see Appendix E: State Energy Efficiency Job Losses in April 2020.
- Renewable electric power generation was also hard hit, losing nearly 71,800 jobs which represents a nearly 13 percent drop in employment. This accounts for 16 percent of the April clean energy job losses. Renewable electric power generation has lost 95,600 jobs since the beginning of the pandemic.
- Clean vehicles and clean transmission, distribution, and storage both lost about 14 percent of their workforces over the month of April. This represents 35,100 and 19,700 lost jobs in April, respectively. The complete impact of the pandemic on clean vehicles and clean transmission, distribution, and storage totals 46,500 and 26,200 lost jobs thus far.
- Clean fuels lost 10,400 jobs over April, representing a 10 percent employment decline. This represents less than 3 percent of clean energy job losses over April. Clean fuels have lost 12,600 jobs since the start of March.

California had the largest number of layoffs, losing 77,900 jobs or 15 percent of its clean energy workforce in this month's continued round of pandemic impacts. Florida, Georgia, Texas, and Michigan have all lost more than 20,000 clean energy jobs each. Georgia, Kentucky, Hawaii, and Louisiana saw the largest declines in terms of percent of their respective clean energy sectors, all with more than 20 percent employment drops over the past month. Georgia saw a significant shift from March where it fared among the best. States that have fared better than average in April include South Dakota, New Hampshire, and Utah all falling less than 7 percent. For losses by state, see Appendix A: State Clean Energy Job Losses in April 2020.

Counties that have lost more than 5,000 clean energy jobs over April include Los Angeles County, CA, King County, WA, Harris County, TX, San Diego County, CA, and Cook County, IL. The three counties that suffered hardest in April as a percent of their workforce are all in California: Tulare County, CA; Kern County, CA; and Monterey County, CA. For losses by county, see Appendix C: County Clean Energy Job Losses in April 2020.

¹ <https://www.stlouisfed.org/on-the-economy/2020/march/back-envelope-estimates-next-quarters-unemployment-rate>.

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; and Chicago-Naperville-Joliet, IL-IN-WI MSA. MSAs that have been hit hard as a percentage of their workforce include Cleveland-Elyria-Mentor, OH MSA; Las Vegas-Paradise, NV MSA; New Orleans-Metairie-Kenner, LA MSA; and Pittsburgh, PA MSA. For losses by MSA, see Appendix D: MSA Clean Energy Job Losses in April 2020.

The BLS April Employment Situation shows us that in the overall economy racial and ethnic minorities, women, young workers, and those with less educational attainment are currently suffering higher unemployment rates.² Hispanic and Latino clean energy workers were hit the hardest of clean energy demographics; the clean energy industry is about 14 percent Hispanic/Latino, but an estimated 25 percent of the job losses in the clean energy industry are Hispanic/Latino workers. All non-white racial and ethnic minorities constitute about 37 percent of the clean energy industry while representing 31 percent of job losses. Women represent more than 19 percent of clean energy job losses in April while making up about 27 percent of the clean energy workforce.

METHODOLOGY

Employment change by industry monthly from February to April 2020 allows us to see differences in COVID-19 related employment impacts between industries. The Bureau of Labor Statistics provides this data in Table B-1 “Employees on nonfarm payrolls by industry sector and selected industry detail,” from its Employment Situation news release. Since this data is based on surveys conducted in the second week of each month, it does not capture accurate total job losses for the whole month. For that information, we look to the Department of Labor’s Unemployment Insurance Weekly Claims data. By totaling initial claims for all weeks in each month, we get a better picture of how many Americans are jobless. While this is not a perfect count, it allows for a more accurate, up-to-date estimate and illustrates the difference in impacts among states.

Industry employment change premiums are created by taking the percent change in employment of each industry over the national percent change in employment, then subtracting 1. State employment change premiums are made the same way. These state and industry premiums are combined evenly and applied to the national percent change in employment. BLS Local Area Unemployment Statistics (LAUS) also provides monthly employment data by high level industry and state in Table 4 “Employees on nonfarm payrolls by state and selected industry sector,” which is then weighted and applied to the industry-state job loss rates. These final industry-state job loss rates are applied to the industry breakdown within each clean energy sector (renewable electric power generation, clean fuels, clean transmission, distribution, and storage, energy efficiency, and clean vehicles) for each state resulting in final clean energy employment loss estimates. Clean energy employment data broken out by sector, industry, and state is derived from the 2020 US Energy and Employment Report. For more information on the 2020 USEER methodology, please visit www.usenergyjobs.org.

County job losses include the top 200 counties by population size; MSA job losses include the top 50 MSAs by population size as well as specific MSAs requested. Using the BLS LAUS monthly table, “Labor force data by county,” county impacts are generated by creating a county jobless premium over the

² <https://www.bls.gov/news.release/empsit.nr0.htm>

state-industry jobless rates. Using the BLS LAUS monthly table, “Unemployment Rates for Large Metropolitan Areas,” MSA impacts are generated by creating an MSA jobless premium over the national-industry jobless rates.

Clean energy is categorized into the five previously listed sectors: renewable electric power generation, clean fuels, clean transmission, distribution, and storage, energy efficiency, and clean vehicles. Renewable electric power generation includes technologies like solar, wind, hydro, and geothermal and bioenergy/biomass. Clean fuels include biomass and other biofuels. Clean transmission, distribution, and storage includes battery and other clean storage technologies, microgrids, smart grid, and other grid modernization. Energy efficiency includes efficient lighting, high efficiency HVAC and other renewable heating and cooling, and ENERGY STAR® products and appliances. Clean vehicles include hybrid, electric, and other alternative fuel vehicles. This clean energy definition is used by organizations like E2, E4TheFuture, Clean Energy Trust, US Climate Alliance, and many state energy organizations.

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 LOSSES IN APRIL 2020

State	CE Jobs Lost	Percent Decline	State	CE Jobs Lost	Percent Decline
Alabama	7,243	16.4%	Montana	1,206	11.6%
Alaska	1,086	18.7%	Nebraska	2,489	11.7%
Arizona	7,382	12.1%	Nevada	3,743	11.4%
Arkansas	2,532	12.1%	New Hampshire	1,136	6.8%
California	77,860	14.9%	New Jersey	8,066	14.9%
Colorado	5,951	9.0%	New Mexico	1,756	14.8%
Connecticut	5,191	12.1%	New York	14,398	9.1%
Delaware	1,762	13.1%	North Carolina	17,293	16.4%
District of Columbia	1,844	12.6%	North Dakota	1,399	14.5%
Florida	25,915	15.8%	Ohio	12,869	11.8%
Georgia	25,251	29.9%	Oklahoma	3,787	16.5%
Hawaii	3,372	23.9%	Oregon	7,116	12.1%
Idaho	1,224	9.1%	Pennsylvania	12,810	14.4%
Illinois	12,005	9.6%	Rhode Island	2,460	16.4%
Indiana	10,994	12.8%	South Carolina	7,847	14.1%
Iowa	3,788	10.7%	South Dakota	779	6.3%
Kansas	2,475	9.7%	Tennessee	7,902	9.5%
Kentucky	9,337	25.3%	Texas	25,227	10.5%
Louisiana	6,239	20.9%	Utah	2,828	6.5%
Maine	1,569	12.0%	Vermont	2,023	11.5%
Maryland	9,112	11.1%	Virginia	10,880	11.3%
Massachusetts	12,133	11.3%	Washington	14,593	17.5%
Michigan	22,284	17.8%	West Virginia	1,606	15.6%
Minnesota	7,749	12.7%	Wisconsin	7,816	10.3%
Mississippi	3,361	15.5%	Wyoming	719	8.4%
Missouri	6,801	11.9%	US TOTAL	447,208	13.5%

APPENDIX B: STATE CLEAN ENERGY JOB LOSSES IN MARCH 2020, REVISED

State	CE Jobs Lost	Percent Decline	State	CE Jobs Lost	Percent Decline
Alabama	1,383	3.0%	Montana	622	5.6%
Alaska	328	5.3%	Nebraska	806	3.7%
Arizona	1,484	2.4%	Nevada	1,176	3.5%
Arkansas	555	2.6%	New Hampshire	498	2.9%
California	27,583	5.0%	New Jersey	3,252	5.7%
Colorado	1,326	2.0%	New Mexico	711	5.7%
Connecticut	1,037	2.4%	New York	6,006	3.5%
Delaware	729	5.2%	North Carolina	9,124	8.0%
District of Columbia	935	6.0%	North Dakota	335	3.4%
Florida	3,963	2.4%	Ohio	6,929	6.0%
Georgia	1,909	2.2%	Oklahoma	718	3.0%
Hawaii	908	6.0%	Oregon	1,747	2.9%
Idaho	580	4.1%	Pennsylvania	8,283	8.5%
Illinois	4,524	3.5%	Rhode Island	1,351	8.3%
Indiana	3,766	4.2%	South Carolina	1,427	2.5%
Iowa	1,388	3.8%	South Dakota	165	1.3%
Kansas	1,023	3.9%	Tennessee	2,297	2.7%
Kentucky	2,180	5.6%	Texas	5,965	2.4%
Louisiana	2,135	6.7%	Utah	1,073	2.4%
Maine	682	5.0%	Vermont	651	3.6%
Maryland	2,857	3.4%	Virginia	2,828	2.8%
Massachusetts	6,726	5.9%	Washington	5,646	6.3%
Michigan	7,867	5.9%	West Virginia	205	2.0%
Minnesota	3,536	5.5%	Wisconsin	3,020	3.8%
Mississippi	511	2.3%	Wyoming	281	3.2%
Missouri	2,108	3.6%	US TOTAL	147,139	4.2%

APPENDIX C: COUNTY CLEAN ENERGY JOB LOSSES IN APRIL 2020

State	County	CE Jobs Lost	% Decline
California	Los Angeles County	14,623	15.4%
Washington	King County	5,975	15.9%
Texas	Harris County	5,809	9.9%
California	San Diego County	5,159	9.9%
Illinois	Cook County	5,121	9.1%
California	Orange County	4,938	8.6%
Michigan	Oakland County	4,436	14.5%
California	Alameda County	4,389	9.1%
Arizona	Maricopa County	4,306	8.8%
Michigan	Wayne County	4,254	21.2%
California	Santa Clara County	4,116	7.9%
Georgia	Fulton County	3,853	27.3%
Massachusetts	Middlesex County	3,321	8.7%
California	Riverside County	3,169	12.7%
New York	New York County	3,137	6.6%
Texas	Dallas County	3,106	8.4%
California	San Francisco County	2,741	7.2%
Minnesota	Hennepin County	2,621	10.5%
North Carolina	Mecklenburg County	2,559	12.5%
Florida	Palm Beach County	2,476	13.8%
Massachusetts	Suffolk County	2,356	9.7%
California	Kern County	2,338	28.8%
Michigan	Macomb County	2,320	18.2%
Florida	Miami-Dade County	2,228	11.6%
California	Fresno County	2,203	25.9%
California	Sacramento County	2,147	11.3%
North Carolina	Wake County	2,039	11.5%
Florida	Broward County	1,989	13.2%
Florida	Hillsborough County	1,954	13.2%
Ohio	Cuyahoga County	1,943	13.8%
Kentucky	Jefferson County	1,849	18.6%
Indiana	Marion County	1,835	11.0%
Florida	Orange County	1,829	12.6%
Oregon	Multnomah County	1,818	10.6%
Georgia	Cobb County	1,795	23.1%
Hawaii	Honolulu County	1,761	16.6%
Georgia	Gwinnett County	1,760	23.7%
California	San Bernardino County	1,712	11.8%
Nevada	Clark County	1,635	10.3%
Massachusetts	Essex County	1,595	11.4%
Rhode Island	Providence County	1,579	16.6%

California	Contra Costa County	1,553	9.6%
Virginia	Fairfax County	1,521	7.6%
Florida	Duval County	1,502	14.1%
Pennsylvania	Allegheny County	1,498	11.8%
Connecticut	Hartford County	1,474	10.9%
Pennsylvania	Philadelphia County	1,389	14.7%
Texas	Tarrant County	1,375	8.4%
Washington	Snohomish County	1,351	17.0%
Maryland	Baltimore County	1,345	10.3%
Georgia	DeKalb County	1,319	26.7%
Oregon	Washington County	1,267	9.7%
Connecticut	Fairfield County	1,257	10.9%
Texas	Bexar County	1,250	8.0%
Wisconsin	Milwaukee County	1,230	9.9%
Missouri	St. Louis County	1,214	9.3%
Massachusetts	Norfolk County	1,208	9.7%
Texas	Travis County	1,185	6.5%
Maryland	Prince George's County	1,177	10.3%
Maryland	Montgomery County	1,174	8.0%
Massachusetts	Worcester County	1,151	12.0%
Missouri	Jackson County	1,124	11.3%
Colorado	Denver County	1,119	8.0%
Tennessee	Shelby County	1,096	10.0%
Florida	Pinellas County	1,083	12.9%
New York	Suffolk County	1,070	7.3%
California	San Joaquin County	1,064	19.9%
Ohio	Franklin County	1,041	7.7%
Washington	Pierce County	1,012	14.1%
Connecticut	New Haven County	1,001	11.4%
Delaware	New Castle County	994	10.3%
Michigan	Kent County	993	9.7%
Indiana	Lake County	984	18.1%
California	Ventura County	975	11.1%
Illinois	DuPage County	968	7.1%
Utah	Salt Lake County	966	5.7%
Pennsylvania	Lehigh County	956	12.4%
California	Monterey County	953	28.4%
Ohio	Hamilton County	950	8.3%
Alabama	Jefferson County	932	12.8%
California	Tulare County	922	34.8%
North Carolina	Guilford County	900	14.1%
Massachusetts	Hampden County	900	14.4%
California	San Mateo County	881	6.7%

Pennsylvania	Montgomery County	867	9.5%
Florida	Lee County	832	13.5%
South Carolina	Greenville County	831	11.6%
Massachusetts	Bristol County	812	15.1%
Louisiana	East Baton Rouge County	808	13.7%
Massachusetts	Plymouth County	797	12.4%
New York	Nassau County	786	6.4%
California	Stanislaus County	781	19.9%
Tennessee	Davidson County	778	6.5%
New York	Erie County	766	8.7%
Oklahoma	Tulsa County	760	12.2%
Oklahoma	Oklahoma County	759	11.3%
New York	Queens County	747	6.4%
Washington	Spokane County	744	14.7%
New Mexico	Bernalillo County	729	11.2%
Nebraska	Douglas County	725	11.4%
Minnesota	Ramsey County	719	11.9%
Iowa	Polk County	714	9.4%
California	Sonoma County	714	8.6%
Alabama	Madison County	712	11.2%
Arizona	Pima County	692	9.9%
Maryland	Anne Arundel County	673	8.3%
Washington	Clark County	672	12.6%
Alabama	Mobile County	667	16.8%
South Carolina	Charleston County	662	11.1%
New Jersey	Bergen County	657	10.2%
Florida	Brevard County	655	13.8%
Utah	Utah County	651	5.3%
Wisconsin	Waukesha County	651	7.3%
California	Placer County	639	9.6%
California	Santa Barbara County	634	13.5%
New Jersey	Essex County	627	15.8%
New York	Kings County	624	7.6%
New Jersey	Monmouth County	624	11.2%
New York	Westchester County	620	7.1%
Colorado	Arapahoe County	618	7.9%
Florida	Seminole County	598	12.6%
New Jersey	Middlesex County	593	10.8%
Indiana	Allen County	591	11.0%
Kansas	Johnson County	587	7.2%
Louisiana	Jefferson County	575	13.5%
Texas	Collin County	574	7.8%
Oregon	Clackamas County	568	11.0%

Wisconsin	Dane County	562	5.7%
Florida	Polk County	562	15.4%
Pennsylvania	Bucks County	560	10.8%
New Jersey	Morris County	536	9.9%
Ohio	Summit County	534	10.3%
Colorado	Jefferson County	529	7.5%
Colorado	El Paso County	527	9.6%
South Carolina	Richland County	506	12.9%
Nevada	Washoe County	503	8.1%
Ohio	Lucas County	495	10.5%
Florida	Sarasota County	481	13.2%
Illinois	Will County	477	10.0%
Colorado	Adams County	477	8.9%
Michigan	Genesee County	475	16.0%
New York	Monroe County	464	8.0%
Ohio	Montgomery County	462	9.2%
Tennessee	Hamilton County	461	8.3%
New Jersey	Ocean County	446	13.5%
Minnesota	Anoka County	445	12.6%
Oregon	Lane County	444	12.5%
Tennessee	Knox County	443	7.2%
Kansas	Sedgwick County	439	9.6%
Pennsylvania	Chester County	434	8.5%
Florida	Volusia County	433	15.1%
Texas	El Paso County	431	9.5%
Arkansas	Pulaski County	431	9.8%
Florida	Collier County	428	12.6%
Minnesota	Dakota County	424	11.6%
Illinois	Lake County	423	6.6%
North Carolina	Forsyth County	422	12.8%
Pennsylvania	Berks County	419	12.2%
Pennsylvania	Lancaster County	416	9.1%
Louisiana	Orleans County	409	15.5%
New Jersey	Camden County	403	13.8%
New Jersey	Union County	403	13.2%
Virginia	Loudoun County	395	7.6%
South Carolina	Horry County	392	18.0%
Pennsylvania	York County	381	10.4%
Texas	Hidalgo County	377	16.2%
Idaho	Ada County	370	6.6%
California	Solano County	362	12.0%
Pennsylvania	Delaware County	359	10.8%
New Jersey	Burlington County	355	11.2%

New Hampshire	Hillsborough County	346	6.6%
Michigan	Washtenaw County	343	8.9%
New Jersey	Mercer County	338	10.8%
Virginia	Prince William County	338	8.7%
Texas	Nueces County	334	10.5%
Florida	Pasco County	329	15.1%
Ohio	Stark County	321	11.0%
Florida	Marion County	321	16.3%
Florida	Manatee County	316	13.2%
Texas	Montgomery County	314	9.0%
New Jersey	Passaic County	313	15.8%
Texas	Denton County	307	7.4%
New York	Onondaga County	305	7.8%
New York	Bronx County	303	9.9%
Illinois	Kane County	289	6.9%
Colorado	Larimer County	276	7.2%
Texas	Fort Bend County	269	8.8%
Missouri	St. Charles County	265	7.9%
Florida	Lake County	256	14.1%
Texas	Brazoria County	254	10.9%
New Jersey	Hudson County	250	11.5%
Ohio	Butler County	227	8.6%
Texas	Williamson County	219	7.1%
Utah	Davis County	210	5.4%
Texas	Cameron County	173	14.1%
New York	Orange County	166	7.4%
Florida	Osceola County	166	14.1%
New York	Richmond County	155	6.9%
Texas	Bell County	131	9.3%
Arizona	Pinal County	81	10.9%

APPENDIX D: MSA CLEAN ENERGY JOB LOSSES IN APRIL 2020

MSA	CE Jobs Lost	% Decline
Los Angeles-Long Beach-Santa Ana, CA MSA	26,011	17.8%
New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	18,518	12.0%
Chicago-Naperville-Joliet, IL-IN-WI MSA	14,932	14.5%
San Francisco-Oakland-Fremont, CA MSA	13,399	10.9%
Houston-Sugar Land-Baytown, TX MSA	10,598	16.3%
Washington-Arlington-Alexandria, DC-VA-MD-WV MSA	9,685	10.9%
Boston-Cambridge-Quincy, MA-NH MSA	8,315	8.7%
Miami-Fort Lauderdale-Pompano Beach, FL MSA	8,178	13.4%
Seattle-Tacoma-Bellevue, WA MSA	8,156	16.9%
Dallas-Fort Worth-Arlington, TX MSA	8,059	13.8%
Detroit-Warren-Livonia, MI MSA	8,000	14.4%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA	7,911	16.0%
Phoenix-Mesa-Scottsdale, AZ MSA	7,439	15.7%
San Diego-Carlsbad-San Marcos, CA MSA	7,425	12.8%
Atlanta-Sandy Springs-Marietta, GA MSA	7,343	13.3%
Riverside-San Bernardino-Ontario, CA MSA	6,111	15.9%
Cleveland-Elyria-Mentor, OH MSA	5,069	22.6%
Denver-Aurora, CO MSA	4,774	13.7%
Las Vegas-Paradise, NV MSA	4,771	21.6%
Sacramento-Arden-Arcade-Roseville, CA MSA	4,719	14.7%
Baltimore-Towson, MD MSA	4,627	11.9%
Minneapolis-St. Paul-Bloomington, MN-WI MSA	4,543	10.8%
Portland-Vancouver-Beaverton, OR-WA MSA	3,876	10.9%
San Jose-Sunnyvale-Santa Clara, CA MSA	3,460	10.6%
Pittsburgh, PA MSA	3,396	18.7%
St. Louis, MO-IL MSA	3,380	12.5%
Tampa-St. Petersburg-Clearwater, FL MSA	3,183	14.4%
Austin-Round Rock, TX MSA	2,946	11.2%
Charlotte-Gastonia-Concord, NC-SC MSA	2,921	11.7%
Cincinnati-Middletown, OH-KY-IN MSA	2,897	14.2%
San Antonio, TX MSA	2,864	13.4%
Kansas City, MO-KS MSA	2,486	11.9%
Orlando-Kissimmee, FL MSA	2,376	14.1%
Indianapolis-Carmel, IN MSA	2,308	9.3%
Columbus, OH MSA	2,304	13.6%
Salt Lake City, UT MSA	2,257	12.4%
Virginia Beach-Norfolk-Newport News, VA-NC MSA	2,134	11.6%
Milwaukee-Waukesha-West Allis, WI MSA	2,065	10.1%
New Orleans-Metairie-Kenner, LA MSA	1,997	18.9%
Nashville-Davidson-Murfreesboro-Franklin, TN MSA	1,978	8.2%
Louisville/Jefferson County, KY-IN MSA	1,929	13.6%

Memphis, TN-AR-MS MSA	1,899	12.7%
Richmond, VA MSA	1,802	11.0%
Raleigh-Cary, NC MSA	1,801	11.2%
Hartford-West Hartford-East Hartford, CT MSA	1,711	11.5%
Reno-Sparks, NV MSA	1,679	17.1%
Jacksonville, FL MSA	1,603	14.4%
Buffalo-Niagara Falls, NY MSA	1,371	15.5%
Birmingham-Hoover, AL MSA	1,245	9.4%
Albuquerque, NM MSA	1,197	16.7%
Rochester, NY MSA	1,164	14.0%
Providence-New Bedford-Fall River, RI-MA MSA	1,024	14.2%
Des Moines-West Des Moines, IA MSA	712	10.8%
Oklahoma City, OK MSA	698	8.1%
Honolulu, HI MSA	641	6.7%
Flint, MI MSA	482	12.7%

APPENDIX E: STATE ENERGY EFFICIENCY JOB LOSSES IN APRIL 2020

State	EE Jobs Lost	Percent Decline	State	EE Jobs Lost	Percent Decline
Alabama	5,209	17.1%	Montana	996	12.0%
Alaska	858	19.3%	Nebraska	1,648	12.3%
Arizona	5,398	12.4%	Nevada	1,404	12.2%
Arkansas	1,892	12.6%	New Hampshire	816	7.1%
California	46,341	15.1%	New Jersey	5,397	15.1%
Colorado	3,330	9.4%	New Mexico	895	15.6%
Connecticut	4,353	12.4%	New York	11,137	9.1%
Delaware	1,566	13.2%	North Carolina	13,346	16.5%
District of Columbia	1,551	12.7%	North Dakota	810	15.1%
Florida	19,345	16.0%	Ohio	9,378	12.0%
Georgia	18,625	30.3%	Oklahoma	2,447	16.8%
Hawaii	1,474	26.2%	Oregon	5,288	12.7%
Idaho	822	9.5%	Pennsylvania	9,842	15.1%
Illinois	8,511	9.7%	Rhode Island	1,994	16.7%
Indiana	7,074	13.3%	South Carolina	4,297	14.3%
Iowa	2,301	11.4%	South Dakota	496	6.6%
Kansas	1,705	10.0%	Tennessee	5,410	10.3%
Kentucky	6,446	26.1%	Texas	17,708	10.7%
Louisiana	4,564	21.0%	Utah	2,118	6.7%
Maine	1,069	12.7%	Vermont	1,258	11.9%
Maryland	7,658	11.1%	Virginia	8,842	11.4%
Massachusetts	7,735	11.6%	Washington	11,041	18.2%
Michigan	14,519	18.1%	West Virginia	1,112	15.9%
Minnesota	5,752	12.9%	Wisconsin	6,361	10.4%
Mississippi	2,440	16.0%	Wyoming	624	8.5%
Missouri	4,989	12.2%	US TOTAL	310,188	13.7%

APPENDIX F: STATE ENERGY EFFICIENCY JOB LOSSES IN MARCH 2020

State	EE Jobs Lost	Percent Decline	State	EE Jobs Lost	Percent Decline
Alabama	1,009	3.2%	Montana	521	5.9%
Alaska	260	5.5%	Nebraska	567	4.1%
Arizona	1,092	2.4%	Nevada	454	3.8%
Arkansas	426	2.7%	New Hampshire	361	3.0%
California	16,492	5.1%	New Jersey	2,187	5.8%
Colorado	753	2.1%	New Mexico	371	6.1%
Connecticut	876	2.4%	New York	4,667	3.7%
Delaware	648	5.2%	North Carolina	7,101	8.1%
District of Columbia	779	6.0%	North Dakota	201	3.6%
Florida	2,958	2.4%	Ohio	5,088	6.1%
Georgia	1,415	2.2%	Oklahoma	467	3.1%
Hawaii	456	7.5%	Oregon	1,346	3.1%
Idaho	405	4.5%	Pennsylvania	6,443	9.0%
Illinois	3,229	3.5%	Rhode Island	1,097	8.4%
Indiana	2,478	4.5%	South Carolina	786	2.6%
Iowa	908	4.3%	South Dakota	108	1.4%
Kansas	718	4.0%	Tennessee	1,619	3.0%
Kentucky	1,540	5.9%	Texas	4,217	2.5%
Louisiana	1,564	6.7%	Utah	815	2.5%
Maine	484	5.5%	Vermont	425	3.9%
Maryland	2,388	3.3%	Virginia	2,300	2.9%
Massachusetts	4,332	6.1%	Washington	4,331	6.7%
Michigan	5,157	6.0%	West Virginia	144	2.0%
Minnesota	2,650	5.6%	Wisconsin	2,466	3.9%
Mississippi	381	2.4%	Wyoming	246	3.2%
Missouri	1,572	3.7%	US TOTAL	103,298	4.4%