

EPA Clean Power Plan Analysis

*Broward County Natural Resources Planning and Management Division
June 12, 2014*

Summary

- The goal of the EPA Clean Power Plan is to reduce emissions from existing power plants 30 percent below 2005 levels by 2030.
- In establishing state-specific goals, the year 2012 is used as a baseline. The goal for the State of Florida is a **40 percent reduction**.
- Each state has flexibility to meet its goal as it sees fit, applying any combination of energy efficiency improvement, demand side management strategies, renewable energy and conservation strategies, technology improvements, and retirements.
- The EPA Clean Power Plan and the goals identified for the State of Florida are consistent with Board policy and less aggressive than goals adopted and advocated for by the Board.
- The Plan supports the Broward Citizen's Bill of Rights and the "Right to a Sustainable Environment", including clean air and water and the stewardship of our natural resources, as approved in the 2010 Charter amendment.

Context

- Florida (and Southeast Florida in particular) faces serious threats from sea level rise and climate disruptions.
- CO2 emissions are considered the most significant driver for the warming of the ocean and atmosphere during the last century, with dramatic community, economic, and environmental implications.
- Reducing US emissions is imperative, not only to reduce our contribution to global carbon emissions, but also as a signal to other nations.
- The EPA's Clean Power Plan is a positive step in this direction, but could be strengthened.

The Clean Power Plan

On June 2, 2014, the US Environmental Protection Agency released a long-awaited proposal, dubbed the "Clean Power Plan," to reduce carbon emissions from existing power plants in the United States. Under the proposal, the EPA estimates that emissions nationwide from existing power plants will drop 30 percent from 2005 levels by 2030.

The Clean Power Plan does not give specific directives to states for reducing power plant emissions, but sets an emissions reduction goal for each state's power sector, based on the individual state's existing fuel sources and power sector characteristics.

Each state's reduction goal is different. (The "30 percent" figure referenced above is an average of individual state goals.) The goals are expressed in terms of "carbon intensity," which is the average amount of carbon dioxide in pounds emitted for each megawatt-hour of electricity produced.

To calculate the goal, the EPA took each state's starting rate—the carbon intensity of existing fossil-fuel plants in 2012—and then adjusted it to give credit for existing renewable generation and the continued operation of nuclear plants that would otherwise be set for retirement (estimated at 6 percent of nuclear capacity across the states).

Next, a goal was developed, derived from the application of certain assumptions in four "building block" strategies. These assumptions are:

- 1) Improving the efficiency of coal plants (specifically, improving average heat rates by 6 percent).
- 2) Increasing the capacity of existing natural gas combined-cycle plants to 70 percent.
- 3) Increasing generation from renewable sources by a percentage equal to the average percentage required by renewable energy policies of other states in the same region of the country.
- 4) Achieving 1.5 percent reduction in electricity use from demand-side energy efficiency programs each year (increasing from current levels by 0.2 percentage points per year until 1.5 percent is reached).

For building blocks 2 through 4 above, the EPA determined how much coal-fired generation would be displaced by each strategy and calculated the associated reduction in emissions.

For Florida, the calculations are as follows:

	Amount of reduction from credit or building block (lbs/MWh)	Cumulative rate after subtracting reductions from credit or building block (lbs/MWh)
2012 fossil-fuel rate		1,238
2012 rate with credit for renewable energy and nuclear generation	39	1,199
Building block: coal-plant efficiency	30	1,169
Building block: increased capacity of natural gas plants	287	882
Building block: growth in renewables	70	812
Building block: energy efficiency	72	740
2030 Goal		740

Lowering the carbon intensity from 1,199 lbs/MWh in 2012 (the fossil-fuel rate with credit for renewables and nuclear) to 740 lbs/MWh in 2030 amounts to a **40 percent reduction** for the State of Florida.

The EPA also requires that states meet an interim goal during the 2020-2029 period. The goal is an average over those 10 years. For Florida, the interim goal is 794 lbs/MWh (a 34 percent reduction from 2012 (using the rate with credit for renewables and nuclear)).

The assumptions above were applied only to calculate state goals. Each state has flexibility to meet its goal as it sees fit, applying all or any of the four building block strategies, as well as other strategies, such as:

- demand-side energy efficiency programs
- renewable energy standards
- efficiency improvements at plants
- co-firing or switching to natural gas
- transmission efficiency improvements
- energy storage technology
- retirements
- expanding renewables or nuclear
- market-based trading programs
- energy conservation programs

States may also work with other states to achieve the required reductions, either through existing programs (such as the Regional Greenhouse Gas Initiative (RGGI) cap-and-trade system in the northeast) or the creation of new programs. The EPA has also indicated that statewide carbon taxes could be used.

State plans are due to the EPA by June 30, 2016. (Extensions are possible, including a two-year extension to June 30, 2018, for states that develop joint plans.)

Benefits

The EPA estimates that the Plan will generate climate and public health benefits of \$55 billion to \$93 billion per year by 2030, against annual costs of \$7.3 billion to \$8.8 billion.

In addition to the carbon pollution reduction, the EPA estimates that soot and smog-forming pollutants will drop 25 percent by 2030 as a result of the Clean Power Plan.

Renewable and clean energy investments offer real promise for local economies. Nation-wide the solar industry has demonstrated remarkable growth with a 21% increase since 2012, substantially outpacing growth of the national economy as a whole.

Previous studies have indicated that generally speaking, employment created from low-impact renewable electricity would be comparable to or greater than that created by an equivalent capacity of fossil-fuel based energy generation.

Alignment with Broward County Policies

Broward County has a long history of supporting state and federal action to reduce greenhouse gas emissions, in addition to its direct efforts to reduce its own emissions from government operations and in Broward County as a whole. EPA's Clean Power Plan is well aligned with the Board's history of policy positions relating to emissions reductions and support for renewable energy.

In 2007, the County signed onto the US Mayors' Climate Protection Agreement, which called for federal and state policies to meet the Kyoto Protocol target of a 7 percent reduction in emissions below 1990 levels by 2012, and to attempt to meet that 7 percent reduction on a local level. (U.S. emissions actually increased 4.7 percent above 1990 levels by 2012, according to the US EPA.)

In February 2013, the Board restated formal support for a regional greenhouse gas emissions goal of 17 percent below 2005 levels by 2020 and 82 percent below 2010 levels by 2050 as part of the Board-approved Climate Element as part of the Broward County Comprehensive Plan.

In late 2013, the Board of Commissioners and the Broward County Climate Change Task Force urged the Florida Public Service Commission to set meaningful energy-efficiency goals for the state's electric utilities, noting that over 20 states set annual savings targets of at least one percent, and over half of those targets exceed the 1.5 percent goal used by the EPA in its building block.

Earlier this year, the Board of Commissioners approved a resolution pledging to obtain 20 percent of the County's energy from renewable sources and to reduce building electricity use 2.5 percent per year, for a total of 20 percent by 2020. This energy-efficiency goal exceeds the 1.5 percent building-block goal used by the EPA in the calculation of overall state goals.

The Board has also lead efforts to diversify our energy sources and spur economic growth in the renewable energy in organizing the regional Go Solar Challenge and with support for Property Assessed Clean Energy (PACE), initiatives which could be expanded within the State's Plan.

The Case for an Even Stronger Plan

The Clean Power Plan represents a significant effort by the federal government to reduce carbon dioxide emissions from power plants, and it has many positive features. However, the Plan that could be further strengthened before the final version of the regulation is released in 2015.

At the Copenhagen Climate Change Summit in December 2009, President Obama announced a target to reduce emissions 17 percent below 2005 levels by 2020, 42 percent below 2005 levels by 2030, and 83 percent below 2005 levels by 2050.¹ The Clean Power Plan does not meet this goal. With wider adoption of renewable energy sources and energy-efficiency measures, the Clean Power Plan could be strengthened to meet the Copenhagen target which may still be insufficient to keep global temperatures from reaching the 2° C increase above pre-industrial levels, which is widely considered the threshold beyond which further temperature increases are likely to dramatically challenge societies.

As such, the plan could be strengthened to require expansion of renewable energy or energy-efficiency efforts, which are zero-emission strategies. Many states may meet much of their goal by simply replacing coal-fired plants with natural gas-fired plants, trading one fossil fuel for another, when net zero-emission strategies present viable options. In addition, proposed emission reductions with transition to natural gas may be overstated. Natural gas produces roughly half the carbon dioxide as coal, but natural gas is largely composed of methane, a potent greenhouse. There has been considerable debate over natural gas due to methane leakage, which may be 50 percent higher than the US EPA's estimates.²

Conclusion

Ultimately, the United States stands to lose key economic opportunities and advantages with deferred investments in renewable energy sources, nuclear energy, and hydroelectric power³. We would be advantaged by increased public and private investment in zero-emission renewable energy infrastructure, positioning the US as a renewable energy technology hub and energy producer, providing current and future generations with public health benefits, while gaining energy independence, and insulation from energy price fluctuations, thereby improving the resilience of our communities and economies.

¹ <http://www.nrdc.org/international/copenhagenaccords/>

² <http://news.stanford.edu/news/2014/february/methane-leaky-gas-021314.html>

³ <http://co2scorecard.org/home/researchitem/28>