

What new US rules mean for fossil-fuel power costs and the future of emissions trading

Blog post by Stephanie Grumet, Adviser, 6 April 2022

The US Environmental Protection Agency's (EPA) proposed [Transport Rule](#) was published in the Federal Register on April 6th. Also known as the "Good Neighbor Rule", it is sweeping in its geographic scope and breadth. The rule would affect 26 US states; set lower emissions standards for coal and gas fired electricity generators, create new emissions standards for multiple industries; and establish first-ever guardrails to square regional emissions trading mechanisms with localised pollution and environmental justice hotspots. The newly proposed constraints on regional emissions trading appear to be underappreciated by most observers and include:

- Enforcing unit specific emission rates for coal-fired power plants;
- Limiting the number of banked allowances, an
- Ratcheting down on the regional budget by dynamically updating budget calculations to reflect unit retirements and real-time capacity factors.

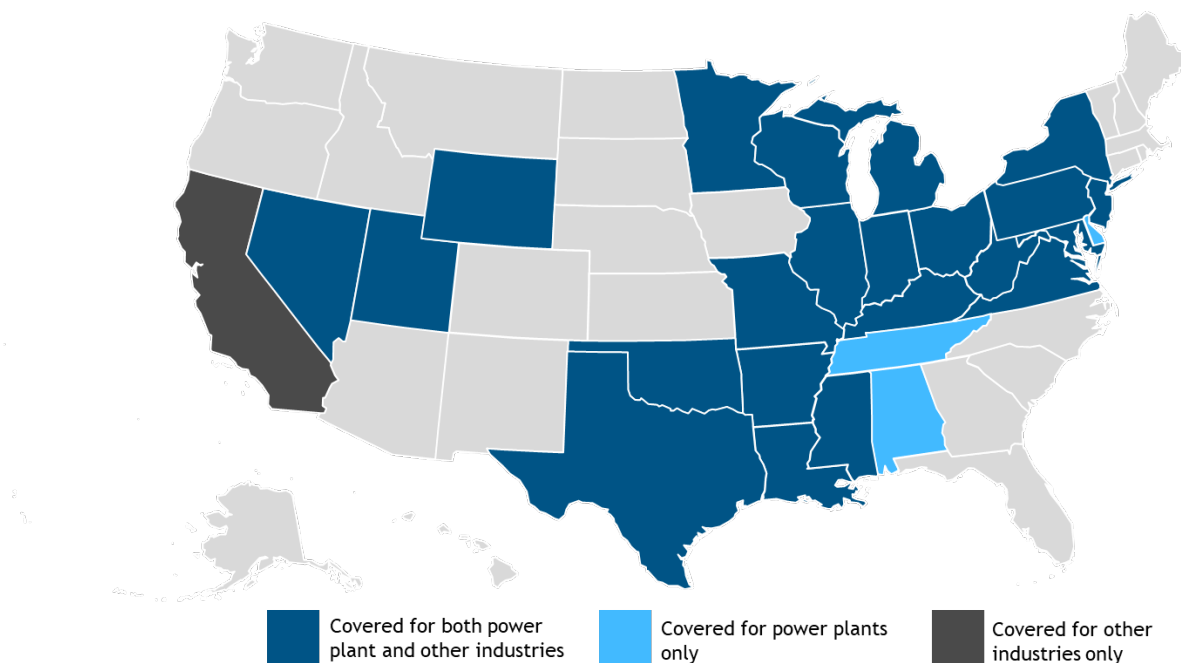
The net impact of these provisions will reduce flexibility for industry and increase costs of an emissions trading mechanism that, while widely praised as the cheapest approach, has been increasingly disparaged by progressives and environmental justice advocates for what they argue as systematically underserving low-income localities. The proposal's localised constraints to protect underserved communities adjacent to power plants could be the lifeline regional emissions trading programs need to be considered adequate emissions control mechanisms in the future, while still providing flexibility for unit-specific compliance decisions.

The bottom line is that this rule will increase costs for fossil fuel electricity generators as well as for the seven affected industries. This will not only provide tailwinds for renewables and nuclear energy in wholesale markets, but for oxides of nitrogen (NOx) control and equipment services as well. It may also provide incentives for more combined heat and power and other energy efficient industrial alternatives.

EPA has estimated power sector costs at roughly \$1 bn a year in its Regulatory Impact Analysis (RIA). Impacted natural gas plants, which often set the price for energy in competitive wholesale electricity markets, would face higher costs. The additional fossil energy costs should increase market share for merchant renewable and nuclear assets in wholesale energy markets. This is particularly true for markets dominated by coal and gas generation in their resource mix, like the Midcontinent Independent System Operator (MISO), PJM Interconnection (PJM) and the Electric Reliability Council of Texas (ERCOT). We expect the rule to be finalised by early 2023 - with its first

set of compliance obligations for coal-fired units starting that year and the majority of new compliance obligations for oil and gas units and for the seven impacted industrial sectors beginning in 2026. There will be a virtual public hearing on April 21st, and the public comment period for the rule ends on June 6th.

EPA’s proposed Transport Rule: affected US states



Source: EPA

Power sector impacts

If the rule is finalised in 2023 as we expect, the initial tranche of requirements would start that summer. The immediate provisions would impact coal-fired power plants that were already required to install post combustion control technologies to reduce NOx emissions, like selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR) devices. NOx is a precursor to ozone pollution, commonly called smog, which can irritate lungs and cause respiratory disease.

Coal-fired units would be required comply with stricter emissions budgets commensurate with running their control technologies consistently throughout the ozone season, from May through September. These controls are routinely turned off when plants believe they can comply with their emissions budgets more cheaply by purchasing NOx allowances from the emissions trading market and thus running their plants when energy prices are higher on hot summer days.

The second major phase of the regulation would set emissions budgets based on inclusion of SCR and SNCR installation on large oil and gas units - defined by EPA as plants with greater than 100 megawatts (MW) of capacity that have historically emitted at least 150 tons of NOx in the ozone

season. These obligations are expected to come into force by the summer of 2026. Companies supplying and servicing selective catalytic and non-catalytic NOx emission reduction technologies should reap tailwinds from the additional control installations. Likewise, the tighter emissions budgets will lead to some reductions in how often fossil plants run and could cause some retirements resulting in market share accretion for renewable and nuclear plants in wholesale energy markets.

Impacts across multiple industrial sectors

Another critical aspect of this rule is its inclusion of seven large industrial sources from 23 upwind states. EPA's RIA estimated costs for these industrial sectors is estimated at about \$300m per year. The impacted source categories include:

- Furnaces in glass and glass product manufacturing,
- Boilers and furnaces in iron and steel mills and ferroalloy manufacturing,
- Kilns in cement and cement product manufacturing,
- Reciprocating internal combustion engines in pipeline transportation of natural gas,
- High-emitting equipment and large boilers in basic chemical manufacturing,
- Petroleum and coal products manufacturing, and
- Mills for manufacturing pulp, paper, and paperboard.

Industrial companies will have three years to install control technologies if the rule is indeed finalised in 2023. These sectors are not eligible to participate in the emissions trading program which is exclusively for electric generating units (EGUs). Controls should be in place in 2026 - prior to the ozone season attainment date of August 2027 for serious nonattainment areas.

For each of the industrial categories listed above, EPA proposes emissions limits for multiple equipment types for ozone season based on commercially available technologies. Based on EPA's RIA for the proposed rule, the bulk of industrial sources are in the Northeast US, including 41 glass manufacturing units, 39 cement and concrete units, 25 iron and steel mill boilers, and 25 pulp and paper boilers.

Emissions trading redefined

The newly nuanced trading rules proposed under the EPA rule could pave the way for an emissions trading renaissance. Existing regional emissions trading programs aim to reduce emissions from widely dispersed sources over broad geographic areas, which allows some units to emit above thresholds as long as overall emissions are below the emissions cap. This approach allows for significant compliance flexibility. However, a growing chorus of environmentalists argue the current system does little to ensure each affected unit actually reduces its emissions. The EPA rule proposes for the first time in an emissions trading program to require unit specific emissions rates, or a 'backstop' for coal-fired boilers and more strict assurance levels. EPA's proposed rule would limit the quantity of banked allowances, reducing the temporal flexibility. It would also update regional budget calculations accounting for unit retirements and lower fossil capacity factors as

more renewables gain market share - the effect of which would be to lower the regional emissions budget going forward.

Impact on power and industrial sectors



EGU Requirements*: COAL: optimization of existing post-combustion controls for coal-fired EGUs (SCRs and SNCRs) and combustion control upgrades. Unit-specific emissions limits in 2024*

EGU Requirements*:
 COAL: retrofit of SCR at coal steam units of 100 MW except circulating fluidized bed (CFBs), SNCR on coal steam units less 100 MW and CFBs,
 GAS/OIL SCR on oil/gas steam units greater than 100 MW with historic emissions of 150 tons NOX/ozone season

INDUSTRIAL Requirements: Emission limits for: furnaces in glass manufacturing; boilers and furnaces in iron and steel mills; kilns in cement and concrete manufacturing; reciprocating internal combustion engines in natural gas pipeline transportation; high-emitting equipment and large boilers in chemical manufacturing, equipment in petroleum and coal products manufacturing, and pulp, paper, and paperboard mills

*Electricity Generating Units (EGUs) participate in regional emissions trading program with proposed backstop daily emissions rates of 0.14 lb/mmBtu for coal-fired units 100 MW or greater, applying in 2024 for sources currently with existing SCRs, and in 2027 for coal units currently without SCR

SCR: selective catalytic reduction
 SNCR: selective noncatalytic reduction