



## Environmental and Energy Study Institute

U.S. Environmental Protection Agency  
Air and Radiation Docket and Information Center  
Docket ID No. EPA-HQ-OAR-2015-0199  
Mailcode: 288221T  
1200 Pennsylvania Avenue, NW.,  
Washington, DC 20460

**RE: Comments on “Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations,”**

**Docket ID No. EPA-HQ-OAR-2015-0199**

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 80 Fed. Reg. 64966 dated October 23, 2015, “Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations” (the FIP and model trading rules).

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 final rule provides an excellent baseline to responsibly cut carbon emissions from the power sector. The flexibility given to states in the final 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 final rule. EESI is concerned, however, that EPA's suggested Federal Implementation Plan and Model Trading Rules may undermine that flexible approach by not recognizing the full array of tools available to states for reducing carbon pollution. For example, technologies and practices for bolstering energy efficiency in the built environment and generating renewable power on site with combined heat and power (CHP) systems and waste utilization are not given adequate attention in the FIP and model trading rules.

As some of the most cost effective compliance options, certain biomass feedstocks, CHP and energy efficiency measures should receive equal treatment alongside other compliance options under the Clean Power Plan. Yet, they receive unequal treatment in the model trading rules and are not included in the proposed FIP. EESI appreciates the thoughtful additions in the final CPP on the mass-based option, but again, more attention needs to be given to both demand side energy efficiency, CHP and biomass in the mass-based model trading rule.

All sources of renewable energy will be necessary to achieve deep and lasting cuts to climate-warming greenhouse gases. An **"all of the above"** renewable energy strategy, with energy efficiency as a **"fifth fuel,"** is the only feasible long-term option, and therefore EPA must revisit its consideration of biomass, CHP and demand-side energy efficiency in both the model trading rules and the FIP.

In addition, while EPA's focus on trading rules as a presumptively approvable method of compliance to the Clean Power Plan is understandable given that trading is a relatively inexpensive option, it has environmental justice implications that should not be ignored. EPA should do its best to ensure that state compliance with the Clean Power Plan reduces pollution levels in all communities, does not cause "hot spots" where pollution increases in a localized area, and that tradeable ERCs and allowances do not become too cheap to incentivize power plants to cut emissions.

EESI urges EPA to think as holistically as possible as this rule is finalized and state implementation plans are reviewed: How will the regulations, referenced standards and systems put in place today stand up in the energy sector of going forward. Will the Clean Power Plan help accelerate the transition to a clean energy economy for all, or will it encourage "greenwashing" and stifle innovation? We are pleased to offer comments below on some of the questions EPA has raised in this proposal and issues we believe are critical to mitigating carbon pollution and fostering a clean energy economy.

## **General Comments**

### *EPA-administered trading system*

EESI supports the EPA's proposal to track allowances or ERCs in the Model Trading Rules. This will reduce the administrative burdens on states, and support a large trading system.

### *Banking and borrowing ERCs and allowances*

EESI suggests that EPA be cautious in allowing unlimited banking of ERCs and allowances. This is due to the potential market distortion if allowance and ERC prices get too high or low, as happened in the Renewable Fuel Standard's (RFS) RIN market. However, EESI recognizes that unlimited banking of ERCs and allowances can encourage early action to cut emissions, which is beneficial to the overall success of a trading regime. To this end, EESI suggests that EPA consider putting a floor and ceiling price on allowances and ERCs, to ensure that they never become so cheap that they do not incentivize change or so expensive that they present an unmanageable burden.

EESI does not support allowing states to borrow ERCs and allowances from future compliance periods. This would undermine the emissions reductions mandated in the Clean Power Plan by allowing more emissions and disincentivizes early emissions reduction actions. EPA's flexibility in allowing states multi-year compliance periods makes borrowing generally unnecessary.

## **Environmental Justice**

Minority and low-income communities are more likely to be located in areas burdened with pollution, due to the siting of power plants and other infrastructure in communities with the least economic and political resources and influence. Therefore, they will particularly benefit from the Clean Power Plan's avoided emissions of millions of tons of carbon dioxide emissions (CO<sub>2</sub>) and hundreds of thousands of tons of particulate pollution which becomes soot and smog. EESI applauds EPA for requiring states to meaningfully engage with low-income and minority communities, identify communities currently suffering from air pollution and climate change, and evaluate how compliance plans will affect these communities in their Clean Power Plan compliance.

EESI understands that EPA has chosen to make its FIP a trading scheme and offer trading rules for good reason; trading lowers the cost of compliance and allows EPA to request deeper emissions cuts. However, there are environmental justice concerns with trading schemes. Trading allows power plants close to communities to continue releasing harmful pollutants and hurting public health, by purchasing allowances or ERCs instead of directly reducing emissions. The EJ Leadership Forum, for example, does not support trading schemes, and prefers that states require on-site reductions or use a carbon tax.

Given that EPA is moving forward with trading rules, EESI suggests that EPA do its best to ensure environmental justice communities do see benefits. An important piece of this is ensuring that allowances or credits do not become too cheap, because that would allow polluting facilities to easily purchase offsets and continue releasing emissions with impunity. EPA also needs to be vigilant to ensure that "hot spots," or specific areas where emissions actually increase, do not occur. EESI supports EPA's plan to assess air quality and ensure there are no deleterious localized impacts where emissions have increased and harmed a community, and that air quality "in all areas" has improved.

EPA could work to limit the ability of EGUs to continue releasing high levels of pollutants in EJ communities by offering fewer allowances or ERCs to facilities in high-pollution areas in the initial set-up of its trading system, giving these EGUs a greater incentive to reduce emissions on-site. EPA could also limit the trading that EGUs in high-pollution and EJ areas can engage in, forcing them to cut emissions instead of mainly complying through the purchase of offsets.

EESI also submits that it is harder for the public to give feedback on a trading mechanism than other forms of direct regulation, because trading works in a market system and data about allowance and ERC trading may be kept private by facilities and businesses. EESI encourages EPA to make its trading systems as transparent as possible and distribute information to the public, so that communities have a solid understanding of what is happening and are empowered to give input.

## **Buildings**

It is important to remember that the U.S. building sector is the largest end-user of electricity – consuming more than 70 percent of total electricity generated – and reducing this demand is essential to reducing power sector emissions. According to the U.S. Energy Information Administration, houses and other buildings account for 40 percent of all energy consumption and a third of carbon emissions nationally. Therefore, the CPP including the FIP and CEIP must promote energy efficiency and renewable energy-use in buildings, including retrofits of existing homes and buildings and new construction. In the near term, the wide range of utility, government and private-sector programs already in place can be utilized to achieve the emission reduction targets for each state. In the long term, however, the deep emission cuts needed to avoid harmful global warming will require significant scaling of deep-energy retrofits and net-zero energy construction.

### *Beyond Incremental Efficiency Improvements*

Given that buildings last for many years and there are a limited number of opportunities to retrofit existing structures, and given the advancements in technologies and building science knowledge, we should aim for the deepest energy savings possible. Advanced EE strategies such as "passive house" design and retrofit (whole-building air sealing, insulation, high performance fenestration, use of passive-solar principles, waste-heat recovery, combined with enhanced ventilation) have the potential to dramatically reduce building energy use, emissions and operating costs while improving occupant comfort and health. New York Mayor Bill De Blasio's plan, One City: Built To Last, looks to buildings to

meet the goal of reducing the city's greenhouse gas emissions 80 percent by 2050 and calls out passive house construction as a specific strategy. Already, the world's largest passive house project—a 350-unit apartment building owned by Cornell University—is being built on Roosevelt Island in New York City, to be completed by 2017.

Super energy efficient construction and retrofits, combined with building-integrated photovoltaics (BIPV) or community solar and other distributed energy resources (as well as microgrids—possibly direct-current—and other infrastructure enhancements) offer the best opportunity to reduce building energy demand and thereby achieve the greatest reduction of GHG emissions. A growing number of building professionals are skilled in sustainable building design strategies, and high performance building technologies are becoming more available and affordable, both of which are leading to more and more super energy efficient and “net-zero energy” structures that offset their energy use with renewable resources from the power grid or require only as much energy as can be generated on site.

Smart implementation of the Clean Power Plan can help accelerate this trend. In addition, as EPA knows, technologies such as combined heat and power (CHP) are ideally suited for multifamily buildings and are capable of burning biogas, landfill gas in addition to natural gas and propane. This combines the dual goals of energy efficiency and greater use of renewable energy for optimum mitigation of GHG emissions.

#### *Evaluation, Measurement, and Verification (EM&V)*

The challenge for EPA and states is to ensure consistency and accuracy in data collection, measurement and reporting (EM&V) as well as simply to collect more data on energy production and use, including energy used in homes and buildings. This requires balancing the goals of rigor and ease-of-use for “approved” EM&V tools and programs. Many have suggested defaulting to existing tools and protocols in the interest of EPA not reinventing the wheel, but we are concerned that this approach will leave new and emerging technologies off the table or greatly hinder their adoption. EESI recommends a compromise: EPA should recognize existing EM&V programs, such as the federal Weatherization Assistance Program, but also should be a leader and advocate for innovation in the development and use of next-generation technology for energy-use data collection and analysis. As in other industries, advanced information and communications technology (ICT) and computing capabilities are changing the business of energy management, from the electric grid, to homes and buildings. Smart-grid/building/home technologies such as automatic sensors and controls are becoming more sophisticated and ubiquitous. These advanced capabilities are often referred to as “M&V 2.0,” and their incorporation into evaluation methods as “EM&V 2.0.”

Good analyses of this game-changing trend can be found in a report by the Northeast Energy Efficiency Partnership (NEEP), [“The Changing EM&V Paradigm,”](#) and a paper from the American Council for an Energy-Efficient Economy (ACEEE), entitled “How Information and Communications Technologies Will Change the Evaluation, Measurement, and Verification of Energy Efficiency Programs.” Instead of a complicated guidance document, EPA -- in the FIP and in its review of state implementation plans -- could assist states by evaluating innovative EM&V tools and protocols, and provide recommendations for their application and use.

Rigorous but user-friendly EM&V tools are not only essential for achieving the central goal of the CPP, they are integral to process of financing energy improvements. Banks require solid data to verify actual energy/dollar savings, minimize risk, and secure these “green assets” for their own portfolios and for investors and new capital formation. 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. Electric co-ops have an important role to play in the transition to low-carbon energy generation, but often lack the staff and capital to make energy efficiency upgrades and install renewable energy. EPA should therefore consider any transition assistance that will be necessary for co-ops to make these necessary changes.

## **Inclusion of Biomass in the Federal Implementation Plan**

### *Biomass is a Low-Cost, Widely Available Compliance Tool*

Biomass power can be derived from both wastes (forestry, agriculture, organics, manure, landfills, and waste water treatment plants) purpose-grown biomass crops, such as perennial grasses, as well as invasive species that are being removed from the landscape. The Department of Energy’s 2011 *Billion Ton Update* estimates there are currently 244 million dry tons of sustainably recoverable agricultural wastes in the United States, and that number could reach as high as 910 million dry tons per year by 2030. Biomass power is already a significant source of electricity consumption in the United States. According to the Energy Information Administration, biomass power (from woody and waste sources) accounts for a total of 28 percent of renewable energy consumption in 2014. Additionally, biomass makes up a significant portion of state Renewable Portfolio Standards (RPS).

According to a 2014 report by the Rocky Mountain Institute and Future Metrics, biomass has the potential to replace 100 Gigawatts of coal generation in the United States, with approximately half of these fuel-switching measures costing less than \$45 per ton of CO<sub>2</sub>. This is based on an assumption of 160 million dry tons of available sustainable biomass supply in the United States, in the form of agricultural residues, forestry and wood processing residues, wood waste and some purpose grown energy crops grown on marginal lands. Even when compared with other inside the fence line emission reduction technologies, biomass is an incredibly cost-effective option for CO<sub>2</sub> mitigation.

Unlike other renewable energy sources, biomass can present significant environmental problems when not utilized or managed properly. Forestry wastes (thinning, sawdust, chips, tops, limbs) have two alternative fates, open burning or landfilling, which emit significant amounts of GHG and air pollutants. Organic wastes (food waste, waste water treatment plants) create emissions such as methane and add to landfills. Utilizing these wastes provides an alternative fate to disposal, and also monetizes a waste stream that would otherwise pose significant environmental problems to communities. Unfortunately, these resources are consistently underutilized.

Furthermore, 2015 was one of the most destructive wildfire seasons on record, with over 10 million acres burning and consuming over 50 percent of the Forest Service budget. Federal forests suffer from

decades of fire suppression and a backlog of forestry management. According to the USDA, 43 percent, or as many as 68 million acres of federal lands are in need of thinning and/or controlled burning to reduce wildfire risk and restore forest health. Biomass power (including CHP) has the potential to create markets for forest thinnings which otherwise have no value, and are costly to remove from forests.

#### *Biomass Should Be Included as a Measure to Control CO2 Emissions in a FIP*

EESI is encouraged by EPA's positive language on biomass power's ability to reduce stack CO2 emissions in the final Clean Power Plan. EPA recognized the "CO2 and climate policy benefits of waste-derived biogenic feedstocks and certain forest- and agriculture-derived industrial byproduct feedstocks" in the CPP.

In the Federal Implementation Plan, EPA seeks comment on whether or not "qualified biomass feedstocks" should be included. Leaving biomass out of a federal plan runs counter to the final Clean Power Plan, which sanctions an individual state's inclusion of biomass in its compliance strategy. Additionally, leaving out biomass from the FIP is counter to the cooperative federalism that EPA embraces in the CPP, as well as EPA's own language about the ability of biomass to reduce CO2 emissions.

Biomass, along with other measures including Combined Heat and Power (CHP), and demand side energy efficiency, should receive equal treatment along other renewables (solar, wind geothermal, hydropower) as a measure to control carbon dioxide (CO2) emissions. In ignoring biomass, EPA is denying states a low-cost, common-sense compliance mechanism.

#### *Equal Treatment for All Renewables in Model Trading Rule*

Unfortunately, biomass does not receive recognition under the mass-based model trading rule. Whichever model plan EPA decides to promulgate, biomass, as well as other 'beyond the building blocks' measures, such as end use energy efficiency, should receive equal treatment. In general, there is a tendency to ignore zero emitting technologies beyond wind and solar -- the positive contributions of geothermal, hydropower and biomass should be embraced. Biomass is a flexible resource that can be co-fired with coal, used in CHP applications, as well as in district heating and energy systems. By ignoring this widely available, renewable resource in a model trading rule, EPA would disincentivize the use of biomass.

### *List of Qualified Biomass Feedstocks*

EPA asks for comment on whether or not they should enumerate qualified biomass feedstocks. This approach is overall rigid, and lacks the tailored approach that is necessary for assessing appropriate biomass feedstocks for a particular region, therefore EESI does not recommend it.

However, if the agency does list appropriate biomass feedstocks, it should approve the uses of biomass wastes that would otherwise be landfilled or burned. Biomass feedstock use already occurring in states and regions includes forest residuals (chips, sawdust, tops, limbs, etc.), forest products residuals (plywood, furniture trimmings etc.), urban wood waste, agricultural residues (corn stover, soybean stubble, rice hulls etc.), and organic wastes (food waste, waste water treatment plants, manure). Any list of qualified biomass feedstocks should not contradict existing federal and state policies on biomass.

Additionally, if EPA does create a list of qualified feedstocks, a simple mechanism to consider additional feedstocks at a later date should be included. It is impossible to foresee what market and technological advancements will create additional biomass energy feedstocks.

### *Evaluation, Measurement, and Verification (EM&V) for Biomass*

EESI recognizes that EM&V is an important mechanism to ensure that the use of biomass feedstocks overall reduces stack CO<sub>2</sub> emissions. However, we are concerned that a particularly onerous EM&V process will overall disincentivize the use of this low-cost compliance option that also provides significant environmental benefit. Additional chain of custody requirements could preemptively exclude biomass wastes as a compliance option, as the industry off-takes the lowest value residuals from forestry. Moreover, feedstocks are collected from multiple sources, and feedstock mixes change depending on a variety of factors.

Forests are managed on a landscape scale, not the individual tree or stand, and therefore, carbon cycling must be considered at the landscape scale. In keeping with the spirit of the Clean Power Plan's deferral to state government, EPA should defer to states with existing EM&V measures, whether through state RPS or other measures. As an additional backstop, the U.S. Forest Service has established the Forest Inventory Analysis (FIA), which periodically assesses if forest stocks are stable, increasing, or decreasing. FIA is well established, and also used by both the USDA and EPA to measure carbon stocks. With consideration to small diameter trees (roundwood) sourced from private forests, FIA may be used as an additional check to ensure that overall, forest stocks are stable or increasing in a particular region.

Particularly with the EPA's own *Scientific Advisory Board's* Framework on Assessing Biogenic Carbon Emissions process not complete at this time – it is imperative that EPA provide clarity on approvable EM&V methods for biomass.



### *EPA's Consideration of "Sustainable Forestry"*

While EESI recognizes that sustainable forestry is a crucial piece of landscape management and provides multiple environmental benefits such as wildlife habitat, watershed protection and air quality, sustainable forestry is not exclusively carbon management or vice versa. Rather, sustainable forestry practices can help increase carbon stocks on a landscape by promoting practices that lead to the growth of new trees and improved soil quality. This may also include sustainable harvesting of timber, and the use of forest residuals.

Including a nebulous term such as "sustainable forestry" in a regulation to control CO<sub>2</sub> emissions is misguided. The CPP does not define "sustainable forestry." Indeed, this term may be defined in a number of ways. Sustainable forest management certification programs do not specifically address carbon dioxide emissions from biomass products and carbon sequestration potential, but rather include a host of measure that may improve forest health. Therefore, the CPP should focus only on net carbon emissions and how biomass feedstocks may be used to control CO<sub>2</sub> stack emissions. If EPA does require "sustainable forestry" as part of compliance, they should defer to existing state sustainability forestry requirements.

### **The Clean Energy Investment Program**

#### *Definition of Low-Income and Eligible Criteria for EE Projects in CEIP*

Low-income communities differ by state and region. Any definition EPA chooses should not conflict with definitions currently used by other Federal programs, and should encompass both rural and urban low-income communities. EESI suggests that EPA take a broad and inclusive definition of low-income, and aim to be consistent with existing programs already serving low-income communities. In addition, there are privacy and consumer protection concerns with identifying low-income communities, and these safety measures should not be circumvented.

Similarly, EPA should review existing energy efficiency programs to determine how best to structure the CEIP. Ideally, the CEIP should reward energy-improvement projects in low-income communities including housing, public schools and community centers since for-profit entities have a greater ability to mobilize funding for energy-efficiency retrofits and other upgrades and can choose to use a utility or business to upgrade their efficiency. But there are also many low-income families who live in mid- to high-income areas and could benefit from the CEIP. Project criteria should allow these families to benefit from CEIP, even though they live outside geographically considered low-income areas. In practical terms, utilities and the growing number of energy-data analytics companies assisting them with demand-response programs should seek to include as many customers as possible in a retrofit program versus a project-by-project basis.

### *Efficiency and Renewable Energy for Affordable Housing:*

Sustainable and affordable housing, both new construction and retrofit, and energy efficiency improvements to multifamily housing in particular, is a win-win for EJ Communities and the Clean Power Plan. EPA should coordinate with federal and state policies and programs such as the Low-income Housing Tax Credit, the New Markets Tax Credit, and incentive programs offered by local housing agencies. For example, Pennsylvania is the first state to offer tax credits for low-income passive-house building. For applications to the PennHOMES and low-income housing tax credit program, points are awarded to developments located in areas with high poverty rates or large numbers of senior citizens eligible for affordable housing. Extra points are awarded for green building, and now up to 10 points are awarded to developments that meet passive house certification requirements.

CEIP could leverage these programs to provide even greater benefits to low-income communities by increasing the availability and energy performance of affordable housing. Many groups have worked for years to improve energy efficiency in multifamily affordable housing (a particularly difficult situation of “split incentives”). Both new energy efficient construction and retrofits of existing buildings will reduce greenhouse gas emissions. Through the Clean Power Plan, EPA has a perfect opportunity to help communities and partners expand these programs – both in terms of resources and the number of projects and in terms of incentivizing innovation and best practices. Monthly energy savings translate into housing that’s more affordable for cash-strapped families and also helps reduce carbon emissions. As the clean energy technology sector grows, a well-designed CEIP can further accelerate sustainable economic development and jobs in all communities and especially low-income.

### *CEIP Dates for Construction of EE/RE Projects*

EESI suggests that EPA consider allowing projects installed after September 6, 2016, when initial state compliance plan submittals are due, to qualify for consideration under the CEIP. In the EPA's current proposal, eligible projects must commence construction after a state submits its final plan to EPA, or after September 6, 2018 if a state does not submit a final plan to EPA.

EESI suggests this for several reasons. First, this will prevent renewable energy and energy efficiency projects in states with slow-moving state governments from being penalized by having to wait until 2018 to begin construction to qualify for CEIP. Second, this would allow more time for RE/EE projects to come online before the 2020/2021 time period, making it easier and incentivizing businesses to construct projects that will receive early action credits. Third, the current language actually incentivizes projects to delay construction until 2018, in order to ensure they have access to extra credits. Allowing projects constructed after September 2016 to qualify would alleviate some of the delay incentive.

## Conclusions

EESI welcomes the Clean Power Plan as an important step in moving towards greater energy efficiency and lower greenhouse gas emissions. In preparing either a mass-based or a rate-based FIP and model trading rules, EPA must carefully consider the full suite of sustainable generation options. By embracing a truly “all of the above” renewable strategy, communities may see the greatest benefits from energy sources that make sense for them. Additionally, EPA must ensure that trading mechanisms are constructed so that communities, especially EJ communities, see the greatest possible benefit to their air from this rule.

Sincerely,

A handwritten signature in black ink that reads "Carol Werner". The signature is written in a cursive, flowing style.

Carol Werner  
Executive Director  
Environmental and Energy Study Institute