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EPA's Climate Regulations Will Harm American Manufacturing

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The Environmental Protection Agency's (EPA) forthcoming climate change regulations for new and existing electricity generating units have been appropriately labeled the "war on coal,"[1] because the proposed limits for carbon dioxide emissions would essentially prohibit the construction of new coal-fired power plants and force existing ones into early retirement.

However, the casualties will extend well beyond the coal industry, hurting families and businesses and taking a significant toll on American manufacturing across the nation. Congress should stop the EPA and all other federal agencies from regulating carbon dioxide and other greenhouse gas emissions.

Driving Energy Prices Up, Economic Activity Down. Coal provides approximately 40 percent of America's electricity generation.[2] By significantly limiting the use of an affordable energy source, the EPA's regulations will increase electricity prices for American households. Since low-income families spend a larger proportion of their income on energy, a tax that increases energy prices would disproportionately affect the budgets of the poorest American families.

This paper, in its entirety, can be found at **http://report.heritage.org/ib4158**

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Higher energy prices as a result of the regulations will squeeze both production and consumption. Since energy is a critical input for most goods and services, Americans will be hit repeatedly with higher prices as businesses pass higher costs onto consumers. However, if a company had to absorb the costs, high energy costs would shrink profit margins and prevent businesses from investing and expanding. The cutbacks result in less output, fewer new jobs, and less income.

Heritage Foundation analysts modeled the economic effects of a phase-out of coal between the years 2015 and 2038. Using the Heritage Foundation Energy Model, a derivative of the federal government's National Energy Model System, we found that by the end of 2023, nearly 600,000 jobs will be lost, a family of four's income will drop by $1,200 per year, and aggregate gross domestic product decreases by $2.23 trillion over the entire period of the analysis.[3]

Manufacturing Hit Hard. America's manufacturing base will be particularly harmed by the EPA's climate regulations. Manufacturing accounts for over 330,000 of the jobs lost.[4] This occurs for a number of reasons.

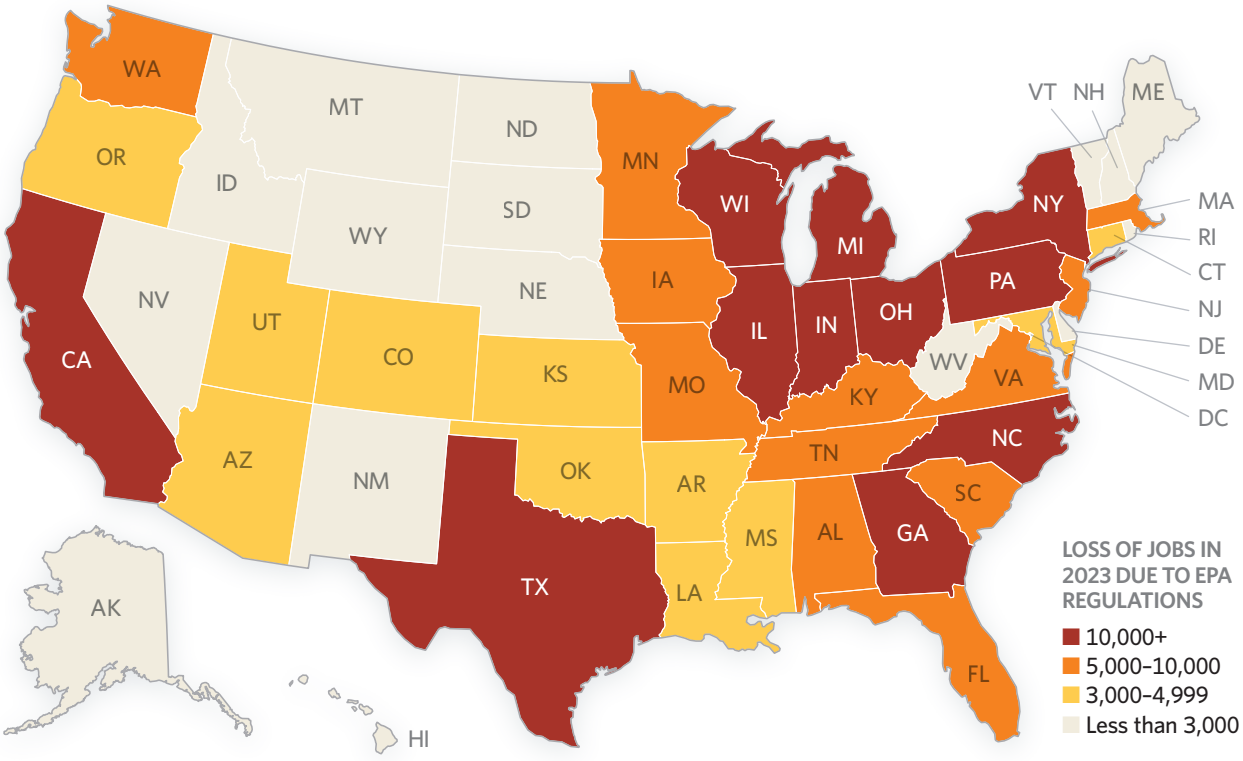
As more coal generation is taken offline, the marketplace must find a way to make up for that lost supply. The Heritage Energy Model builds in the most cost-effective means of replacing the lost coal through a combination of consumers decreasing energy use as an adjustment to higher prices and increased power generation from other sources.

Manufacturing is an energy-intensive industry, and the impact of the higher energy prices on manufacturing averages to more than 770 jobs losses per congressional district. However, not all regions are

MAP 1

The Cost of EPA Regulations: 336,000 Manufacturing Jobs in One Year

In just one year (2023), Environmental Protection Agency regulations on electric plants would eliminate 336,000 manufacturing jobs around the U.S. The map below shows the breakdown by state.



California	-37,439	Massachusetts	-6,920	Nebraska	-2,277
Texas	-24,504	Virginia	-6,592	New Hampshire	-1,978
Ohio	-18,191	South Carolina	-6,149	Idaho	-1,545
Illinois	-17,115	Alabama	-6,143	West Virginia	-1,414
Pennsylvania	-16,576	Kentucky	-5,626	Maine	-1,359
Michigan	-16,215	Iowa	-5,140	Rhode Island	-1,295
New York	-13,868	Arizona	-4,564	Nevada	-1,150
Indiana	-12,520	Oregon	-4,379	New Mexico	-990
North Carolina	-12,032	Connecticut	-4,339	South Dakota	-929
Wisconsin	-11,702	Colorado	-4,078	Delaware	-920
Georgia	-10,360	Kansas	-3,938	Vermont	-789
Florida	-9,921	Arkansas	-3,912	North Dakota	-594
New Jersey	-8,497	Oklahoma	-3,723	Montana	-481
Minnesota	-8,465	Louisiana	-3,605	Hawaii	-443
Tennessee	-8,114	Mississippi	-3,477	Alaska	-300
Washington	-7,492	Maryland	-3,377	Wyoming	-280
Missouri	-7,164	Utah	-3,111	District of Columbia	-84

Source: Calculations based on data from the Heritage Foundation Energy Model and employment data from the U.S. Census Bureau, American Community Survey.

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affected the same, as districts in Wisconsin, Ohio, Indiana, Michigan, and Illinois are especially hit hard. In fact, 19 out of the top 20 worse off congressional districts from the Administration's war on coal are located in the Midwest region. In those districts, the manufacturing industry, on average, will slash more than 1,600 jobs by 2023. The table at the end of the paper shows the estimates of the decrease of manufacturing employment per congressional district by 2023.

Furthermore, manufacturing growth will be harmed as a result of the fuel switching that will occur to make up for lost coal generation. Natural gas will be diverted away from manufacturing and to power generation. As a result, the Heritage Energy model projects that natural gas prices will increase 28 percent by 2030.

Natural gas and liquids produced with natural gas provide a feedstock for fertilizers, chemicals and pharmaceuticals, waste treatment, food processing, fuel for industrial boilers, transportation fuel, and much more. The chemical-manufacturing base alone is building 148 new operations topping over $100 billion in response to current and projected low natural gas prices from the shale gas boom.[5] As the U.S. is experiencing a renaissance in manufacturing and energy-intensive industries, the Administration's war on coal could adversely affect America's competitive advantage.

Availability of Carbon Capture and Sequestration. The primary reason the EPA's regulations will ban the construction of coal-fired electricity generating units is that to meet the thresholds,

TABLE 1

Six Midwest States Hit Hardest by EPA Regulations

MANUFACTURING JOB LOSSES IN 2023, AS AN AVERAGE FOR CONGRESSIONAL DISTRICTS

Wisconsin	-1,463	Nebraska	-759
Indiana	-1,391	Washington	-749
Iowa	-1,285	Oklahoma	-745
Michigan	-1,158	Georgia	-740
Ohio	-1,137	New Jersey	-708
Minnesota	-1,058	California	-706
New Hampshire	-989	Texas	-681
Kansas	-985	Maine	-680
Arkansas	-978	Rhode Island	-648
Illinois	-951	Louisiana	-601
Kentucky	-938	Virginia	-599
South Dakota	-929	North Dakota	-594
North Carolina	-926	Colorado	-583
Pennsylvania	-921	New York	-514
Delaware	-920	Arizona	-507
Tennessee	-902	Montana	-481
Missouri	-896	West Virginia	-471
South Carolina	-878	Maryland	-422
Alabama	-878	Florida	-367
Oregon	-876	New Mexico	-330
Mississippi	-869	Alaska	-300
Connecticut	-868	Nevada	-288
Vermont	-789	Wyoming	-280
Utah	-778	Hawaii	-222
Idaho	-773	D.C.	-84
Massachusetts	-769		

Source: Calculations based on data from the Heritage Foundation Energy Model and employment data from the U.S. Census Bureau, American Community Survey.

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1. Zack Coleman, "White House adviser: 'War on coal is exactly what's needed'" *The Hill*, June 25, 2013, http://thehill.com/blogs/e2-wire/e2-wire/307571-white-house-adviser-war-on-coal-is-exactly-whats-needed (accessed February 28, 2014).
2. U.S. Energy Information Agency, "Short Term Outlook—February 2014," Table 7d, http://www.eia.gov/forecasts/steo/tables/pdf/7dtab.pdf (accessed February 26, 2014).
3. See Nicolas D. Loris, Kevin D. Dayaratna, and David W. Kreutzer, "EPA Power Plant Regulations: A Backdoor Energy Tax," Heritage Foundation *Backgrounder* No 2683, December 5, 2013, http://www.heritage.org/research/reports/2013/12/epa-power-plant-regulations-a-backdoor-energy-tax (accessed February 26, 2014).
4. Out of a total of 670,000 jobs lost. This differs from the estimates referred to earlier (600,000 jobs lost), which are calculated from the Heritage Foundation Energy Model using employment figures from the Current Population Survey. These new estimates are calculated from the same Heritage Foundation Energy Model but use employment data from the American Community Survey in order to illustrate the impact in various congressional districts. Other coal dependent states that are not heavy manufacturers will also be significantly impacted by the EPA's regulations. For instance, although West Virginia and Wyoming are relatively low on manufacturing jobs lost, Heritage estimates these will be the two hardest hit states in terms of overall job losses per 100,000 employed. For a more detailed explanation of the overall job losses and methodology, see ibid.
5. *Business Standard*, "U.S. Chemical Industry Invest $100 Bn Due to Shale Gas Boom," February 22, 2014, http://www.business-standard.com/content/b2b-chemicals/us-chemical-industry-invest-100-bn-due-to-shale-gas-boom-114022400678_1.html (accessed February 26, 2014).

new plants will have to install carbon capture and sequestration (CCS) technology. As identified by the Obama Administration's Interagency Task Force on Carbon Capture and Storage 2010 report, implementation of CCS has a number of extremely difficult obstacles to overcome. There are questions of technical scalability, regulatory challenges, long-term liability of storing the captured carbon dioxide, and above all, cost.[6]

No credible basis exists to state that CCS is adequately demonstrated today, since no large-scale power plant in the U.S. has CCS. One large-scale CCS project is currently under contract—the Kemper County Integrated Gasification Combined Cycle (IGCC) plant—but it is hardly a model for new coal-fired plants for the rest of the country. Setting aside the fact that the project has had nearly half a billion dollars in cost overruns and received over $400 million in Department of Energy grants and preferential tax credits,[7] the plant is using a lower-grade lignite coal rather than higher-grade bituminous and subbituminous coal found in many parts of the rest of the country.

The Kemper plant will use IGCC technology that turns coal into gas as opposed to pulverized combustion and the captured carbon dioxide will serve a purpose for enhanced oil recovery to help finance the plant. New coal-fired plants in other parts of the country will not have those opportunities, so the Kemper plant is not an indicator of adequate demonstration. Further, the fact that the plant is not actually operating disqualifies it as the model. CCS should be pursued only if companies believe it is in their economic interest to do so—for instance, if profitable opportunities for enhanced oil recovery exist nearby.

Congress Stepping In. Senator Joe Manchin (D–WV) and Representative Ed Whitfield (R–KY) have introduced the Electricity Security and Affordability Act (H.R. 3826) that would require that greenhouse gas regulations for electricity generating units meet certain standards that prove they are economically feasible to achieve and have a demonstrated positive environmental benefit. Any imposed standards to limit or contain emissions cannot have been tested in isolation and with special treatment like the Kemper plant but must have been used commercially for a year by multiple plants (at least six) in multiple regions in order to be representative of the industry.

To truly ensure that the technology is cost-effective, Congress should strip away all subsidies and Department of Energy spending for CCS in order to prevent the federal government from presenting a handful of fundamentally uneconomic CCS plants as proof that the standards are legitimate. However, the most effective policy solution would be to prohibit the EPA and all agencies from regulating greenhouse gas emissions.

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6. Environmental Protection Agency, "Report of the Interagency Task Force on Carbon Capture and Storage," August 2010, http://www.epa.gov/climatechange/Downloads/ccs/CCS-Task-Force-Report-2010.pdf (accessed February 26, 2014).
7. Massachusetts Institute of Technology, "Kemper County IGCC Fact Sheet: Carbon Dioxide Capture and Storage Project," http://sequestration.mit.edu/tools/projects/kemper.html (accessed February 26, 2014).

TABLE 2

The Effects of EPA Regulations on Manufacturing Jobs, by Congressional District

The Environmental Protection Agency's regulations on electric power plants would cause the loss of hundreds of thousands of jobs around the U.S., most significantly in the manufacturing sector. The table below shows the number of manufacturing jobs lost, by state and congressional district, due to the regulations in just one year, 2023. ***The total for the U.S. would be 336,000 manufacturing jobs lost.***

ALABAMA	
1	-731
2	-813
3	-1,025
4	-1,175
5	-1,037
6	-669
7	-693
Total	-6,143
ALASKA	
At Large	-300
ARIZONA	
1	-382
2	-445
3	-409
4	-355
5	-783
6	-489
7	-557
8	-452
9	-692
Total	-4,564
ARKANSAS	
1	-967
2	-597
3	-1,201
4	-1,147
Total	-3,912
CALIFORNIA	
1	-356
2	-468
3	-466
4	-433
5	-733
6	-345
7	-427
8	-362
9	-537
10	-794
11	-470
12	-547
13	-531
14	-585
15	-986
16	-535
17	-1,819
18	-1,278
19	-1,275
20	-432
21	-372
22	-424
23	-410
24	-527
25	-826
26	-715
27	-625
28	-502
29	-758
30	-607
31	-639
32	-895
33	-751
34	-832
35	-960
36	-259
37	-469
38	-962
39	-985
40	-1,140
41	-683
42	-801
43	-781
44	-942
45	-1,008
46	-1,119
47	-863
48	-969
49	-698
50	-664
51	-454
52	-865
53	-555
Total	-37,439
COLORADO	
1	-516
2	-773
3	-364
4	-728
5	-476
6	-536
7	-685
Total	-4,078
CONNECTICUT	
1	-847
2	-1,017
3	-920
4	-580
5	-975
Total	-4,339
DELAWARE	
At Large	-920
DISTRICT OF COLUMBIA	-84
FLORIDA	
1	-335
2	-295
3	-331
4	-432
5	-397
6	-393
7	-412
8	-640
9	-305
10	-359
11	-292
12	-362
13	-571
14	-396
15	-438
16	-406
17	-248
18	-351
19	-218
20	-287
21	-302
22	-372
23	-393
24	-279
25	-506
26	-264
27	-337
Total	-9,921
GEORGIA	
1	-644
2	-623
3	-909
4	-589
5	-416
6	-605
7	-709
8	-633
9	-1,028
10	-730
11	-744
12	-753
13	-554
14	-1,423
Total	-10,360
HAWAII	
1	-256
2	-187
Total	-443
IDAHO	
1	-798
2	-747
Total	-1,545
ILLINOIS	
1	-495
2	-671
3	-901
4	-1,254
5	-811
6	-1,111
7	-530
8	-1,310
9	-660
10	-1,160
11	-1,009
12	-724
13	-715
14	-1,226
15	-1,057
16	-1,282
17	-1,228
18	-971
Total	-17,115
INDIANA	
1	-1,180
2	-1,874
3	-1,947
4	-1,402
5	-998
6	-1,524
7	-850
8	-1,486
9	-1,259
Total	-12,520
IOWA	
1	-1,537
2	-1,472
3	-782
4	-1,349
Total	-5,140
KANSAS	
1	-964
2	-834
3	-742
4	-1,398
Total	-3,938
KENTUCKY	
1	-1,083
2	-1,209
3	-814

TABLE 2

The Effects of EPA Regulations on Manufacturing Jobs, by Congressional District

4	-1,036
5	-546
6	-938
Total	-5,626

LOUISIANA

1	-582
2	-554
3	-659
4	-544
5	-472
6	-794
Total	-3,605

MAINE

1	-717
2	-642
Total	-1,359

MARYLAND

1	-670
2	-517
3	-450
4	-293
5	-302
6	-467
7	-349
8	-329
Total	-3,377

MASSACHUSETTS

1	-876
2	-964
3	-1,252
4	-790
5	-613
6	-820
7	-450
8	-566
9	-589
Total	-6,920

MICHIGAN

1	-714
2	-1,599
3	-1,324
4	-1,041
5	-863
6	-1,467
7	-1,244
8	-1,181
9	-1,293
10	-1,525
11	-1,430
12	-994
13	-799
14	-741
Total	-16,215

MINNESOTA

1	-1,313
2	-1,032
3	-1,209
4	-965
5	-799
6	-1,276
7	-1,135
8	-736
Total	-8,465

MISSISSIPPI

1	-1,198
2	-688
3	-744
4	-847
Total	-3,477

MISSOURI

1	-662
2	-944
3	-1,090
4	-790
5	-766
6	-1,021
7	-881
8	-1,010
Total	-7,164

MONTANA

At Large	-481

NEBRASKA

1	-840
2	-617
3	-820
Total	-2,277

NEVADA

1	-190
2	-486
3	-263
4	-211
Total	-1,150

NEW HAMPSHIRE

1	-927
2	-1,051
Total	-1,978

NEW JERSEY

1	-619
2	-498
3	-528
4	-517
5	-775
6	-732
7	-1,009
8	-755
9	-926
10	-455
11	-849
12	-834
Total	-8,497

NEW MEXICO

1	-384
2	-301
3	-305
Total	-990

NEW YORK

1	-506
2	-762
3	-401
4	-369
5	-313
6	-326
7	-459
8	-211
9	-228
10	-340
11	-274
12	-343
13	-291
14	-355
15	-237
16	-265
17	-427
18	-533
19	-589
20	-495
21	-655
22	-841
23	-1,076
24	-794
25	-949
26	-740
27	-1,089
Total	-13,868

NORTH CAROLINA

1	-868
2	-1,049
3	-559
4	-614
5	-1,107
6	-1,110
7	-831
8	-1,110
9	-837
10	-1,323
11	-933
12	-754
13	-937
Total	-12,032

NORTH DAKOTA

At Large	-594

OHIO

1	-1,034
2	-1,038
3	-611
4	-1,683
5	-1,637
6	-1,001
7	-1,510
8	-1,468
9	-1,063
10	-860
11	-716
12	-893
13	-1,165
14	-1,436
15	-803
16	-1,273
Total	-18,191

OKLAHOMA

1	-958
2	-881
3	-706
4	-613
5	-565
Total	-3,723

OREGON

1	-1,425
2	-626
3	-876
4	-693
5	-759
Total	-4,379

PENNSYLVANIA

1	-470
2	-294
3	-1,167
4	-1,196
5	-1,108
6	-1,132
7	-913
8	-1,079
9	-913
10	-1,008
11	-918
12	-849
13	-754
14	-548
15	-1,134
16	-1,236
17	-1,009
18	-848
Total	-16,576

RHODE ISLAND

1	-657
2	-638
Total	-1,295

TABLE 2

The Effects of EPA Regulations on Manufacturing Jobs, by Congressional District

SOUTH CAROLINA	
1	-645
2	-716
3	-1,222
4	-1,203
5	-1,041
6	-646
7	-676
Total	-6,149
SOUTH DAKOTA	
At Large	-929
TENNESSEE	
1	-1,077
2	-748
3	-1,045
4	-1,202
5	-611
6	-993
7	-894
8	-991
9	-553
Total	-8,114
TEXAS	
1	-754
2	-931
3	-877
4	-890
5	-630
6	-942
7	-773
8	-711
9	-560
10	-827
11	-565
12	-883
13	-728
14	-896
15	-357
16	-450
17	-723
18	-713
19	-421
20	-385
21	-501
22	-792
23	-392
24	-825
25	-664
26	-802
27	-601
28	-301
29	-839
30	-601
31	-687
32	-801
33	-891
34	-307
35	-485
36	-999
Total	-24,504
UTAH	
1	-989
2	-647
3	-624
4	-851
Total	-3,111
VERMONT	
At Large	-789
VIRGINIA	
1	-455
2	-597
3	-692
4	-771
5	-783
6	-918
7	-507
8	-228
9	-923
10	-433
11	-285
Total	-6,592
WASHINGTON	
1	-1,043
2	-1,032
3	-781
4	-549
5	-527
6	-554
7	-668
8	-935
9	-886
10	-517
Total	-7,492
WEST VIRGINIA	
1	-568
2	-513
3	-333
Total	-1,414
WISCONSIN	
1	-1,566
2	-1,058
3	-1,301
4	-984
5	-1,621
6	-1,999
7	-1,408
8	-1,765
Total	-11,702
WYOMING	
At Large	-280

Source: Calculations based on data from the Heritage Foundation Energy Model and employment data from the U.S. Census Bureau, American Community Survey.