**Comments of Ashok Gupta, Senior Energy Economist**

**Natural Resources Defense Council**

**Before the Missouri Public Service Commission**

**EW-2012-0065 Environmental Compliance Workshop**

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Good afternoon. Thank you for holding this workshop and for giving NRDC an opportunity to participate. My name is Ashok Gupta and I am a Senior Energy Economist with NRDC. I have been working with utilities and state regulators for over 25 years on policies and programs to capture the benefits of energy efficiency. I have recently moved to the Kansas City area and have turned my focus to developing a robust market for clean energy and efficiency in Missouri, and in Kansas City particularly. What is clear to me from my work here over the past year is that there is an appetite among utilities and their customers for making efficiency and clean energy work in Missouri, and while it’s not simple to come up with the right mechanisms for sharing the costs and benefits, most people and businesses agree that it can be a win-win for everyone if we get it right, Specifically, we can achieve lower bills, cleaner air and water, maintain a world-class electric system, and put people to work designing, manufacturing, installing and operating clean energy systems. Moreover, there’s a growing recognition that now is the time to chart a serious path to that vision.

NRDC supports the draft rule that U.S. EPA proposed in June, although we think that in many states, Missouri included, a more stringent target for emission reductions can be achieved.

1. Energy efficiency

EPA adopted a very conservative approach to in its estimates regarding how much efficiency could be achieved in each state. For example, EPA assumed that Missouri would do nothing on energy efficiency between 2012 and 2017, which is certainly not the case given that KCPL, GMO and Ameren programs are delivering substantial savings now. EPA also assumed that Missouri would only ramp up to a 1.5% annual reduction achieving only a 9 percent reduction in demand cumulatively by 2030, and assumed nothing with respect to additional efficiency from building codes, appliance standards, or CHP deployment that can happen over and above the utility programs. By contrast, ACEEE estimates that Missouri could use efficiency to reduce carbon by 21%.

In fact, the current rules implementing the Missouri Energy Efficiency Investment Act (MEEIA) set soft targets which, if met, would result in a cumulative reduction in load of 18% in Missouri for the major investor owned utilities by 2030 relative to a businesses-as-usual scenario. Doing so would require only that Missouri ramp up their investments in energy efficiency gradually to where leading states across the country are already today. Moreover, this 18% reduction is achievable through utility programs alone, and assumes nothing with respect to appliance standards, building codes, private financing and deploying combined heat and power projects. We are aware that the Missouri utilities have asserted that they can only achieve a portion of this savings, and NRDC has commented in the past to this extensively regarding the analytical problems inherent in the recent potential studies performed by Ameren. This rule gives Missouri another opportunity to evaluate the potential for cost-effective efficiency in Missouri.

A final note on Missouri’s current experience with energy efficiency -- there has been far too little focus on how successful these programs have actually been. In fact, these programs are working to make our electric system cleaner, more reliable, and more affordable, and in the process, we are seeing the beginnings of a robust energy efficiency industry in Missouri.

* Ameren’s first programs under MEEIA saved 337 million kilowatt-hours in their first year, which will mean net savings of $140 million for its customers just from this year’s measures. This level of savings is more than 150% of the utility’s first year savings goal, showing the potential to scale up savings quickly.

* KCPL just got approval for plans that will save customers $34 million, cutting carbon emissions by more than 100,000 tons. This program also adds an additional 25 million kilowatt-hours to GMO savings targets, approximately doubling the level of savings KCP&L is pursuing through these two affiliates.
1. Renewable energy

Missouri also has ample renewable energy resources to achieve far more than U.S. EPA assumed when setting the target for Missouri.

EPA’s projection of 2.8 million MWh of Renewable Energy for Missouri by 2030 is lower than the state could easily achieve through existing market forces and policies alone. While Missouri’s wind resource is smaller than that of Kansas or Iowa, it is still substantial, and the 14th best in the country. NREL estimates that Missouri could generate over 810 million MWh/year from wind power alone, on the conservative assumption that only 80-meter turbines with at least a 30% capacity factor are built. This is nearly 300 times more renewable energy than what EPA projects, and about 10 times Missouri’s total electrical load. In order to meet EPA’s extremely modest target of 2.8 million MWh, Missouri would need to install only 1,066 MW of new wind power by 2030. By comparison, Missouri already had 459 MW of wind power online as of 2010, all of which came online in a brief 3-year period. To meet EPA’s projection, Missouri would merely need to barely double this capacity over the next 16 years with falling prices and improving technology.

In addition to Missouri’s strong wind resource, it also has a very good solar resource. Nevertheless, Missouri currently has only 49 MW of solar PV. But even this modest solar deployment employs nearly 3,000 people at 72 companies. New Jersey, with a smaller solar resource base, has over 1,087 MW of solar already. Assuming Ameren’s conservative 14.4% (as opposed to NREL’s 19.3%) capacity factor, Missouri’s solar PV systems currently provide nearly 62,000 MWh of energy per year. If Missouri were to even match, by 2030, New Jersey’s *current* level of solar PV deployment, it would be half way to the 2.8 million MWh RE in EPA’s projection. Ameren has announced plans to build an additional 5.7 MW solar array, which would increase statewide solar generation by 10%, but this small increase does not even begin to scratch the surface of the state’s massive solar potential. Nationwide, the solar PV market grew by 41% in 2013, representing 29% of all new installed capacity nationwide.

Missouri’s voter-enacted Renewable Electricity Standard calls for the state’s investor-owned utilities to derive at least 15% of their energy sold from renewable resources by 2021 Based on Projected 2030 IOU sales of 67.4 million MWh, the RES would require 10.1 million MWh per year of RES-qualifying energy (8.9 million, excluding existing large hydroelectric). Missouri’s target for non-hydro renewable energy from IOUs only is therefore about three times as high as EPA’s projection for the entire state.[[1]](#footnote-1) If Missouri merely meets its RES targets with new renewables beginning in 2012, it can meet between 55% and 77% of its compliance obligations under the Clean Power Plan from this policy alone. (See Appendix A).

EPA applied a conservative and uniform national and regional methodology in determining cost-effective emissions reductions achievable through power plant operational efficiency improvements. This methodology examined the most current literature studying power plant efficiency, which identified opportunities for cost-effective upgrades in the range of 8.7% to 15%. Rather than adopt these more aggressive findings, EPA performed a comprehensive statistical analysis of actual historic plant operations over an 11-year period and examined industry best practices and equipment upgrade options. This analysis examined 884 power plants responsible for 96% of all carbon emissions during the study period. This study determined that, on average, employing operational best practices can provide a 4% improvement in plant efficiency at no cost or low cost, and that equipment upgrades can provide an additional 2% efficiency improvement, for a total of 6% improvement. EPA determined these upgrades to be cost effective purely on the basis of fuel cost savings at current coal prices. Additional upgrades may become cost effective if the price of coal rises.

Like the EPA’s projected Energy Efficiency and Renewable Energy projections, the plant efficiency projections do not take into account granular state-level policies and technical and economic potential improvements. Individual states with many older power plants are likely to find potential for greater efficiency gains than the 6% improvement projected by EPA at many plants, but the least efficient plants may also be better candidates for reduced dispatch or retirement than for renewed investment in efficiency upgrades. For this reason, Missouri should not assume that a uniform efficiency increase of 6% per power plant should be a component of its implementation plan. Rather, it should pursue emissions reductions strategies that will provide the state with maximum economic, health, and environmental benefits, so that it can meet its performance standard in a manner most suited to local conditions and priorities. The state should therefore maximize emissions reductions from existing statewide clean energy policies before pursuing additional reductions from plant upgrades, which may be more costly and may imprudently prolong the life of the state’s oldest and most polluting resources.

1. Mass versus Rate Based Emissions Standards

Our view on this question is that either can work to produce the outcomes the rule seeks to achieve. There are advantages to either approach. A mass based approach results in a clear emission target that can be measured at the smokestack, provides ample flexibility, and avoids the complexities of accounting for efficiency and renewables, avoiding double counting, and integrating RECs. On the other hand, a mass based target may need to be revisited if unexpected changes in load growth/reduction assumptions occur, and the methodology for revising mass-based targets can be tricky if the electric sector absorbs emissions from other sectors, such as transportation and heating. Similarly, it is not clear how planned retirements and changes in electricity imports and exports will factor into the calculation of a mass-based target.

 If Missouri has a mass-based standard, it will need to show that this standard has equivalent environmental benefit to rate-based standard. One way that mass-based standard could fail to be equivalent is if Missouri imports or exports electricity to or from states with rate-based standards. Under some circumstances, these imports/exports could have the result of creating the illusion of compliance in both states without achieving any positive environmental outcome. This concern exists under a rate-based standard as well, if emissions from mass-based states start to “leak” into Missouri. The best solution to this problem is to enter into a regional agreement with interconnected/import-export partner states. Another solution is to account for leakage in compliance filings by adjusting targets to reflect leakage or by implementing a state plant that includes sufficient measures to prevent transactions that will result in leakage.

Therefore our recommendation is to consider mass, rate, and regional options carefully. All can be workable solutions, but all have potential pitfalls that must be guarded against.

1. The Impact of HB 1631

1631’s main provision requires that the Air Conservation Commission “shall develop emission standards . . . through a unit-by-unit analysis of each existing affected source of carbon dioxide within the state.” The statute does not define the nature of this analysis, but attributing relative compliance obligations to power plants could not reasonably occur without first considering the attributes of each unit, including fuel type, emissions levels, heat rate, and other factors. The Commission may choose to assign relative liability based in part on considerations such as compliance cost for certain measures, past reductions and other demonstrations of good faith, remaining useful life, plans for retirement, and others. 1631 merely codifies what the Commission should to do in any case in order to develop a plan equitably.

If the phrase “develop emissions standards” is taken to mean that the Commission is required to come up with a target for Missouri that is not equivalent to EPA’s required emissions reductions, the text of the statute would both authorize the commission to implement the Clean Air Act, and forbid it from implementing the Clean Air Act. This would be an absurd result, and cannot be the intended meaning of the statute.

The statute also authorizes the Commission to seek exemptions and time extensions provided for under the text of the Clean Air Act. This authority is already provided by the federal law, so codifying it in state law does nothing to change the state’s authority. Given the relative ease with which Missouri can meet its compliance obligations through existing state clean energy policies, there is no reason why any of these exemptions should apply.

1. Regional compliance options

Finally, we encourage Missouri to work with neighboring states to develop regional pathways to compliance with the carbon pollution rules. Regional market-based approaches should be considered by states because they:

* + Reduce costs to consumers
	+ Help to ensure that any reliability concerns are addressed
	+ Avoid potential electric market distortions from a patchwork of environmental policy approaches
	+ Avoid potential environmental leakage from mass- and rate-based approaches existing next to each other and
	+ Potentially lower costs for all participating states, even where stringency of state targets vary.

Contrary to some rampant rumors, there does not need to be a regional “compact” with Congressional review for states to enter into agreements for a multi-state compliance approach. For example, RGGI is not a compact (they have similar state regulations, honor each other’s allowances, and jointly auction their allowances)

Finally, while ideally a whole market region would adopt the same policy approach, regional collaboration should still provide benefits even if a few of the states in the region adopted an alternative approach.

Again, we appreciate the opportunity to be here today and to be part of this exciting and much needed process. We will follow up with written inputs to this docket to more specifically address some of the Commission’s additional questions.

**Appendix A: Sample Calculations Showing Missouri’s Ability to Meet CPP Targets With Existing Clean Energy Policies**

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**Appendix A Sources:**

**2012 Emissions Intensity , 2030 Emissions Intensity, and CCNG Emissions Rate:** U.S. EPA**,** Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, proposed rule, <https://www.federalregister.gov/articles/2014/06/18/2014-13726/carbon-pollution-emission-guidelines-for-existing-stationary-sources-electric-utility-generating>.

**2012 Total MO Sales:** Energy Information Administration, Missouri State Profile, <http://www.eia.gov/forecasts/aeo/MT_electric.cfm>.

**2012 Covered MO Generation:** Calculated based on 2012 Covered Emissions and Covered 2012 Emissions Intensity.

**2012 Covered MO Emissions:** U.S. Environmental Protection Agency, Clean Power Plan Proposed Rule Technical Documents, Data File: Goal Computation Appendix 7, <http://www2.epa.gov/sites/production/files/2014-06/20140602tsd-plant-level-data-unit-level-inventory_0.xlsx>.

**State RES Goal:** Missouri 4 CSR 240-20.100, <http://www.sos.mo.gov/adrules/csr/current/4csr/4c240-20.pdf>.

**State EE Goal:** Missouri 4 CSR 240-20.094, <http://www.sos.mo.gov/adrules/csr/current/4csr/4c240-20.pdf>. Cumulative savings assume a 10-year average measure life.

**Assumed Load Growth:** U.S. Energy Information Administration, Annual Energy Outlook 2014, Figure Data, Figure MT-33, <https://www.federalregister.gov/articles/2014/06/18/2014-13726/carbon-pollution-emission-guidelines-for-existing-stationary-sources-electric-utility-generating>.

**2012 IOU Sales and Hydropower Generation:** U.S. Energy Information Administration, Electric Sales and Revenue Data by State, Back to 1990, <http://www.eia.gov/cneaf/electricity/page/sales_revenue.xls>.

**Missouri Coal Emissions Rate:** U.S. Environmental Protection Agency, Clean Power Plan Proposed Rule Technical Documents, Data File: Goal Computation Appendix 1&2, <http://www2.epa.gov/sites/production/files/2014-06/20140602tsd-state-goal-data-computation_1.xlsx>.

**Projected 2030 IOU Sales and Projected 2030 Covered Generation:** Calculated based on load growth.

1. In-state energy multipliers, reliance on RECs, and resources included in Missouri’s RPS, but potentially excluded for the purposes of Clean Power Plan compliance may somewhat reduce the total amount of RPS-qualified energy that Missouri can apply to meeting its targets, but it is clear that Missouri is in a strong position to vastly outstrip EPA’s projection even considering these limitations on the RPS. [↑](#footnote-ref-1)