**SIERRA CLUB PRELIMINARY ANALYSIS OF EPA CLEAN POWER PLAN**

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The following represents Sierra Club’s preliminary analysis of EPA’s carbon standard for existing power plants, known as the Clean Power Plan. [EPA’s website for the rule and very helpful fact sheets are here](http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule).

**1. What is our top-line message about the substance of the Clean Power Plan?**

We like the proposed standard, and we’re going to work hard to make it even stronger.

This standard is a big, substantive step forward in reducing carbon emissions. It creates a framework that, once in place, could lead to even greater reductions than EPA calculates in the proposal. Under it, states must make plans to reduce emissions and consider renewables and energy efficiency; states could also pledge plant retirements.

The standard opens up the opportunity for every state to chart its energy future, and the Sierra Club has advocates on the ground in every state to analyze state targets and push for a strong, just standard.

The Clean Power Plan doesn’t solve the problem by itself, but it gives us a framework to make significant progress in the states. It sends an important signal to the world that the United States is serious about addressing climate disruption, and it should help clear the way for further climate action, both nationally and internationally.

**2. What does the Clean Power Plan do?**

The standard sets state-based goals (performance standards) for emissions reductions. The reductions goals are reflected in pounds of carbon pollution per megawatt hour of power (rate-based standard). This is compared to a mass-based standard, which would set a state goal in total tons of reductions in carbon pollution. The standard only applies to pollution from existing fossil power plants, but new renewable energy and energy efficiency can be used to lower the pollution rate. States who choose to use a mass-based standard can convert their program to a rate-based goal.

EPA determined each state’s goal using four “building blocks,” or reduction tools which states can use to meet their goals through their implementation plans. Here is [how EPA describes them](http://www2.epa.gov/sites/production/files/2014-05/documents/20140602fs-setting-goals.pdf): 1) make fossil fuel power plants more efficient, 2) shift to lower-polluting power sources, 3) increase renewable energy, and 4) use electricity more efficiently.

EPA estimated the level of emissions reductions that each state could achieve using each of the four building blocks. A state can change the level of reductions it achieves from each of those building blocks as long as its overall goal is met. The proposed goals vary by state because each state has a different potential for increasing power plant efficiency, shifting to lower-polluting sources, and using renewables and efficiency.

Here are the four building blocks (for each, EPA has put forward and modeled both a proposed and alternative option):

**Building Block 1:** Reducing the carbon intensity of generation at individual affected power plants through heat rate improvements;

1. Proposed – A 6% heat rate improvement in the state’s coal fleet
2. Alternative – A 4% heat rate improvement in the state’s coal fleet

**Building Block 2:** Reducing emissions from the most carbon-intensive affected power plants by substituting generation at those power plants with generation from less carbon-intensive affected power plants, including natural gas combined cycle (NGCC) units under construction. These capacity factor values represent ceilings for NGCC utilization. The EPA used these ceilings while calculating state goal adjustments related to redispatching coal and/or oil and gas (O/G) steam generation to the state’s NGCC capacity.

1. Proposed – a 70% capacity factor (CF) ceiling for the state’s NGCC fleet
2. Alternative – a 65% capacity factor ceiling for the state’s NGCC fleet

**Building Block 3:** Reducing emissions from affected power plants by substituting generation at those power plants with expanded low- or zero-carbon generation.

1. Both Proposed and Alternative state goals include under construction (5.5 GW) and at risk nuclear capacity (~5.8% of nuclear capacity)
2. Proposed –Renewable energy at 13% by start of 2030 and thereafter
3. Alternative –Renewable energy at 9.4% by start of 2025 and thereafter

**Building Block 4:** Reducing emissions from affected power plants through demand-side energy efficiency.

1. Proposed – 10.7% cumulative savings by start of 2030 and each year thereafter
2. Alternative – 5.2% cumulative savings by start of 2025 and thereafter

The above renewable energy values and energy efficiency saving rates are nationwide averages. Each state’s emission rate goal is informed by state-specific renewable energy and energy efficiency values that relate to its pre-existing renewable energy generation and energy efficiency savings rates respectively as described in the EPA’s [GHG Abatement Measures Technical Support Document](http://www2.epa.gov/sites/production/files/2014-05/documents/20140602tsd-ghg-abatement-measures.pdf). Also, the renewable energy estimates do not count existing hydro generation. [Please see this spreadsheet](https://docs.google.com/a/sierraclub.org/spreadsheets/d/1UT3EVSYp-XKJAwBqXkj5SKt7u2eh6i6cWgCecX5DtuM/edit#gid=584266736) for your state’s specific building blocks potential.

**3. How much does the standard reduce emissions at the national level, and how does that stack up against our goals?**

Nationally, EPA projects that the strongest version of the standard will reduce power sector carbon emissions as follows, from 2005 levels: 27% by 2020, 29% by 2025, and 30% by 2030. The US has already reduced emissions by 12-15% from power plants since 2005. While the overarching emission reduction estimates for this rule do include reductions from 2005-2012, the actual state-based goals are relative to a 2012 baseline of emissions.

We believe a higher target of at least 35% below 2005 by 2020 (or 25% below 2012 levels by 2020) is achievable, and that is what we’ll be pushing for in our technical comments. In particular we know that the estimates for efficiency and renewables are low and EPA actually admits that these estimates are low and asks for comment on more potential reductions. EPA didn’t look at what some states are already committed to do through existing renewables and efficiency standards. EPA also did not factor in all of the planned coal plant retirements when setting the standard. By not factoring them into the standard, states will have the ability to use retirements to comply with the standard.

**4. What does the standard require from specific states?**

The heart of the standard are the state reductions targets - they vary by state. The baseline year for determining state goals is 2012. [Here is how EPA describes it](http://www2.epa.gov/sites/production/files/2014-05/documents/20140602fs-setting-goals.pdf):

*The basic formula for the state goal is a rate: CO2 emissions from fossil fuel-fired power plants in pounds (lbs) divided by state electricity generation from fossil-fuel fired power plants and certain low- or zero-emitting power sources in megawatt hours (MWh). This approach factors in megawatt hours from fossil fuel power plants plus other types of power generation like renewables and nuclear, as well as megawatt-hour savings from energy efficiency in the state.*

Specific state targets [can be found in this google doc](https://docs.google.com/a/sierraclub.org/spreadsheets/d/1lAb8dgH8xLcNphzTTTkZBVYHHz-rfifxk9R_VPNI250/edit?usp=sharing). They can also be found in the standard.

One of the strongest pieces of this standard is that it will raise the floor on emissions limits for low-performing/high-polluting states. We are still working to get a better sense of which states are strong and weak under the EPA’s proposal.

**5. Why do state targets vary so much from state to state?**

The state targets are different from state to state for two reasons. First, they are calculated based on the current mix of power sources in a state. So the starting point of the standard for a coal-heavy state like Indiana is much higher than a state without coal plants like Idaho. Second, the required reductions are higher in states that have lower polluting power plants (mostly natural gas plants) that are currently not running at full capacity -- for example, in Texas.

In setting the standard EPA looked carefully at the options available to reduce pollution currently in states and then strengthened the standard by assuming that states can increase renewable energy and energy efficiency. All of these options are tailored to the state and vary based on the circumstances in the state.

**6. What does the standard mean for coal retirements, and how does that relate to our projections?**

EPA’s standard fundamentally changes the relationship between the coal industry and the states, as utilities will now have to engage with states on their plans to reduce carbon pollution. It will put more pressure on coal plants in several states but likely not every state, because the requirements vary so much from state to state. We are still working on our analysis to better understand where the standard will require big reductions in pollution from existing coal plants, and we will provide that information for states through Beyond Coal campaign staff.

**7. How much time do states have to comply, and what do we think about the timeline?**

States are supposed to create their state implementation plans (SIPs) by June 30, 2016, one year after the standard is finalized. They can request a one-year extension if they are doing individual state plans, or two years if they are part of a multi-state plan. To get that extension, states will have to submit an initial plan by the 2016 deadline. Once states submit their final plans, EPA will review them and determine, within 12 months, whether or not to approve the plans through a notice-and-comment rulemaking process.

States are scheduled to begin complying with the rule in 2020 and fully implement it by 2030, with an emissions reduction trajectory that states must achieve from 2020 to 2029. We will be able to litigate if states do not meet that reduction schedule.

We assume most of the state plans will not be completed until the next administration, and implementation does not begin until after those plans are in place. This will mean the next presidential administration will be in charge of beginning implementation of this standard. The next president can reverse this rule by withdrawing it or issuing a new one after notice-and-comment rulemaking, or the next administration could just choose to not enforce the state plan deadlines or issue federal plans. However, it’s also important to note that, given the current administration still has 2.5 years to move forward with this plan, unraveling it will not be an easy task for an unfriendly President. Also noteworthy is the impact the rule will have on utility investment decisions in the meantime.

The schedule for creating state plans and implementing the rule is a longer timeline than we would like, but given how complex this standard is, a lengthy schedule is probably inevitable, and it is not something we are going to oppose. As a matter of law, the Clean Air Act gives states up to three years to complete SIPs. EPA is free to set a shorter timeframe as long as it is reasonable.

**8. What are the biggest legal vulnerabilities of the standard?**

The rule will be subject to a multitude of legal challenges from industry and hostile states, so it is critical that it is not only stringent and enforceable, but legally defensible as well. Challenges to the final rule are first brought in the DC Circuit Court of Appeals, with possible review in the US Supreme Court. Given recent DC Circuit and Supreme Court victories affirming EPA’s Mercury Air Toxics Standards (MATS) and Cross-State Air Pollution Rule (CSAPR), as well as cases affirming EPA’s approach to greenhouse gas regulation thus far, we are optimistic that EPA can issue a strong final rule that can withstand legal challenges.

Once EPA’s rule is final, the states will follow their own processes to create individual state plans. State procedures vary, but they allow for public comment before submission to EPA. Once EPA approves or disapproves the state plan, that decision can be challenged in the US Court of Appeals for the circuit in which the state is located. If EPA disapproves the state plan, or if states refuse to issue one, EPA can require the state to abide by a federal implementation plan instead.

**9. What does the standard mean for natural gas and nuclear power?**

Natural gas: EPA set the standards for several states by assuming that generation could shift from coal to natural gas in states that have underutilized existing gas power plants. However, states are not required to use all of their underutilized gas to comply and they have MORE incentive to use renewables and efficiency than use gas because these are zero-emitting sources. Renewables and efficiency can produce more reductions (per megawatt hour) in the standard than does natural gas. Furthermore, because EPA is acknowledging that renewables and efficiency can supply a lot more potential reductions than EPA is assuming, we will be able to make the case in many states that switching to renewable energy and energy efficiency can supply more of the reductions necessary to comply with the rate-based standard. The rubber will meet the road in state plans, and the Sierra Club will advocate for state plans that reduce fossil fuel use across the board.

Nuclear: The standard assumes that the new plants under construction in Georgia and South Carolina are built and those reductions are in the baseline for the performance standard. By making putting these reductions in the baseline, EPA has strengthened the standard in Tennessee, Georgia and South Carolina substantially and established a standard that will require additional renewable energy and energy efficiency. The standard allows states to include 6 percent of the nuclear generation for compliance in the standard to account for the “at-risk” generation of nuclear power. If nuclear plants retire, there will be increased incentive for the remaining generation to be replaced with renewables and efficiency.

**10. Are you disappointed by the 2005 level being used by EPA to measure this standard?**

The baseline of the state-level standard is 2012. EPA is only using 2005 carbon pollution levels to illustrate the pollution reductions achieved with the standard by 2030. It is important that we **do not** call the 30% by 2030 a “target” -- it is simply a calculation of what the standard can do in terms of emissions by 2030. It is also most important that we focus on the 2020 estimate showing that the standard will achieve 27% reductions in 2020 below 2005 levels.

**11. I read that the proposed standard isn’t strong enough to meet the 17% emissions reduction by 2020 commitment that President Obama made at the Copenhagen climate negotiations in 2009. What do you make of that?**

The standard proposed is for the electric sector of the economy ***only*** and the 17% Copenhagen commitment is for reductions across the entire economy. As we know, power plants produce 40% of the carbon pollution from the US, so reductions in power plant pollution alone cannot meet the economy-wide goal of 17%. The regulation of power plants is not the only tool available to the president to meet our nation’s global commitment. That’s why President Obama’s Climate Action Plan is so important for reaching those climate goals, which is why we are also pushing for implementation of the remaining pieces of the administration’s plan.

We had calculated that the electric sector would need to reduce emissions 35-40% below 2005 levels by 2020 to do its share needed to achieve the 17% economy-wide goal. While we know this standard does not achieve that target, the framework that EPA developed can support much more stringent state goals, and we will be advocating for more aggressive reductions.

**12. What about workers and communities affected by the transition away from coal power?**

The Clean Power Plan will help strengthen our economy. Done right, the undertaking of making America’s power generation more efficient will create thousands of new jobs in construction, manufacturing, and other sectors. Our belief is that states can and should craft comprehensive implementation plans that will result in net job creation across the country and ensure a fair and just transition if and when power plants are retired. We will continue to engage workers, communities, and elected and business leaders to ensure appropriate resources to make sure this happens. A fair and just transition means direct support for workers by providing wages, benefits, training and education. It also means providing communities with resources to re-develop and diversify economically and create good-paying jobs.

**13. Does the standard require a state to do trading or use offsets?**

EPA does not allow the use of offsets outside the electric sector in this standard. The plan allows for states to opt-in to interstate trading programs but does not require a state to do trading. EPA does provide more years for states that decide to create multi-state compliance plans. EPA is taking comment on whether to allow credit from sources outside the electric sector including industrial heat and power, and carbon sinks. EPA does not see biomass as a zero-emission resource; however, biomass is being handled under a different regulatory process. Sierra Club will continue to work with environmental justice and communities disproportionately impacted by pollution to ensure these standards reduce pollution in all communities.