



## Research

# Greenhouse Gas Emissions Reduction: EPA's Questionable Baseline Figures

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The Environmental Protection Agency (EPA) has proposed regulation to cut greenhouse gas emissions from the power sector 30 percent below 2005 levels by 2030. An ambitious target, undoubtedly, and one that EPA estimates will cost the economy \$8.8 billion annually, [contributing to a 10.3 percent increase in residential electricity bills](#) by the end of the decade. To combat these costs, EPA promotes state-specific targets and flexible compliance pathways, allowing states to comply by making improvements at older facilities, relying more on nuclear power and clean natural gas, installing renewables, and promoting the more efficient use of electricity by consumers.

The burden of emissions reductions is divided according to a series of convoluted calculations designed by EPA to reflect each state's relative ability to clean up their electricity supply. Individual state targets are based on general assumptions about available improvements to coal facilities, investments in new facilities currently underway, regional renewable power forecasts, and demand-side energy efficiency best practices<sup>[1]</sup>. The result is a patchwork of reduction targets, ranging from an 11 percent emissions cut in North Dakota to 72 percent cut in Washington. Table 1 captures reduction targets from the ends of the spectrum.

**Table 1. Five highest and lowest reduction targets (as a percentage of emissions)**

State	EPA 2030 Emissions Rate Target <sup>i</sup> (lb/MWh)	EPA 2012 Emissions Rate Estimates <sup>i</sup> (lb/MWh)	Target Change in Emissions Rate (%)
Washington	215	763	-72%
Arizona	702	1,453	-52%
South Carolina	772	1,587	-51%
Oregon	372	717	-48%
New Hampshire	486	905	-46%
Iowa	1,301	1,552	-16%

State	EPA 2030 Emissions Rate Target <sup>i</sup> (lb/MWh)	EPA 2012 Emissions Rate Estimates <sup>i</sup> (lb/MWh)	Target Change in Emissions Rate (%)
Hawaii	1,306	1,540	-15%
Rhode Island	782	907	-14%
Maine	378	437	-14%
North Dakota	1,783	1,994	-11%

<sup>i</sup>EPA synthesizes state-based data in support of the Clean Power Plan in a [set of interactive maps](#).

Note that there is considerable variability in 2030 emission rates and reduction targets among these states; Maine's aggressive target of 378 lb/MWh requires reducing emission levels by just 14 percent, while South Carolina's more generous 772 lb/MWh target will require cutting emissions by more than half.

There is a serious flaw in the data, however. When measured according to actual 2012 fleet-wide emissions, 4 of the 5 states carrying the largest burden have already achieved their reduction targets. In fact, Washington should be able to *increase* its emissions on a fleet-wide level by 73 percent. Among the 49 states captured under EPA's regulatory proposal, the 19 states listed in Table 2 already have fleet-wide emissions rates below their established 2030 target.

**Table 2. Fleet-wide Emissions Targets and Rates for Selected States (lb/MWh)**

State	EPA 2030 Emissions Rate Target <sup>i</sup> (lb/MWh)	Actual 2012 Emissions Rate <sup>ii</sup> (lb/MWh)	Target Change in Emissions Rate (%)
Alaska	1,003	906	11%
Alabama	1,059	1,002	6%
California	537	524	2%
Connecticut	540	385	40%
Idaho	228	93	145%
Illinois	1,271	996	28%
Maryland	1,187	1,111	7%
Maine	378	290	30%
Montana	1,771	1,300	36%

State	EPA 2030 Emissions Rate Target <sup>i</sup> (lb/MWh)	Actual 2012 Emissions Rate <sup>ii</sup> (lb/MWh)	Target Change in Emissions Rate (%)
New Hampshire	486	483	1%
New Jersey	531	433	23%
New York	549	516	6%
Oregon	372	252	48%
Pennsylvania	1,052	1,031	2%
South Carolina	772	764	1%
South Dakota	741	562	32%
Tennessee	1,163	1,100	6%
Virginia	810	792	2%
Washington	215	124	73%

<sup>i</sup>EPA synthesizes state-based data in support of the Clean Power Plan in a [set of interactive maps](#).

<sup>ii</sup>Includes generation data from covered fossil facilities as stated in EPA's [Goal Computation Technical Support Document](#) and net generation data from renewable and other carbon-free sources of power as collected by [Energy Information Administration forms EIA-906, EIA-920, and EIA-923](#).

This incongruity stems from a faulty EPA baseline, which excludes all power generation from installed hydropower and 94 percent of nuclear generation. Together, these energy sources generated 26 percent of total 2012 electricity production and represent more than 80 percent of our carbon-free power supply. The EPA's calculations disguise the 31.4 percent of the power supply that is generated from carbon-free sources and undervalues the accomplishments of 11 covered states that draw more than half their electricity from nuclear and renewables. Even the EPA's numbers show a state run entirely on natural gas, the cleanest fossil fuel, would emit about 1135 lb/MWh, or 15% above the average U.S. emissions target. That means that 31 states must count non-fossil generation in their fleet-wide fuel mix to attain their 2030 targets – just not nuclear and hydropower.

Nowhere in the supporting documentation for this regulation does the EPA justify the exclusion of these major carbon-free sources of electric capacity. The result is a greenhouse gas reduction policy that perversely excludes up to 84 percent of individual states' clean power production.

If the EPA had accounted for nuclear and hydropower power, states would, on average, only have to reduce their emissions by 2 percent to reach the target established in the regulation. For the sake of comparison, carbon emissions from the electricity sector have declined 15 percent since 2005 without any imposition of costly carbon regulation.

**Table 3. Average national reduction targets (as a percentage of emissions)**

	EPA 2030 Emissions Target (lb/MWh)	EPA 2012 Emission Estimates (lb/MWh)	Emissions Reductions Target (%)	Actual 2012 Emissions (lb/MWh)	Emissions Reductions Target (%)
US Average <sup>i</sup>	991	1,444	-33%	1,113	-2%

<sup>i</sup>Author calculations

Of course, this is not what EPA intends. States will be directed to pursue ambitious emission reduction targets that ignore the considerable existing contributions of their hydropower and nuclear fleets. The resulting series of targets will impose unnecessary costs on the cleanest states, require overly restrictive emissions limits, and increase prices for consumers.

[1] These calculations and their assumptions are detailed in EPA's [Goal Computation Technical Support Document](#).