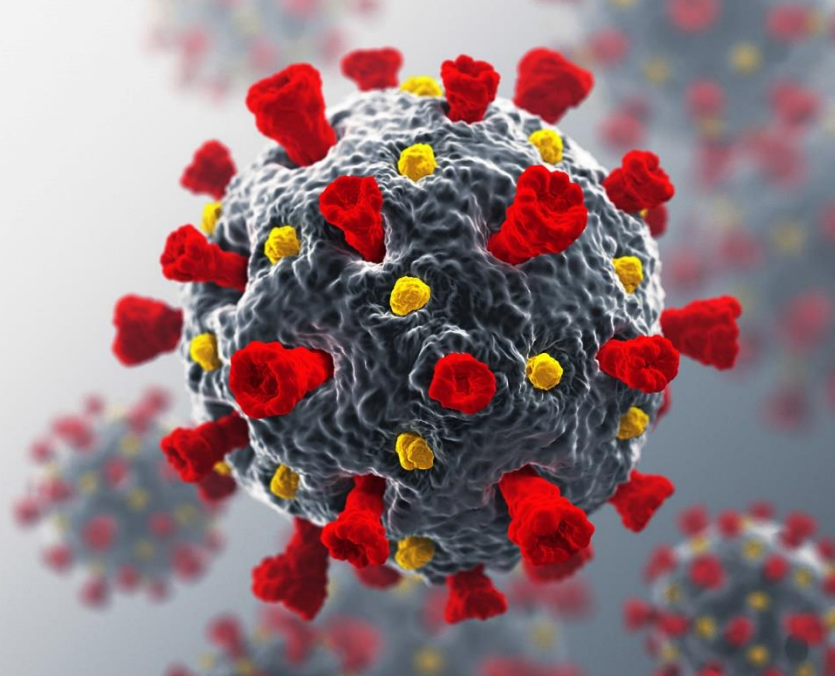


To: E2, E4TheFuture, and ACORE
From: Philip Jordan
Vice-President, BW Research Partnership
Date: February 8, 2021

MEMORANDUM

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



INTRODUCTION

BW Research finds that the U.S. clean energy sector has lost 358,000 clean energy workers since February of this year – 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 has been particularly slow to rebound. 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 November 6th jobs report, which showed that the U.S. economy created 638,000 new jobs over the previous month, covers the first two weeks of October. While these new jobs primarily fall in industries unrelated to clean energy (leisure and hospitality and retail trade), job gains are also seen in clean energy adjacent industries, such as construction 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 last month’s dramatic decline. Public sector unemployment continued its decline likely due to Census work concluding, state economies straining under falling revenues, and increased COVID-related expenses. Weekly unemployment claims continue at an historic high pace. The November 5th weekly claims data showed a slight decline in initial jobless claims, but is still at a level higher 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 3.6 million, representing about one third of the 11.1 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, one third 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.

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

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

² BLS Employment Situation Summary, Nov 6. <https://www.bls.gov/news.release/empsit.nr0.htm>.

³ Ibid.

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 unemployment data show total job losses no less than seven percent for each of the clean energy sectors:

- Energy efficiency, the largest clean energy sector, suffers from 252,400 job losses impacting almost 11 percent of its workforce. For more information on state level energy efficiency impacts, see Appendix D: Cumulative State Energy Efficiency Job Losses Since Pre-COVID.
- A total of 56,500 renewable electric power generation workers (10 percent of the sector's workforce) remain unemployed due to the pandemic.
- The complete impact of the pandemic on clean fuels and clean transmission, distribution, and storage totals 7,500 and 16,000 lost jobs from their respective, pre-pandemic employment levels. Clean fuels jobs have dropped 7 percent since March, while clean transmission, distribution, and storage jobs have dropped 11 percent thus far.
- The clean vehicles sector continues to experience a nearly 10 percent decline in jobs over its pre-COVID-19 employment levels. This translates to 25,600 ongoing job losses.

California experienced the largest job loss, with 60,300 jobs lost since pre-COVID-19, or 11 percent of its clean energy workforce. Georgia, Florida, Michigan, and Texas all suffered more than 15,000 job losses since March. Georgia saw the highest percentage of clean energy workforce decline at 24 percent. South Dakota, Wyoming, and Alaska saw the smallest declines, all with less than 1,000 jobs lost over the pandemic. For total losses by state, see Appendix A: Cumulative State Clean Energy Job Losses Since Pre-COVID.

This low level of job growth is especially concerning given the dramatic decline in clean energy jobs since the onset of COVID-19. Over 25 states continue to suffer double digit job losses in clean energy with six states facing 15 percent or greater unemployment.

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; San Diego County, CA; Harris County, TX; Wayne County, MI; and Orange County, CA. The counties that suffered hardest as a percent of their workforce are Kern County, CA; Fulton County, GA; and DeKalb County, GA. For losses by county, see Appendix B: 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 C: Cumulative MSA Clean Energy Job Losses.

METHODOLOGY

BLS employment reports for February through October, as well as the DOL unemployment weekly summaries, were used to calculate the labor impacts for the month. This memorandum and the data reported here differs from previous memoranda due to revisions in underlying BLS employment data and DOL unemployment claims data. 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: CUMULATIVE STATE CLEAN ENERGY JOB LOSSES SINCE PRE-COVID

State	CE Jobs Lost	Percent Decline	State	CE Jobs Lost	Percent Decline
Alabama	5,835	12.8%	Montana	1,205	10.9%
Alaska	977	15.9%	Nebraska	1,983	9.0%
Arizona	5,413	8.7%	Nevada	3,093	9.1%
Arkansas	1,916	8.9%	New Hampshire	1,040	6.0%
California	60,340	11.0%	New Jersey	7,186	12.5%
Colorado	3,760	5.6%	New Mexico	1,467	11.7%
Connecticut	3,858	8.7%	New York	10,515	6.4%
Delaware	1,426	10.1%	North Carolina	14,378	12.5%
District of Columbia	1,812	11.7%	North Dakota	1,071	10.8%
Florida	18,944	11.3%	Ohio	11,635	10.0%
Georgia	20,999	24.3%	Oklahoma	3,402	14.3%
Hawaii	2,738	18.2%	Oregon	5,097	8.4%
Idaho	1,108	7.9%	Pennsylvania	13,690	14.1%
Illinois	7,699	5.9%	Rhode Island	2,390	14.6%
Indiana	8,995	10.0%	South Carolina	5,941	10.4%
Iowa	3,246	8.9%	South Dakota	472	3.8%
Kansas	2,057	7.8%	Tennessee	5,669	6.6%
Kentucky	8,636	22.1%	Texas	16,401	6.7%
Louisiana	5,745	17.9%	Utah	2,052	4.6%
Maine	1,347	9.8%	Vermont	1,606	8.8%
Maryland	7,286	8.6%	Virginia	8,375	8.4%
Massachusetts	10,187	8.9%	Washington	13,532	15.2%
Michigan	17,770	13.4%	West Virginia	1,087	10.4%
Minnesota	7,305	11.3%	Wisconsin	6,411	8.1%
Mississippi	2,619	11.8%	Wyoming	610	6.9%
Missouri	5,678	9.6%	US TOTAL	358,004	10.3%

APPENDIX B: CUMULATIVE COUNTY CLEAN ENERGY JOB LOSSES

State	County	CE Jobs Lost	% Decline
California	Los Angeles County	13,887	14.6%
Washington	King County	6,247	16.6%
Michigan	Oakland County	4,938	16.1%
California	San Diego County	4,881	9.3%
Texas	Harris County	4,776	8.2%
Michigan	Wayne County	4,758	23.7%
California	Orange County	4,668	8.2%
Illinois	Cook County	4,401	7.8%
California	Alameda County	4,151	8.6%
California	Santa Clara County	3,888	7.5%
Georgia	Fulton County	3,804	27.0%
Arizona	Maricopa County	3,625	7.4%
Massachusetts	Middlesex County	3,481	9.1%
California	Riverside County	3,005	12.1%
Minnesota	Hennepin County	2,937	11.8%
New York	New York County	2,793	5.9%
Michigan	Macomb County	2,589	20.3%
California	San Francisco County	2,588	6.8%
North Carolina	Mecklenburg County	2,568	12.5%
Texas	Dallas County	2,545	6.9%
Massachusetts	Suffolk County	2,470	10.2%
California	Kern County	2,235	27.6%
Ohio	Cuyahoga County	2,230	15.8%
Kentucky	Jefferson County	2,199	22.1%
Florida	Palm Beach County	2,135	11.9%
California	Fresno County	2,103	24.8%
North Carolina	Wake County	2,045	11.5%
California	Sacramento County	2,033	10.7%
Indiana	Marion County	1,983	11.8%
Pennsylvania	Allegheny County	1,922	15.2%
Florida	Miami-Dade County	1,916	10.0%
Georgia	Cobb County	1,775	22.8%
Pennsylvania	Philadelphia County	1,774	18.8%
Georgia	Gwinnett County	1,740	23.4%
Florida	Broward County	1,713	11.4%
Rhode Island	Providence County	1,704	17.9%
Missouri	Jackson County	1,703	17.2%
Florida	Hillsborough County	1,684	11.4%
Massachusetts	Essex County	1,674	11.9%
Wisconsin	Dane County	1,665	16.9%

Utah	Utah County	1,648	13.3%
Oregon	Multnomah County	1,646	9.6%
California	San Bernardino County	1,622	11.2%
Nevada	Clark County	1,619	10.2%
Hawaii	Honolulu County	1,615	15.2%
Florida	Orange County	1,575	10.8%
Oregon	Washington County	1,545	11.8%
Wisconsin	Waukesha County	1,543	17.2%
California	Contra Costa County	1,469	9.1%
Michigan	Kent County	1,467	14.3%
Washington	Snohomish County	1,411	17.8%
Virginia	Fairfax County	1,366	6.8%
Wisconsin	Milwaukee County	1,348	10.8%
Georgia	DeKalb County	1,303	26.4%
Florida	Duval County	1,295	12.2%
Connecticut	Hartford County	1,291	9.5%
Missouri	St. Louis County	1,274	9.7%
Massachusetts	Norfolk County	1,266	10.2%
Maryland	Baltimore County	1,259	9.7%
Massachusetts	Worcester County	1,208	12.6%
Ohio	Franklin County	1,195	8.9%
Delaware	New Castle County	1,148	11.9%
Texas	Tarrant County	1,126	6.9%
Pennsylvania	Montgomery County	1,116	12.3%
Maryland	Prince George's County	1,101	9.7%
Connecticut	Fairfield County	1,101	9.5%
Maryland	Montgomery County	1,098	7.5%
Ohio	Hamilton County	1,091	9.5%
Washington	Pierce County	1,060	14.8%
Pennsylvania	Lehigh County	1,052	13.7%
Tennessee	Shelby County	1,045	9.5%
Texas	Bexar County	1,023	6.6%
California	Sonoma County	1,017	12.3%
California	San Joaquin County	1,013	19.0%
Texas	Travis County	967	5.3%
New York	Suffolk County	953	6.5%
Massachusetts	Plymouth County	942	14.6%
Florida	Pinellas County	933	11.1%
New York	Onondaga County	930	23.7%
Minnesota	Ramsey County	925	15.4%
California	Ventura County	923	10.5%
Minnesota	Dakota County	897	24.5%
Kansas	Johnson County	890	11.0%

Connecticut	New Haven County	877	10.0%
Utah	Salt Lake County	866	5.1%
Colorado	Denver County	834	6.0%
California	San Mateo County	832	6.4%
Illinois	DuPage County	828	6.1%
Oklahoma	Oklahoma County	820	12.2%
New Jersey	Morris County	813	15.0%
North Carolina	Guilford County	809	12.6%
Alabama	Jefferson County	804	11.1%
South Carolina	Charleston County	783	13.1%
Massachusetts	Hampden County	783	12.5%
Massachusetts	Bristol County	771	14.3%
Louisiana	East Baton Rouge County	732	12.4%
Florida	Lee County	717	11.6%
New Jersey	Bergen County	710	11.0%
Indiana	Lake County	707	13.0%
New York	Nassau County	699	5.7%
Ohio	Lucas County	691	14.6%
Iowa	Polk County	687	9.1%
New York	Erie County	683	7.7%
New Jersey	Essex County	676	17.0%
Illinois	Lake County	675	10.5%
New York	Queens County	665	5.7%
Ohio	Montgomery County	660	13.1%
New Jersey	Monmouth County	659	11.8%
Idaho	Ada County	656	11.7%
Alabama	Madison County	646	10.2%
New Jersey	Middlesex County	640	11.7%
California	Stanislaus County	637	16.3%
Tennessee	Hamilton County	622	11.3%
Tennessee	Davidson County	621	5.2%
Pennsylvania	Lancaster County	618	13.5%
Colorado	Jefferson County	617	8.8%
Louisiana	Jefferson County	615	14.4%
New Hampshire	Hillsborough County	593	11.3%
New Mexico	Bernalillo County	592	9.1%
Washington	Clark County	592	11.1%
California	Monterey County	588	17.5%
Arizona	Pima County	583	8.4%
Minnesota	Anoka County	582	16.5%
Colorado	Adams County	570	10.6%
Colorado	Arapahoe County	568	7.2%
South Carolina	Greenville County	563	7.8%

New York	Kings County	556	6.8%
Washington	Spokane County	553	10.9%
New York	Westchester County	552	6.3%
Maryland	Anne Arundel County	551	6.8%
Nebraska	Douglas County	538	8.5%
California	Placer County	523	7.9%
Pennsylvania	Berks County	514	15.0%
Arkansas	Pulaski County	511	11.6%
Indiana	Allen County	506	9.4%
California	Santa Barbara County	487	10.3%
Pennsylvania	York County	485	13.2%
Florida	Polk County	485	13.3%
Missouri	St. Charles County	485	14.5%
Oregon	Clackamas County	475	9.2%
Ohio	Summit County	474	9.1%
Pennsylvania	Bucks County	471	9.1%
Texas	Collin County	470	6.4%
Oklahoma	Tulsa County	470	7.6%
Kansas	Sedgwick County	468	10.3%
Tennessee	Knox County	465	7.5%
Virginia	Loudoun County	463	8.9%
Ohio	Stark County	453	15.5%
South Carolina	Richland County	441	11.3%
New Jersey	Union County	435	14.2%
Pennsylvania	Chester County	432	8.4%
California	Tulare County	426	16.1%
Ohio	Butler County	420	15.9%
New York	Monroe County	414	7.1%
Nevada	Washoe County	410	6.6%
Oregon	Lane County	410	11.6%
Michigan	Washtenaw County	405	10.5%
New Jersey	Mercer County	402	12.9%
Virginia	Prince William County	401	10.4%
Colorado	El Paso County	394	7.1%
Texas	Nueces County	381	12.0%
Pennsylvania	Delaware County	380	11.4%
Florida	Sarasota County	373	10.2%
Illinois	Will County	372	7.8%
Illinois	Kane County	367	8.8%
New Jersey	Burlington County	366	11.5%
Texas	El Paso County	354	7.8%
Texas	Montgomery County	348	9.9%
Florida	Volusia County	345	12.0%

New Jersey	Ocean County	343	10.3%
Florida	Brevard County	342	7.2%
North Carolina	Forsyth County	336	10.2%
Utah	Davis County	325	8.4%
Michigan	Genesee County	323	10.9%
Alabama	Mobile County	322	8.1%
New Jersey	Camden County	318	10.9%
Texas	Hidalgo County	314	13.5%
New York	Richmond County	303	13.6%
Florida	Collier County	303	8.9%
Florida	Seminole County	297	6.2%
Louisiana	Orleans County	286	10.8%
Florida	Manatee County	279	11.6%
New York	Bronx County	271	8.8%
South Carolina	Horry County	265	12.2%
California	Solano County	253	8.4%
Texas	Denton County	251	6.1%
New Jersey	Hudson County	250	11.5%
Texas	Brazoria County	250	10.7%
Texas	Williamson County	247	8.0%
New Jersey	Passaic County	247	12.5%
Colorado	Larimer County	234	6.1%
Texas	Fort Bend County	221	7.2%
New York	Orange County	182	8.1%
Florida	Pasco County	179	8.2%
Florida	Marion County	177	9.0%
Texas	Cameron County	155	12.7%
Florida	Lake County	142	7.8%
Texas	Bell County	137	9.8%
Florida	Osceola County	115	9.8%
Arizona	Pinal County	82	11.0%

APPENDIX C: CUMULATIVE MSA CLEAN ENERGY JOB LOSSES

MSA	CE Jobs Lost	% Decline
Los Angeles-Long Beach-Santa Ana, CA MSA	31,618	21.6%
New York-Northern New Jersey-Long Island, NY-NJ-PA MSA	21,674	14.1%
Chicago-Naperville-Joliet, IL-IN-WI MSA	18,904	18.4%
San Francisco-Oakland-Fremont, CA MSA	16,348	13.3%
Houston-Sugar Land-Baytown, TX MSA	13,477	20.8%
Washington-Arlington-Alexandria, DC-VA-MD-WV MSA	12,104	13.6%
Seattle-Tacoma-Bellevue, WA MSA	10,356	21.4%
Dallas-Fort Worth-Arlington, TX MSA	10,320	17.6%
Detroit-Warren-Livonia, MI MSA	10,257	18.5%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA	10,233	20.7%
Miami-Fort Lauderdale-Pompano Beach, FL MSA	10,015	16.4%
Atlanta-Sandy Springs-Marietta, GA MSA	9,712	17.6%
Phoenix-Mesa-Scottsdale, AZ MSA	9,611	20.2%
Boston-Cambridge-Quincy, MA-NH MSA	9,242	9.6%
San Diego-Carlsbad-San Marcos, CA MSA	9,071	15.6%
Riverside-San Bernardino-Ontario, CA MSA	7,620	19.8%
Cleveland-Elyria-Mentor, OH MSA	6,732	30.1%
Sacramento-Arden-Arcade-Roseville, CA MSA	5,944	18.5%
Denver-Aurora, CO MSA	5,889	16.9%
Baltimore-Towson, MD MSA	5,856	15.1%
Minneapolis-St. Paul-Bloomington, MN-WI MSA	5,795	13.8%
Las Vegas-Paradise, NV MSA	5,746	26.1%
Portland-Vancouver-Beaverton, OR-WA MSA	4,791	13.4%
Pittsburgh, PA MSA	4,523	25.0%
St. Louis, MO-IL MSA	4,440	16.4%
San Jose-Sunnyvale-Santa Clara, CA MSA	4,320	13.2%
Tampa-St. Petersburg-Clearwater, FL MSA	4,044	18.3%
Cincinnati-Middletown, OH-KY-IN MSA	3,934	19.3%
Austin-Round Rock, TX MSA	3,747	14.2%
Charlotte-Gastonia-Concord, NC-SC MSA	3,673	14.7%
San Antonio, TX MSA	3,643	17.1%
Kansas City, MO-KS MSA	3,221	15.5%
Columbus, OH MSA	3,093	18.3%
Indianapolis-Carmel, IN MSA	3,069	12.4%
Salt Lake City, UT MSA	2,939	16.2%
Milwaukee-Waukesha-West Allis, WI MSA	2,705	13.2%
Orlando-Kissimmee, FL MSA	2,698	16.0%
Louisville/Jefferson County, KY-IN MSA	2,696	19.0%
Virginia Beach-Norfolk-Newport News, VA-NC MSA	2,662	14.5%
Nashville-Davidson-Murfreesboro-Franklin, TN MSA	2,530	10.5%

New Orleans-Metairie-Kenner, LA MSA	2,523	23.8%
Memphis, TN-AR-MS MSA	2,505	16.8%
Raleigh-Cary, NC MSA	2,281	14.1%
Richmond, VA MSA	2,251	13.7%
Hartford-West Hartford-East Hartford, CT MSA	2,173	14.6%
Reno-Sparks, NV MSA	2,164	22.1%
Jacksonville, FL MSA	2,074	18.7%
Buffalo-Niagara Falls, NY MSA	1,688	19.1%
Birmingham-Hoover, AL MSA	1,664	12.5%
Albuquerque, NM MSA	1,553	21.6%
Rochester, NY MSA	1,452	17.5%
Providence-New Bedford-Fall River, RI-MA MSA	1,262	17.5%
Des Moines-West Des Moines, IA MSA	957	14.6%
Oklahoma City, OK MSA	851	9.9%
Flint, MI MSA	606	15.9%
Honolulu, HI MSA	600	6.3%

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

State	EE Jobs Lost	Percent Decline	State	EE Jobs Lost	Percent Decline
Alabama	4,242	13.4%	Montana	1,008	11.4%
Alaska	777	16.5%	Nebraska	1,343	9.6%
Arizona	4,009	9.0%	Nevada	1,186	9.9%
Arkansas	1,458	9.4%	New Hampshire	759	6.4%
California	36,501	11.3%	New Jersey	4,896	12.9%
Colorado	2,164	6.0%	New Mexico	773	12.7%
Connecticut	3,272	9.1%	New York	8,262	6.5%
Delaware	1,277	10.2%	North Carolina	11,225	12.8%
District of Columbia	1,530	11.8%	North Dakota	629	11.3%
Florida	14,301	11.6%	Ohio	8,629	10.4%
Georgia	15,539	24.7%	Oklahoma	2,220	14.8%
Hawaii	1,238	20.3%	Oregon	3,851	9.0%
Idaho	765	8.5%	Pennsylvania	10,640	14.9%
Illinois	5,596	6.1%	Rhode Island	1,953	15.0%
Indiana	5,916	10.6%	South Carolina	3,295	10.7%
Iowa	2,027	9.6%	South Dakota	308	4.0%
Kansas	1,440	8.1%	Tennessee	3,971	7.4%
Kentucky	6,019	23.0%	Texas	11,757	6.9%
Louisiana	4,227	18.2%	Utah	1,562	4.8%
Maine	945	10.6%	Vermont	1,023	9.3%
Maryland	6,170	8.6%	Virginia	6,873	8.6%
Massachusetts	6,631	9.3%	Washington	10,343	15.9%
Michigan	11,682	13.7%	West Virginia	764	10.7%
Minnesota	5,462	11.6%	Wisconsin	5,254	8.3%
Mississippi	1,923	12.3%	Wyoming	535	7.1%
Missouri	4,214	9.9%	US TOTAL	252,384	10.7%