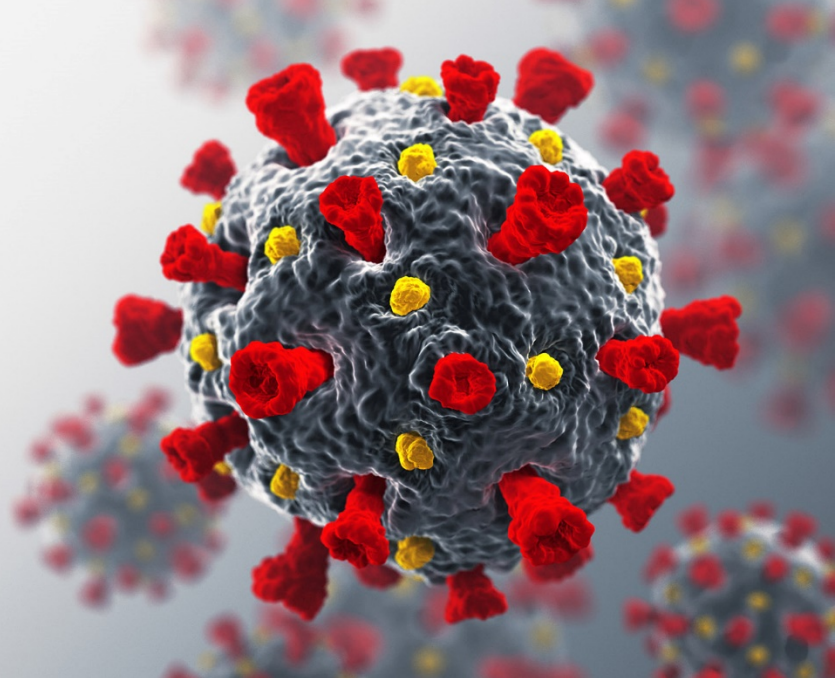


To: E2, E4TheFuture, and ACORE
From: Philip Jordan
Vice-President, BW Research Partnership
Date: June 15, 2020

MEMORANDUM

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



INTRODUCTION

BW Research finds that the U.S. clean energy sector shed an additional 27,035 jobs in May, bringing the total number of clean energy job losses to 620,590 since the start of the COVID-19 pandemic, an 18 percent decline.

While the speed at which clean energy jobs are being lost declined in May, we are increasingly concerned about the number of energy-related jobs that are being supported by the Paycheck Protection Program (PPP). The majority of clean energy firms in the U.S. are small businesses, according to the U.S. Small Business Administration (SBA). Meanwhile, the construction sector (the largest segment of the clean energy economy) is the largest recipient of PPP loans, at more than 13 percent.¹ The expiration of the employment window of PPP may result in a fresh round of layoffs in clean energy if there is no further intervention.

The June 5 jobs report from the Bureau of Labor Statistics (BLS) suggested that a strong employment rebound is underway. These results are heavily influenced by surveys conducted by BLS during the second week of each month, including sampling households and businesses. BLS has committed to maintaining consistency in its data collection efforts, which is critical to ensuring comparability in the results.

Accounting for the understandable challenges and limitations of data collection for BLS in the midst of the global pandemic, as well as misclassification errors already identified by BLS and other organizations, our latest monthly analysis of unemployment filings shows that in the clean energy sector, jobs continued to decline in May.

The continued job losses in May and forthcoming PPP expiration indicates it will be very tough for the clean energy sector to return to its economy-leading jobs growth without significant intervention from Congress and state governments. Given the size of the clean energy industry (nearly 3.4 million jobs in every state, pre-COVID-19) that could cast a pall over the nation's broader economic recovery.

¹ <https://www.sba.gov/sites/default/files/2020-04/PPP%20Report%20SBA%204.14.20%20-%20-%20Read-Only.pdf>

As a firm with significant experience conducting business and household surveys, we recognize the incredible challenges BLS has with collecting such data during a global pandemic. Hundreds of thousands of residents of densely populated areas have moved out of cities and the majority of businesses in the U.S. have severely limited the number of employees on site. Concurrently, work arrangements are incredibly fluid and novel classifications are in use: furloughed with benefits, working part time, working from home, temporary layoffs, reduced or temporarily eliminated hours, and PPP-fueled pay without work. The surveys had the lowest response rates of any in history.

BLS has itself acknowledged that there are significant sampling and respondent error issues that confound the analysis. The challenges have been recently and extensively covered in the Washington Post (The May Jobs Report Had a Misclassification Error. Here's What Happened)² and Axios (The Truth about the May Jobs Report),³ among others.

The weekly BLS unemployment claims reports paint a different picture of May than the report released on June 5, perhaps as a result of these sampling challenges.⁴ **Most notably, the weekly release on June 10 shows that the number of Americans receiving unemployment benefits across all programs *increased by 4 million from April 25 to May 23.*** This number peaked at 30.1 million on May 16 and has declined only slightly to 29.5 million as of May 23, suggesting that the economy lost jobs in May and has only merely stabilized, not started a significant recovery, at least up to Memorial Day. Given the noted challenges with the June 5 report, we believe it is prudent to more heavily weigh actual unemployment claims over the survey results.

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 May unemployment data shows every clean energy sector continues to be negatively impacted by the economic crisis.

- Energy efficiency, the largest clean energy sector, had the most job losses in May, shedding about 18,900 jobs or an additional 1 percent, bringing the total to 18.3 percent since March. This represents nearly 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 431,800 jobs. For more information on state level energy efficiency impacts, see Appendix E: State Energy Efficiency Job Losses in May 2020.
- Renewable electric power generation was also hard hit, losing nearly 4,300 jobs which represents an additional nearly 1 percent drop in employment to 16.9 percent since March. This accounts for 16 percent of the May clean energy job losses. Renewable electric power generation has lost 100,000 jobs since the beginning of the pandemic.

² <https://www.washingtonpost.com/business/2020/06/05/may-2020-jobs-report-misclassification-error/>

³ <https://www.axios.com/may-jobs-report-lower-data-20f6c94f-5c8b-4507-9897-bf761c6c5680.html>

⁴ Unemployment claims reports can include errors as well, however, these tend to be revised over time to account for inconsistencies.

- Clean vehicles and clean transmission, distribution, and storage both lost 1 percent of their workforces over the month of May, now at an 18.3 percent decline from its pre-pandemic level. This represents 2,100 and 1,200 lost jobs in May, 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 fared the best, losing 700 jobs over May, representing a less than 1 percent employment decline over the month. This represents more than 2 percent of clean energy job losses over May. Clean fuels have lost 13,200 jobs since the start of March, or 12.6 percent decline.

California had the largest number of layoffs in May, losing 4,300 jobs or an additional 1 percent of its clean energy workforce in this month's continued round of pandemic impacts. Florida, Georgia, and Texas have all lost more than 1,700 clean energy jobs each in May. Georgia, Oklahoma, Kentucky, Alaska, and Florida saw the largest declines in terms of percent of their respective clean energy sectors, all with about 2 percent employment drops over the past month. States that have fared better than average in May include Utah, New Hampshire, Colorado, Vermont, and Idaho all falling less than half a percent. For losses by state, see Appendix A: State Clean Energy Job Losses in May 2020.

Counties that have lost more than 6,000 clean energy jobs since the beginning of March include Los Angeles County, CA; King County, WA; Harris County, TX; Cook County, IL; San Diego County, CA; Orange County, CA; Oakland County, MI; and Wayne County, MI. The counties that suffered hardest as a percent of their workforce are Kern County, CA; Dakota County, MN; Onondaga County, NY; and Fresno 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.

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.⁵ 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 about 20 percent of clean energy job losses in May while making up about 27 percent of the clean energy workforce.

METHODOLOGY

Methodology for this month's round of impacts differs from previous months to account for the reopening of many state economies and account for continuing claims data. Reports for May and April, as

⁵ <https://www.bls.gov/news.release/empsit.nr0.htm>

well as the 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 LOSSES IN MAY 2020

State	CE Jobs Lost	Percent Decline	State	CE Jobs Lost	Percent Decline
Alabama	334	0.9%	Montana	51	0.6%
Alaska	88	1.9%	Nebraska	143	0.8%
Arizona	359	0.7%	Nevada	149	0.5%
Arkansas	119	0.6%	New Hampshire	63	0.4%
California	4,313	1.0%	New Jersey	422	0.9%
Colorado	252	0.4%	New Mexico	80	0.8%
Connecticut	323	0.9%	New York	848	0.6%
Delaware	99	0.9%	North Carolina	955	1.1%
District of Columbia	119	0.9%	North Dakota	120	1.5%
Florida	2,563	1.9%	Ohio	612	0.6%
Georgia	1,741	2.9%	Oklahoma	390	2.1%
Hawaii	154	1.4%	Oregon	516	1.0%
Idaho	54	0.4%	Pennsylvania	571	0.8%
Illinois	926	0.8%	Rhode Island	75	0.6%
Indiana	511	0.7%	South Carolina	382	0.8%
Iowa	162	0.5%	South Dakota	65	0.6%
Kansas	125	0.5%	Tennessee	460	0.6%
Kentucky	559	2.0%	Texas	1,709	0.8%
Louisiana	294	1.2%	Utah	120	0.3%
Maine	130	1.1%	Vermont	68	0.4%
Maryland	726	1.0%	Virginia	666	0.8%
Massachusetts	776	0.8%	Washington	1,163	1.7%
Michigan	1,012	1.0%	West Virginia	48	0.6%
Minnesota	382	0.7%	Wisconsin	532	0.8%
Mississippi	306	1.7%	Wyoming	58	0.7%
Missouri	340	0.7%	US TOTAL	27,035	0.9%

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

State	CE Jobs Lost	Percent Decline	State	CE Jobs Lost	Percent Decline
Alabama	8,978	19.8%	Montana	1,887	17.1%
Alaska	1,489	24.3%	Nebraska	3,444	15.6%
Arizona	9,276	14.8%	Nevada	5,011	14.8%
Arkansas	3,207	14.9%	New Hampshire	1,695	9.8%
California	109,712	19.9%	New Jersey	11,789	20.5%
Colorado	7,531	11.2%	New Mexico	2,550	20.3%
Connecticut	6,551	14.9%	New York	20,722	12.7%
Delaware	2,594	18.3%	North Carolina	27,217	23.7%
District of Columbia	2,897	18.7%	North Dakota	1,854	18.6%
Florida	32,475	19.4%	Ohio	20,420	17.6%
Georgia	28,932	33.5%	Oklahoma	5,251	22.1%
Hawaii	4,413	29.4%	Oregon	9,469	15.6%
Idaho	1,864	13.3%	Pennsylvania	21,634	22.3%
Illinois	17,457	13.4%	Rhode Island	3,886	23.8%
Indiana	15,231	17.0%	South Carolina	9,677	16.9%
Iowa	5,308	14.5%	South Dakota	1,015	8.1%
Kansas	3,584	13.5%	Tennessee	10,635	12.4%
Kentucky	12,123	31.0%	Texas	32,844	13.3%
Louisiana	8,650	27.0%	Utah	4,019	9.0%
Maine	2,194	16.0%	Vermont	2,748	15.1%
Maryland	12,638	14.9%	Virginia	14,338	14.4%
Massachusetts	19,648	17.2%	Washington	21,242	23.9%
Michigan	31,124	23.4%	West Virginia	1,863	17.8%
Minnesota	11,546	17.9%	Wisconsin	11,366	14.4%
Mississippi	4,196	18.9%	Wyoming	1,086	12.3%
Missouri	9,312	15.8%	US TOTAL	620,590	17.9%

APPENDIX C: CUMULATIVE COUNTY CLEAN ENERGY JOB LOSSES

State	County	CE Jobs Lost	% Decline
California	Los Angeles County	18,667	19.6%
Washington	King County	7,628	20.3%
Texas	Harris County	7,040	12.0%
Illinois	Cook County	6,960	12.3%
California	San Diego County	6,704	12.8%
California	Orange County	6,443	11.3%
Michigan	Oakland County	6,410	20.9%
Michigan	Wayne County	6,014	29.9%
California	Alameda County	5,718	11.9%
California	Santa Clara County	5,382	10.4%
Massachusetts	Middlesex County	4,893	12.8%
Arizona	Maricopa County	4,744	9.7%
Georgia	Fulton County	4,215	29.9%
California	Riverside County	4,081	16.4%
New York	New York County	3,912	8.2%
Texas	Dallas County	3,779	10.2%
Minnesota	Hennepin County	3,593	14.4%
California	San Francisco County	3,592	9.4%
North Carolina	Mecklenburg County	3,567	17.4%
Massachusetts	Suffolk County	3,456	14.2%
Michigan	Macomb County	3,312	26.0%
Ohio	Cuyahoga County	2,911	20.6%
Florida	Palm Beach County	2,857	15.9%
California	Kern County	2,854	35.2%
North Carolina	Wake County	2,854	16.1%
California	Sacramento County	2,777	14.6%
California	Fresno County	2,715	32.0%
Florida	Miami-Dade County	2,584	13.5%
Indiana	Marion County	2,543	15.2%
Kentucky	Jefferson County	2,454	24.7%
Wisconsin	Dane County	2,351	23.9%
Pennsylvania	Allegheny County	2,350	18.5%
Massachusetts	Essex County	2,324	16.6%
Florida	Broward County	2,298	15.2%
Oregon	Multnomah County	2,278	13.3%
Florida	Hillsborough County	2,258	15.2%
Utah	Utah County	2,255	18.2%
California	San Bernardino County	2,211	15.2%
Pennsylvania	Philadelphia County	2,150	22.8%

Missouri	Jackson County	2,141	21.6%
Florida	Orange County	2,117	14.5%
Hawaii	Honolulu County	2,042	19.2%
Oregon	Washington County	2,036	15.6%
California	Contra Costa County	2,019	12.5%
Nevada	Clark County	2,013	12.7%
Georgia	Cobb County	1,978	25.4%
Rhode Island	Providence County	1,956	20.5%
Georgia	Gwinnett County	1,938	26.1%
Wisconsin	Waukesha County	1,841	20.5%
Wisconsin	Milwaukee County	1,795	14.4%
Virginia	Fairfax County	1,777	8.8%
Massachusetts	Norfolk County	1,772	14.2%
Michigan	Kent County	1,738	16.9%
Florida	Duval County	1,732	16.3%
Washington	Snohomish County	1,718	21.7%
Massachusetts	Worcester County	1,673	17.5%
Texas	Tarrant County	1,673	10.2%
Connecticut	Hartford County	1,672	12.3%
Maryland	Baltimore County	1,667	12.8%
Missouri	St. Louis County	1,607	12.3%
Ohio	Franklin County	1,597	11.8%
Texas	Bexar County	1,522	9.8%
Maryland	Montgomery County	1,464	10.0%
Delaware	New Castle County	1,458	15.2%
Maryland	Prince George's County	1,458	12.8%
Ohio	Hamilton County	1,454	12.7%
Tennessee	Shelby County	1,450	13.2%
Texas	Travis County	1,449	7.9%
Georgia	DeKalb County	1,445	29.3%
Connecticut	Fairfield County	1,426	12.3%
Pennsylvania	Montgomery County	1,374	15.1%
Pennsylvania	Lehigh County	1,361	17.7%
California	San Joaquin County	1,338	25.1%
New York	Suffolk County	1,332	9.0%
Illinois	DuPage County	1,325	9.7%
California	Sonoma County	1,320	16.0%
Washington	Pierce County	1,301	18.1%
California	Ventura County	1,262	14.3%
New York	Onondaga County	1,259	32.2%
Florida	Pinellas County	1,252	14.9%
Utah	Salt Lake County	1,250	7.4%

Minnesota	Dakota County	1,192	32.5%
Minnesota	Ramsey County	1,172	19.4%
Colorado	Denver County	1,162	8.3%
California	San Mateo County	1,157	8.8%
Kansas	Johnson County	1,147	14.1%
Connecticut	New Haven County	1,134	12.9%
Massachusetts	Plymouth County	1,117	17.3%
New Jersey	Morris County	1,052	19.4%
Alabama	Jefferson County	1,047	14.4%
Tennessee	Davidson County	1,031	8.6%
Oklahoma	Oklahoma County	1,003	15.0%
South Carolina	Charleston County	997	16.7%
Louisiana	East Baton Rouge County	989	16.8%
New York	Nassau County	980	8.0%
Ohio	Montgomery County	971	19.3%
North Carolina	Guilford County	970	15.2%
Florida	Lee County	960	15.6%
Massachusetts	Bristol County	950	17.6%
New York	Erie County	949	10.7%
Iowa	Polk County	937	12.4%
New York	Queens County	932	8.0%
Massachusetts	Hampden County	920	14.7%
New Jersey	Bergen County	904	14.0%
New Mexico	Bernalillo County	902	13.9%
Ohio	Lucas County	873	18.5%
New Hampshire	Hillsborough County	864	16.4%
Illinois	Lake County	863	13.4%
Indiana	Lake County	854	15.8%
Alabama	Madison County	854	13.5%
Colorado	Jefferson County	851	12.1%
New Jersey	Essex County	847	21.3%
New Jersey	Monmouth County	847	15.2%
Idaho	Ada County	829	14.8%
South Carolina	Greenville County	824	11.5%
New Jersey	Middlesex County	814	14.9%
California	Stanislaus County	792	20.2%
Maryland	Anne Arundel County	780	9.7%
New York	Kings County	775	9.5%
New York	Westchester County	772	8.8%
Colorado	Arapahoe County	771	9.8%
Arizona	Pima County	761	10.9%
Pennsylvania	Lancaster County	752	16.5%

Tennessee	Hamilton County	743	13.4%
Colorado	Adams County	736	13.7%
Minnesota	Anoka County	736	20.8%
Louisiana	Jefferson County	734	17.2%
California	Monterey County	732	21.8%
Washington	Clark County	730	13.7%
Nebraska	Douglas County	715	11.3%
Texas	Collin County	699	9.5%
Indiana	Allen County	687	12.7%
California	Placer County	687	10.3%
Arkansas	Pulaski County	682	15.5%
Kansas	Sedgwick County	680	14.9%
Washington	Spokane County	676	13.3%
Oregon	Clackamas County	663	12.8%
Oklahoma	Tulsa County	658	10.6%
Virginia	Loudoun County	657	12.6%
Missouri	St. Charles County	656	19.6%
Florida	Polk County	646	17.7%
New Jersey	Union County	643	21.0%
Pennsylvania	Chester County	613	12.0%
Pennsylvania	Berks County	611	17.8%
California	Santa Barbara County	602	12.8%
South Carolina	Richland County	593	15.2%
Pennsylvania	York County	588	16.0%
Tennessee	Knox County	587	9.5%
Nevada	Washoe County	586	9.5%
Ohio	Summit County	583	11.2%
Pennsylvania	Bucks County	579	11.1%
New York	Monroe County	576	9.9%
Ohio	Stark County	571	19.6%
Michigan	Washtenaw County	567	14.7%
Colorado	El Paso County	546	9.9%
Virginia	Prince William County	533	13.8%
Oregon	Lane County	532	15.0%
Texas	El Paso County	522	11.6%
New Jersey	Mercer County	521	16.7%
Illinois	Kane County	520	12.5%
Texas	Nueces County	507	15.9%
Ohio	Butler County	503	19.1%
California	Tulare County	492	18.6%
Florida	Sarasota County	491	13.5%
Illinois	Will County	491	10.2%

Utah	Davis County	482	12.4%
New Jersey	Burlington County	469	14.8%
Pennsylvania	Delaware County	464	13.9%
New Jersey	Ocean County	463	14.0%
Texas	Montgomery County	458	13.1%
Florida	Brevard County	457	9.6%
Florida	Volusia County	452	15.7%
Texas	Hidalgo County	449	19.3%
North Carolina	Forsyth County	426	12.9%
New Jersey	Camden County	415	14.2%
New York	Richmond County	398	17.8%
Florida	Seminole County	396	8.3%
Alabama	Mobile County	395	10.0%
Florida	Collier County	394	11.5%
Michigan	Genesee County	391	13.1%
Texas	Denton County	375	9.1%
New York	Bronx County	374	12.2%
Texas	Williamson County	358	11.5%
Texas	Brazoria County	354	15.2%
Florida	Manatee County	350	14.6%
Colorado	Larimer County	346	9.0%
California	Solano County	344	11.4%
Louisiana	Orleans County	343	13.0%
South Carolina	Horry County	338	15.6%
New Jersey	Hudson County	330	15.2%
Texas	Fort Bend County	328	10.7%
New Jersey	Passaic County	309	15.6%
Florida	Pasco County	263	12.0%
New York	Orange County	250	11.2%
Florida	Marion County	237	12.1%
Florida	Lake County	201	11.1%
Texas	Cameron County	188	15.4%
Florida	Osceola County	181	15.4%
Texas	Bell County	180	12.8%
Arizona	Pinal County	128	17.0%

APPENDIX D: CUMULATIVE MSA CLEAN ENERGY JOB LOSSES

MSA	CE Jobs Lost	% Decline
Los Angeles-Long Beach-Santa Ana, CA MSA	46,823	32.0%
New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	33,784	22.0%
Chicago-Naperville-Joliet, IL-IN-WI MSA	27,944	27.2%
San Francisco-Oakland-Fremont, CA MSA	25,216	20.5%
Houston-Sugar Land-Baytown, TX MSA	19,194	29.6%
Washington-Arlington-Alexandria, DC-VA-MD-WV MSA	17,568	19.7%
Detroit-Warren-Livonia, MI MSA	16,273	29.3%
Boston-Cambridge-Quincy, MA-NH MSA	16,033	16.7%
Miami-Fort Lauderdale-Pompano Beach, FL MSA	15,059	24.7%
Dallas-Fort Worth-Arlington, TX MSA	14,838	25.3%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA	14,608	29.5%
Seattle-Tacoma-Bellevue, WA MSA	14,527	30.0%
San Diego-Carlsbad-San Marcos, CA MSA	13,807	23.8%
Atlanta-Sandy Springs-Marietta, GA MSA	13,796	25.0%
Phoenix-Mesa-Scottsdale, AZ MSA	13,089	27.6%
Riverside-San Bernardino-Ontario, CA MSA	11,080	28.8%
Cleveland-Elyria-Mentor, OH MSA	9,209	41.1%
Sacramento-Arden-Arcade-Roseville, CA MSA	8,632	26.8%
Minneapolis-St. Paul-Bloomington, MN-WI MSA	8,559	20.4%
Las Vegas-Paradise, NV MSA	8,516	38.6%
Baltimore-Towson, MD MSA	8,431	21.7%
Denver-Aurora, CO MSA	8,176	23.5%
Portland-Vancouver-Beaverton, OR-WA MSA	7,360	20.6%
San Jose-Sunnyvale-Santa Clara, CA MSA	6,509	19.9%
St. Louis, MO-IL MSA	6,414	23.7%
Pittsburgh, PA MSA	6,231	34.4%
Tampa-St. Petersburg-Clearwater, FL MSA	5,815	26.3%
Cincinnati-Middletown, OH-KY-IN MSA	5,570	27.3%
Austin-Round Rock, TX MSA	5,530	21.0%
Charlotte-Gastonia-Concord, NC-SC MSA	5,457	21.8%
San Antonio, TX MSA	5,291	24.8%
Indianapolis-Carmel, IN MSA	4,677	18.8%
Kansas City, MO-KS MSA	4,620	22.2%
Columbus, OH MSA	4,419	26.2%
Orlando-Kissimmee, FL MSA	4,379	26.0%
Milwaukee-Waukesha-West Allis, WI MSA	4,174	20.4%
Salt Lake City, UT MSA	4,124	22.7%
Nashville-Davidson-Murfreesboro-Franklin, TN MSA	4,001	16.6%
Virginia Beach-Norfolk-Newport News, VA-NC MSA	3,877	21.1%

Louisville/Jefferson County, KY-IN MSA	3,821	26.9%
Memphis, TN-AR-MS MSA	3,646	24.4%
New Orleans-Metairie-Kenner, LA MSA	3,578	33.8%
Raleigh-Cary, NC MSA	3,335	20.7%
Richmond, VA MSA	3,281	20.0%
Hartford-West Hartford-East Hartford, CT MSA	3,107	20.9%
Reno-Sparks, NV MSA	3,050	31.1%
Jacksonville, FL MSA	2,918	26.2%
Birmingham-Hoover, AL MSA	2,464	18.5%
Buffalo-Niagara Falls, NY MSA	2,400	27.1%
Albuquerque, NM MSA	2,137	29.8%
Rochester, NY MSA	2,047	24.6%
Providence-New Bedford-Fall River, RI-MA MSA	1,881	26.2%
Des Moines-West Des Moines, IA MSA	1,395	21.2%
Oklahoma City, OK MSA	1,383	16.1%
Honolulu, HI MSA	1,282	13.5%
Flint, MI MSA	1,011	26.5%

APPENDIX E: STATE ENERGY EFFICIENCY JOB LOSSES IN MAY 2020

State	EE Jobs Lost	Percent Decline	State	EE Jobs Lost	Percent Decline
Alabama	238	0.9%	Montana	42	0.6%
Alaska	69	1.9%	Nebraska	94	0.8%
Arizona	262	0.7%	Nevada	55	0.5%
Arkansas	88	0.7%	New Hampshire	45	0.4%
California	2,562	1.0%	New Jersey	282	0.9%
Colorado	140	0.4%	New Mexico	40	0.8%
Connecticut	270	0.9%	New York	656	0.6%
Delaware	88	0.9%	North Carolina	736	1.1%
District of Columbia	100	0.9%	North Dakota	69	1.5%
Florida	1,908	1.9%	Ohio	443	0.6%
Georgia	1,278	3.0%	Oklahoma	251	2.1%
Hawaii	66	1.6%	Oregon	381	1.1%
Idaho	36	0.5%	Pennsylvania	438	0.8%
Illinois	655	0.8%	Rhode Island	61	0.6%
Indiana	326	0.7%	South Carolina	208	0.8%
Iowa	98	0.5%	South Dakota	41	0.6%
Kansas	86	0.6%	Tennessee	313	0.7%
Kentucky	381	2.1%	Texas	1,197	0.8%
Louisiana	215	1.3%	Utah	89	0.3%
Maine	88	1.2%	Vermont	42	0.5%
Maryland	610	1.0%	Virginia	540	0.8%
Massachusetts	493	0.8%	Washington	875	1.8%
Michigan	657	1.0%	West Virginia	33	0.6%
Minnesota	283	0.7%	Wisconsin	433	0.8%
Mississippi	221	1.7%	Wyoming	50	0.8%
Missouri	248	0.7%	US TOTAL	18,880	1.0%

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

State	EE Jobs Lost	Percent Decline	State	EE Jobs Lost	Percent Decline
Alabama	6,469	20.5%	Montana	1,565	17.7%
Alaska	1,177	25.0%	Nebraska	2,313	16.6%
Arizona	6,789	15.2%	Nevada	1,891	15.8%
Arkansas	2,407	15.5%	New Hampshire	1,221	10.2%
California	65,369	20.2%	New Jersey	7,899	20.8%
Colorado	4,224	11.7%	New Mexico	1,308	21.5%
Connecticut	5,499	15.3%	New York	16,049	12.7%
Delaware	2,306	18.4%	North Carolina	21,063	23.9%
District of Columbia	2,429	18.7%	North Dakota	1,080	19.4%
Florida	24,236	19.6%	Ohio	14,916	17.9%
Georgia	21,340	33.9%	Oklahoma	3,394	22.6%
Hawaii	1,986	32.7%	Oregon	7,083	16.5%
Idaho	1,267	14.0%	Pennsylvania	16,699	23.4%
Illinois	12,396	13.6%	Rhode Island	3,152	24.2%
Indiana	9,852	17.7%	South Carolina	5,302	17.2%
Iowa	3,289	15.5%	South Dakota	648	8.5%
Kansas	2,482	13.9%	Tennessee	7,326	13.6%
Kentucky	8,400	32.0%	Texas	23,081	13.6%
Louisiana	6,328	27.2%	Utah	3,021	9.3%
Maine	1,514	17.0%	Vermont	1,728	15.7%
Maryland	10,608	14.9%	Virginia	11,653	14.5%
Massachusetts	12,568	17.6%	Washington	16,126	24.8%
Michigan	20,307	23.8%	West Virginia	1,292	18.1%
Minnesota	8,596	18.2%	Wisconsin	9,259	14.6%
Mississippi	3,054	19.5%	Wyoming	944	12.5%
Missouri	6,855	16.1%	US TOTAL	431,762	18.3%

APPENDIX G: MONTHLY CLEAN ENERGY JOB LOSSES BY STATE

State	March	April (revised)	May	TOTAL	State	March	April (revised)	May	TOTAL
Alabama	1,383	7,261	334	8,978	Montana	622	1,213	51	1,887
Alaska	328	1,073	88	1,489	Nebraska	806	2,495	143	3,444
Arizona	1,484	7,433	359	9,276	Nevada	1,176	3,686	149	5,011
Arkansas	555	2,533	119	3,207	New Hampshire	498	1,134	63	1,695
California	27,583	77,815	4,313	109,712	New Jersey	3,252	8,115	422	11,789
Colorado	1,326	5,952	252	7,531	New Mexico	711	1,759	80	2,550
Connecticut	1,037	5,191	323	6,551	New York	6,006	13,868	848	20,722
Delaware	729	1,766	99	2,594	North Carolina	9,124	17,138	955	27,217
District of Columbia	935	1,843	119	2,897	North Dakota	335	1,399	120	1,854
Florida	3,963	25,949	2,563	32,475	Ohio	6,929	12,879	612	20,420
Georgia	1,909	25,282	1,741	28,932	Oklahoma	718	4,143	390	5,251
Hawaii	908	3,351	154	4,413	Oregon	1,747	7,206	516	9,469
Idaho	580	1,229	54	1,864	Pennsylvania	8,283	12,780	571	21,634
Illinois	4,524	12,007	926	17,457	Rhode Island	1,351	2,460	75	3,886
Indiana	3,766	10,954	511	15,231	South Carolina	1,427	7,869	382	9,677
Iowa	1,388	3,758	162	5,308	South Dakota	165	784	65	1,015
Kansas	1,023	2,436	125	3,584	Tennessee	2,297	7,878	460	10,635
Kentucky	2,180	9,383	559	12,123	Texas	5,965	25,170	1,709	32,844
Louisiana	2,135	6,220	294	8,650	Utah	1,073	2,826	120	4,019
Maine	682	1,382	130	2,194	Vermont	651	2,029	68	2,748
Maryland	2,857	9,055	726	12,638	Virginia	2,828	10,845	666	14,338
Massachusetts	6,726	12,147	776	19,648	Washington	5,646	14,433	1,163	21,242
Michigan	7,867	22,245	1,012	31,124	West Virginia	205	1,610	48	1,863
Minnesota	3,536	7,628	382	11,546	Wisconsin	3,020	7,814	532	11,366
Mississippi	511	3,379	306	4,196	Wyoming	281	747	58	1,086
Missouri	2,108	6,864	340	9,312	US TOTAL	147,139	446,416	27,035	620,590

APPENDIX H: MONTHLY CLEAN ENERGY JOB LOSSES BY MAJOR TECHNOLOGY

State	March	April (revised)	May	Total
Renewable Electric Power Generation	23,739	71,705	4,272	99,717
Clean Transmission, Distribution, & Storage	6,517	19,666	1,166	27,349
Energy Efficiency	103,298	309,584	18,880	431,762
Clean Fuels	2,186	10,390	657	13,233
Clean Vehicles	11,399	35,070	2,059	48,528
Total	147,139	446,416	27,035	620,590