

U.S. Environmental Protection Agency  
Air and Radiation Docket and Information Center  
Docket ID No. EPA-HQ-OAR-2013-0602  
Mailcode: 28822T  
1200 Pennsylvania Avenue, NW.,  
Washington, DC 20460

**RE: COMMENTS ON THE PROPOSED CARBON POLLUTION EMISSION GUIDELINES FOR EXISTING  
STATIONARY SOURCES: ELECTRIC UTILITY GENERATING UNITS**

**Docket ID No. EPA-HQ-OAR-2013-0602**

Dear Administrator McCarthy:

The Environmental and Energy Study Institute respectfully submits the following comments regarding the U.S. Environmental Protection Agency's Notice of Proposed Rulemaking in *Federal Register* Vol. 79, No. 219 dated June 6, 2014, "Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units" (the Clean Power Plan).

The Environmental and Energy Study Institute (EESI) is an independent, non-profit organization, dedicated to promoting an environmentally and economically sustainable society. EESI seeks to advance the transition to a low-carbon economy through energy efficiency, wisely built infrastructure and a diverse portfolio of renewable energy. Founded by a bipartisan Congressional caucus in 1984, EESI is governed by a diverse Board of Directors comprised of environmental, business, and academic leaders, including former Members of Congress.

EESI applauds the efforts of EPA and the Obama administration to deal with carbon emissions from stationary power sources. Acting on climate change, perhaps the greatest threat society faces, is a moral imperative. According to the United Nations Intergovernmental Panel on Climate Change (IPCC) and the United States National Climate Assessment (NCA), climate change will negatively impact public health, food and water security, national security, and community stability, as well as significantly impact the power sector's ability to provide reliable, affordable power. Meanwhile, reducing greenhouse gas emissions has multiple co-benefits, including more jobs and investments in clean energy and sustainable infrastructure technologies, and improved public health through cleaner air and water.

The proposed rule, as well as the subsequent notice of data availability (NODA), provides an excellent baseline to responsibly cut carbon emissions from the power sector. The flexibility given to states in the proposed rule will encourage them to use sustainable and appropriate solutions to reduce emissions. Existing power generation and available renewable resources vary from state to state, and EPA wisely recognizes that in the proposed rule. However, EPA's suggested compliance options do not

represent the full array of tools available to states – tools such as bolstering energy efficiency in the built environment, renewable energy, and waste utilization for energy are not given adequate attention in the proposed rule. Actions taken by communities to adapt to climate change and become more resilient should also be encouraged by the proposed Clean Power Plan when they help lower greenhouse gas emissions. Climate adaptation measures offer significant cost savings by making communities less vulnerable to the extreme weather events and heat waves made more frequent by climate change.

Renewable energy and energy efficiency measures should receive equal treatment alongside natural gas as compliance options under the Clean Power Plan. Energy efficiency is the cheapest compliance option, and renewables are cost competitive with new coal and natural gas generation. A growing segment of the business community, such as the We Mean Business Coalition (a group of companies that advocates for action on climate change) and the Risky Business Project (a group co-chaired by Michael Bloomberg, Henry Paulson, and Tom Steyer), recognize that a low-carbon economy will provide significant economic opportunities and growth, in addition to being the only feasible way to cut greenhouse gas emissions.

EESI is concerned with EPA's emphasis on natural gas generation in the proposed rule. Though natural gas power plants have lower carbon emissions than coal, they are not emissions-free. Methane leakages across the natural gas supply chain, potential health impacts from poorer air quality, and potential groundwater contamination in shale gas plays, are all of significant concern. Additionally, natural gas is subject to substantial price fluctuations that create market uncertainty. EESI cautions that the proposal puts too much stock in natural gas as a compliance strategy and should instead shift more focus toward renewable generation and energy efficiency measures. Natural gas as a compliance strategy is effective only to the extent that the issue of life cycle emissions (including methane leakages in the overall system) is addressed.

To ensure that states focus on their clean energy options, EPA should require states to conduct a comprehensive energy assessment. This assessment would measure potential generating capacity from renewables and possible savings from energy efficiency, and allow and encourage states to maximize the 'least-cost options' in their low-carbon energy portfolios going forward. This type of assessment is already being carried out by several states. EPA should assist states in understanding the true costs and benefits of energy development and encourage states to assess the potential economic, environmental and social benefits of greening their energy portfolios by not only developing renewable energy resources, but also participating in regional compliance models such as renewable energy credits (RECs) trading.

EESI recognizes the flexibility EPA is giving states by offering both a rate-based and mass-based option to guide their reduction efforts. However, EESI has some concerns that the rate-based rules could allow emissions to rise inadvertently. Mass-based systems apply a limit on total emissions, something a rate-based system does not offer. More attention needs to be given to a thoughtful mass-based approach, as well as regional compliance strategies, trading schemes, and measures that will lower overall greenhouse gas emissions in both the short and long-term.

An “**all of the above**” renewable energy strategy, with energy efficiency as a “**fifth fuel**,” is the only feasible long-term option for achieving deep and lasting cuts to climate-warming greenhouse gases.

### **Address Fugitive Methane Emissions from the Oil & Gas Sector**

While EESI encourages EPA to push for the maximum possible gains in renewable energy and energy efficiency, EESI recognizes that most states will need to rely heavily on natural gas-fired power to meet their emissions targets. EESI is, therefore, deeply concerned about the climate and public health impacts of fugitive methane emissions from natural gas production and transport. Methane is a powerful climate warming pollutant – 87 times more powerful than carbon over a 20-year time span. EPA estimates that gas leaks from the oil and gas sector are responsible for 29 percent of U.S. methane emissions. EESI is concerned not only that this estimate may be too low, but that fugitive emissions from this sector will significantly increase because of the Clean Power Plan. If methane leaks are not controlled, the climate gains of moving away from coal-fired power may be completely cancelled out. It is not enough to reduce carbon emissions – greenhouse gas pollution (including methane) must be considered as a whole, and targeted accordingly. This is necessary for the world to slow the rate of warming and limit total warming, and is also necessary to accomplish the goals of the President’s Climate Action Plan.

EESI is aware that EPA is considering fugitive methane regulations for the oil and gas sector, and that draft rules may be published soon. EESI encourages EPA to pursue strong standards with this rule, and to treat the upcoming proposal as a critical component of the Clean Power Plan strategy. Methane leaks must be better controlled. The knowledge and technology needed to reduce methane leakages is well known and available, and in many cases preventing leaks has financial benefits (see EESI briefing, <http://www.eesi.org/briefings/view/103014methane>). The Natural Resources Defense Council estimates that enhanced standards to cost-effectively address the issue could cut methane leakage in half, the rough equivalent of removing 150 million metric tons of carbon over five years. Some industry leaders are beginning to take action to reduce fugitive methane, but many others are failing to make the proper investments. EPA action is therefore necessary to level the playing field and ensure all industry players take the needed steps. If EPA fails to take strong action on this issue, the Clean Power Plan will not live up to its intended promise, regardless of whether states achieve their 2030 carbon emission targets.

### **Emphasize Renewable Electricity Generation**

EESI is pleased EPA has included “outside the fence” compliance options such as energy efficiency and renewable energy in its Clean Power Plan. However, EESI believes the Clean Power Plan has underestimated the potential of renewable energy as a compliance strategy for states. To seize the opportunity renewable energy presents, EPA should strengthen state renewable energy targets appropriately. Renewable energy technology is no longer “five years away” – it is here, cheap, abundant,

and available for use immediately. A recent Union of Concerned Scientists (UCS) report found that seven states are already producing more renewable energy than the 2030 targets EPA set for them, and an additional 17 states have laws in place that will require them to develop more renewable energy than EPA mandates. Fixing state renewable energy targets to account for progress already made, and future progress already baked into state law, is just the first step.

Another recent report, conducted by the Natural Resources Defense Council, found that EPA used outdated information to estimate the cost and performance of renewable energy. Current estimates show renewable energy is close to half as expensive as suggested by the agency's data. EPA should recalculate its price estimates to help states understand the true costs and benefits of using renewable energy as a compliance option.

Much of the Clean Power Plan advocates the use of natural gas, a fossil fuel that is generally low in price. However, natural gas is more price volatile than renewable energy or coal power generation, and is particularly susceptible to spiking during cold weather. In January 2014, during the "polar vortex," New York State saw wholesale energy prices ratchet up by 176 percent, due in large part to natural gas prices quadrupling. We should consider the consequences of using a price-volatile fuel such as natural gas to meet our needs year-round. Renewable energy is a more price-stable form of electricity generation.

Renewable energy creates jobs that cannot be shipped overseas, ensures price stability as it generates power without having to pay for fuel year after year. Best of all, it generates power without releasing greenhouse gases or other pollution. It is the right choice for our wallets, for our climate, for our health and for the long-term prosperity and competitiveness of our country -- and for leading the clean carbon economy globally.

### **Encourage Smart Grids and Energy Efficiency**

As EPA knows, much of the transmission and grid infrastructure in the United States is more than 50 years old. The Clean Power Plan offers a solid opportunity to revamp our grid and transmission systems. It could create a modern and smart system that is equipped to integrate large amounts of renewable energy, hardened to get through extreme weather, resilient in bouncing back from damage and resistant to harm. "Smart grids" use communication and information technology to alert grid operators of outages and power usage in real time. A smart grid network can inform consumers of their real-time energy usage and current electricity prices, enabling them to cut back on electricity usage during expensive times of days, thereby reducing peak load demand and saving money. Smart grids can play an important role in end-use efficiency, one of the Clean Power Plan's compliance building blocks, as well as aid the smooth integration of intermittent renewable energy sources and distributed energy power from rooftop solar or small-scale wind.

EESI applauds EPA for including power plant efficiency as a compliance strategy. Most coal plants in the United States are only 34 percent efficient according to the Energy Information Administration, wasting two thirds of the energy used to generate power in the form of heat waste. District Energy and Combined Heat and Power (CHP) are excellent ways to boost efficiency in a power plant, which could allow existing plants to operate with greatly improved efficiency and reduced emissions. CHP reclaims some of the waste energy in power plants by collecting vented heat in a pipe system and using it to provide heat and/or hot water to the plant. The heated air or water collected in the CHP process can also be piped to nearby buildings, college campuses, urban areas, etc., in district energy systems. In combination, CHP and district energy can boost a power plant's efficiency to 90 percent. There are many such examples of highly successful district energy/CHP systems across the country, with the potential for many more. EPA should alert states to the great potential that CHP and district energy offer as compliance strategies.

### **Recognize Biomass Power**

EESI welcomes EPA's recent release of the *Framework for Assessing Biogenic CO2 Emissions from Stationary Sources*, which recognizes the important role that using "waste-derived feedstocks" as well as "forest-derived industrial by-products" can play in the low-carbon economy, as they "are likely to have minimal or no net atmospheric contributions of biogenic CO2 emissions, or even reduce such impacts, when compared with an alternate fate of disposal." The Framework is a step in the right direction – but more needs to be done to achieve the significant greenhouse gas reductions possible if the full suite of biomass energy sources is implemented. Unlike other renewable energy sources, waste materials can pose significant environmental problems if not sustainably dealt with – but if utilized can provide significant benefits on several levels.

Biomass power can be derived from both waste (forestry, agriculture, organics, manure, landfills, waste water treatment) and purpose-grown biomass crops, such as perennial grasses. The Department of Energy's 2011 *Billion Ton Update* estimates that there are currently 244 million dry tons of sustainably recoverable agricultural wastes in the United States, and that that number could reach as high as 910 million dry tons per year by 2030. The non-profit Dairy Checkoff estimates that U.S. farms alone could support 2,600 anaerobic digesters, producing 11.7 million megawatts of electricity per year. Already, biomass power generates enough energy to power 1 million homes and businesses, according to the Biomass Power Association. According to the Energy Information Administration (EIA), biomass power is a full 22 percent of the United State's renewable energy supply, and these resources must be adequately addressed by the proposed Clean Power Plan.

Not only does biomass provide a low-carbon source of consistent, baseload power, sustainable biomass can also provide significant economic and ecosystem co-benefits at the local level. For example, purpose-grown biomass crops can support a multi-functioning agricultural system by increasing a soil's

organic carbon, increasing its capacity to hold water and nutrients, and reducing runoff. Using organic wastes also monetizes a waste stream that would otherwise pose significant environmental problems to communities, yet these resources are consistently underutilized. Biomass power and waste-to-energy can provide local jobs, additional revenue to municipalities, and partially address the issues of overflowing landfills and growing waste streams.

EESI maintains, as do many forestry groups, scientists, and forestry product industries, that there is a fundamental difference between carbon emissions from burning fossil fuels and emissions from burning biomass that is sustainably harvested and regrown, and thus able to sequester carbon. Quantifying carbon emissions from woody fuels is important because individual states will need to assess whether their wood-based energy resources qualify under the Clean Power Plan. Therefore, EESI urges EPA and EPA's Scientific Advisory Board to consider the significant body of peer-reviewed research that suggests that biomass power can help to reduce greenhouse gas emissions. Additionally, states such as Michigan and California have already created definitions for sustainable biomass energy. Both states draw a distinction for GHG emissions from wastes that would already be headed to the landfill, such as wood wastes and residues that have no value. EESI hopes that EPA will consider the types of standards already in place at the state level in their further clarification of the definition of 'sustainable' biomass.

Bioenergy can play a role in preserving and increasing the carbon stores of working lands. Using anaerobic digestion on farms to produce renewable natural gas creates valuable co-products (fertilizers, compost) that can be used to boost soil organic carbon levels and improve the health of soils. Additionally, bioenergy can help preserve rural land. The U.S. Geological Survey has found that urbanization in the Southeast could increase 190 percent by 2060, resulting in a 15 percent loss of agricultural land, a 10 percent loss of forests, and a 12 percent loss of grasslands, as well as negatively impacting wildlife, water and air quality. Providing an economic incentive to maintain farms and forested lands, as bioenergy and biofuels do, will help to preserve these lands. Preserving such open spaces is a critical component of climate adaptation, protecting critical wildlife habitats, and preserving air and water quality. All of this links back to the Clean Power Plan through recognition of the sustainable use of bioenergy.

Already, most states with a Renewable Portfolio Standard (RPS) recognize biomass energy, but it receives unequal treatment from both RPS and federal tax credits. To provide states flexibility in using their biomass resources, EESI recommends that EPA:

- Recognize that sustainable woody biomass harvesting (especially waste utilization) does not increase net carbon accumulation, as long as overall forest stocks are stable or increasing.
- Recognize thermal heat in the Clean Power Plan. Thermal energy represents 40 percent of energy used in the U.S. – its omission skews recognition of the emissions for this use of energy.
- Build upon the programs and work occurring in the agriculture and forestry sectors at the state level, which have already defined and developed sustainable practices for biomass harvesting.

- The category of “waste-derived materials” should be inclusive of the significant organic waste streams created in the United States. The Clean Power Plan should incentivize the use of these organic wastes (including manure, landfill, organic, food waste) for the generation of electricity.

### **Encourage Regional Transmission Planning for Renewables**

EESI encourages EPA to look into regional transmission planning and specifically at FERC's Order 1000 as a way to foster states' adoption of the Clean Power Plan and of renewable energy.

The Federal Energy Regulatory Commission (FERC) established in 2011 a series of rulings (Order 1000) to improve the U.S. power grid and reduce its balkanization. Essentially, Order 1000 requires public transmission utilities to: (1) engage in regional and interregional transmission planning, while accounting for public policy considerations and (2) develop cost allocation methods to allocate the costs of new transmission projects among beneficiaries of the transmission line.

Order 1000 supports renewable energy by ensuring that state policies, such as Renewable Portfolio Standards, are taken into account by utilities, and by allowing states to share their renewable energy with other states within the same Integrated System Operator (ISO) network. It lays the groundwork for the large-scale development of renewable energy by facilitating a build out of electric transmission lines connecting renewable energy resources and load centers.

An example of such sharing, which facilitates the flow of renewable energy from where it is produced to the load centers where it is consumed, is the Competitive Renewable Energy Zones (CREZ) in western and central Texas. This network of more than 3,000 miles of transmission lines delivers thousands of megawatts of clean and cheap wind energy produced in the Panhandle to the population centers of Dallas/Fort Worth, Austin, and San Antonio.

This same template for renewable energy transmission can be achieved in other ISOs. For example, utilities and states forming part of the Midcontinent Integrated System Operator (MISO) could collaborate with each other to bring wind energy generated in North and South Dakota to states like Wisconsin and Missouri, thereby fostering greater adoption of renewable energies and allowing these states to meet their RPS and 111(d) targets.

By encouraging utilities across states to collaborate in transmission planning, and by setting up new ISOs where there are none currently (in the Southeast and West), cost-effective actions can be achieved.

Other co-benefits of renewable energy projects are job creation, local economic development, supply chain development, enhanced domestic manufacturing, reduced U.S. energy dependence on foreign oil, and decreased health impacts resulting from fossil fuel emissions and climate change.

## Recognize Building Codes and Energy Efficiency Retrofits as Compliance Options

According to the Energy Information Administration, the U.S. building sector consumes approximately 40 percent of total U.S. energy resources and 70 percent of the electricity produced in the country -- just for building operation. It does not include the energy used to manufacture and transport building materials or for construction work. The energy we use for lighting, heating and cooling our buildings, as well as powering residential appliances, commercial building equipment and a growing array of electronic devices accounts for nearly 40 percent of U.S. greenhouse gas emissions. EPA knows this and has developed programs and tools for building owners and developers to reduce the negative impact of buildings on public health and the environment. Unfortunately, the energy utilities that would be regulated by the proposed Clean Power Plan are not as knowledgeable about the vast energy-saving potential of buildings as they could be. Reducing demand has not been their primary mission. EESI believes this proposed rule is a historic opportunity to educate state agencies, utilities and consumers about the potential role of low/zero energy, high performance buildings in meeting the requirements of the proposed rule, while fostering local economic development and improving building comfort.

Much of the energy consumed by buildings is wasted. Poor design and construction as well as deterioration over time can create gaps in the building envelope (literally, holes in the wall or insulation), which causes heating/cooling equipment to work overtime without even providing the desired level of comfort. Older appliances also use too much energy. The good news is that the buildings industry has solutions. They just need to be deployed much more widely. EESI groups these solutions into two basic categories:

1) **Utility and non-utility energy efficiency improvement programs.** These include:

**a. Industry-developed model building energy codes and federal appliance efficiency standards.**

The easiest, fastest, and least expensive strategy states and local jurisdictions can take to reduce building energy use is adopting and enforcing model building codes. Codes represent a broad industry consensus for a minimum level of efficiency and reference both industry and government efficiency standards. By adopting and enforcing building codes, states can ensure a competitive market for efficient buildings and products. A spokesman for the We Mean Business Coalition noted on the group's website, "We're fine with well-designed regulation, the sort of thing that the EPA is now proposing in the U.S. Well-designed regulation creates a level of certainty. You can plan against it and invest against it." **EESI urges EPA to include building codes as a compliance option.** EESI believes this will provide the incentive states need to adopt the most current model codes and for communities to enforce these codes. It is a minimal, cost-effective option that has the potential to achieve significant reductions in energy demand, because codes apply to all new construction.

**b. Retrofit programs.** Of course, new construction is only one or two percent of the entire U.S. building stock. To make a dent in carbon pollution, we must make existing buildings more energy efficient. States and cities have numerous programs underway to do this, often using tools and resources from EPA, DOE and national organizations with expertise in energy efficiency. Some utilities



have programs as well, such as rebates to residential, commercial and industrial building owners who retrofit their properties for improved energy efficiency. In addition, utilities, rural electric co-ops and communities are offering innovative ways for consumers to pay for efficiency upgrades, such as “on-bill” financing and property-assessed clean energy bonds known as PACE bonds. Absent regulations or other mechanisms to limit carbon emissions, utility efficiency programs and state policies such as Energy Efficiency Resource Standards (EERS) have served an important role. But more can be done. For instance, states and utilities could fill a gap that EESI considers a serious hindrance to the use of some of these private-sector programs: that of consumer advocate or liaison. **EESI urges EPA to promote and facilitate greater use of existing state/utility and private-sector efficiency programs as a compliance option.**

**2) Ultra energy efficient buildings.** EESI is encouraged and excited to see that industry professionals are gaining expertise and experience in best practices for achieving high quality, highly energy-efficient construction. Even more encouraging, the market is starting to learn about and adopt methods for ultra-energy efficient new construction and “deep-energy” retrofits of existing buildings. This has the potential to dramatically reduce building-energy demand (load) and save owners hundreds or thousands (or hundreds of thousands for large buildings) per year. Indeed, the building sector is a vast, mostly untapped source of energy savings. Investments in very energy-efficient construction and “deep energy” retrofits can achieve buildings that use 50 to 90 percent less energy than comparable buildings. The Passivhaus building performance standard, for instance, is being used to design a K-12 school building in Franklin County, Virginia—the first public school designed to the Passivhaus standard. The school will eventually add solar panels and deliver more energy than it uses. A German standard that is being adapted to U.S. climates, Passivhaus is performance-based and results in an extremely airtight, super low energy structure that also provides high levels of comfort and indoor air quality. The builder, Adam Cohen of Structures Design/Build, LLC, told an interviewer that passive design is a “huge opportunity to improve our nation’s energy efficiency....also an opportunity for U.S. manufacturers to develop new products to serve the emerging Passivhaus market.” **EESI urges EPA to promote and facilitate greater use of the PassivHaus standard and other similar ultra energy-efficient standards.**

EESI applauds EPA for recognizing energy efficiency and renewable energy as “outside the fence” compliance strategies but encourage a recalculation of the potential benefits. The proposed target of increasing demand-side energy efficiency to 1.5 percent annually falls far short of states’ potential to save energy and reduce carbon pollution. More energy savings can be delivered more cost effectively than the proposed rule estimates. EESI urges EPA to consider the full potential of energy efficient buildings in its calculations, to encourage states to identify and assess the potential energy savings from building retrofits and new construction (particularly from ultra energy-efficient design), and to recognize building efficiency as a compliance strategy in the CPP.

## Take Resilience Into Account

Forty-eight states and the District of Columbia were designated Presidentially-Declared Disaster Areas between 2011 and 2013, and things will likely only get worse as extreme weather events and flooding become more frequent because of climate change. Resiliency should, therefore, be a goal near and dear to policymakers and citizens throughout the United States. Fortunately, resiliency goes hand-in-hand with reducing carbon pollution. Indeed, resilient buildings are, almost by definition, more durable and long-lasting than conventional buildings, which reduces the need for new construction. An architect at the 2014 Passive House U.S. conference said his firm aims to “future-proof” structures: “Buildings should last 100 years, be low-maintenance, resilient, independent of energy costs, and be nice and healthy inside.” Constructing new buildings is very energy and material-intensive, resulting in substantial carbon emissions. By reducing the need for new construction, one reduces carbon emissions.

We can greatly improve the sustainability and resiliency of the built environment with existing technologies; a focused effort on training building professionals, educating consumers and ensuring that standards and policies facilitate, or at least do not hinder, these goals. There are best practices and standards for more resilient construction such as the Fortified Home standard (which the Department of Homeland Security is using for a residential pilot program). The U.S. Department of Housing and Urban Development (HUD) is also focused on resilience in a national competition for cities it announced recently with its partner, Rockefeller Foundation.

EESI urges EPA to include language in the Clean Power Plan that encourages communities to become more resilient when such actions help lower greenhouse gas emissions.

## Conclusion

As states move forward with compliance, the Clean Power Plan will provide the baseline for future regulation of greenhouse gases. It is imperative that the final regulation not be short-sighted and give outsized influence to natural gas at the expense of cleaner, cheaper renewables and energy efficiency measures. Efficiencies of scale will only make these technologies more cost-effective. Hopefully these examples have illustrated the enormous potential of renewable energy technologies and energy efficiency in meeting the emissions reductions proposed by the Clean Power Plan, which are necessary to avoid the worst effects of climate change.

Sincerely,



Carol Werner  
Executive Director  
Environmental and Energy Study Institute