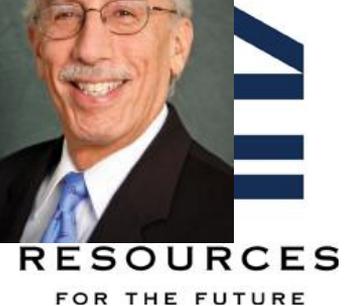
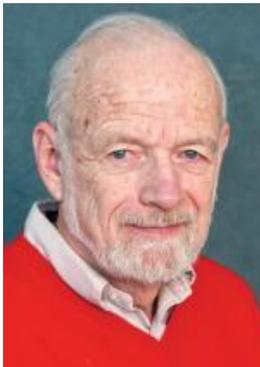




Clean Power Plan: Repeal and Replace

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Resources for the Future
December 13, 2017

Drawing on previous research collaborations:



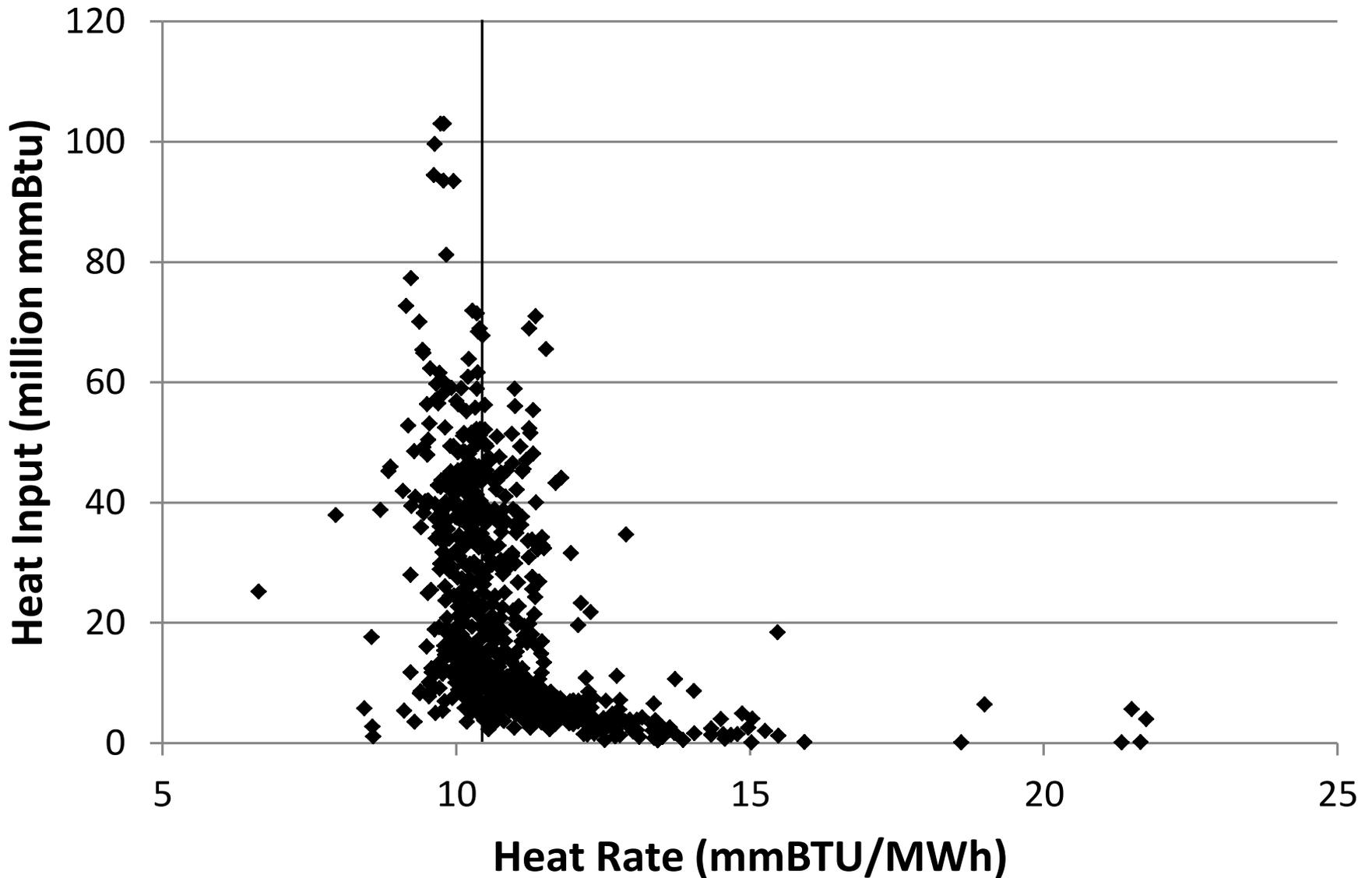
Outline

1. Status of repeal and replace
2. Replace -- How much could be achieved?
3. Possible approaches and conundrums for the agency

Status of Repeal and Replace

- 2007 Supreme Court decision.
- 2009 Endangerment Finding.
- EPA chose section 111 for regulation of stationary sources.
- February 2016, the Supreme Court stayed the regulation for 111(d) regulating *existing* sources.
- October 2017, EPA announced repeal of 111(d).
 - Legal handle: Definition of the *best system of emission reductions*
- 111(b) regulating new sources remains in effect.
- Having 111(b) in place triggers a requirement to develop a replacement 111(d) standard for existing sources.
- Presumably EPA will use an “inside the fence line” approach. There are several issues to consider.

Heat Input vs Heat Rate (2008)



How much could be achieved?

Engineering: central case ~4% emissions rate reduction on average across the coal fleet (at \$30/ton).

- Sargent and Lundy (2009) at \$10-\$60 / ton.
- Linn et al (2014): Improvements up to 90th percentile within a group (boiler size, design, vintage, pollution control) => ~6% improvement.
- BPC (2014): Best in class within a group. Investments to close 25% or 40% of the gap => 4-6% emissions rate improvement.

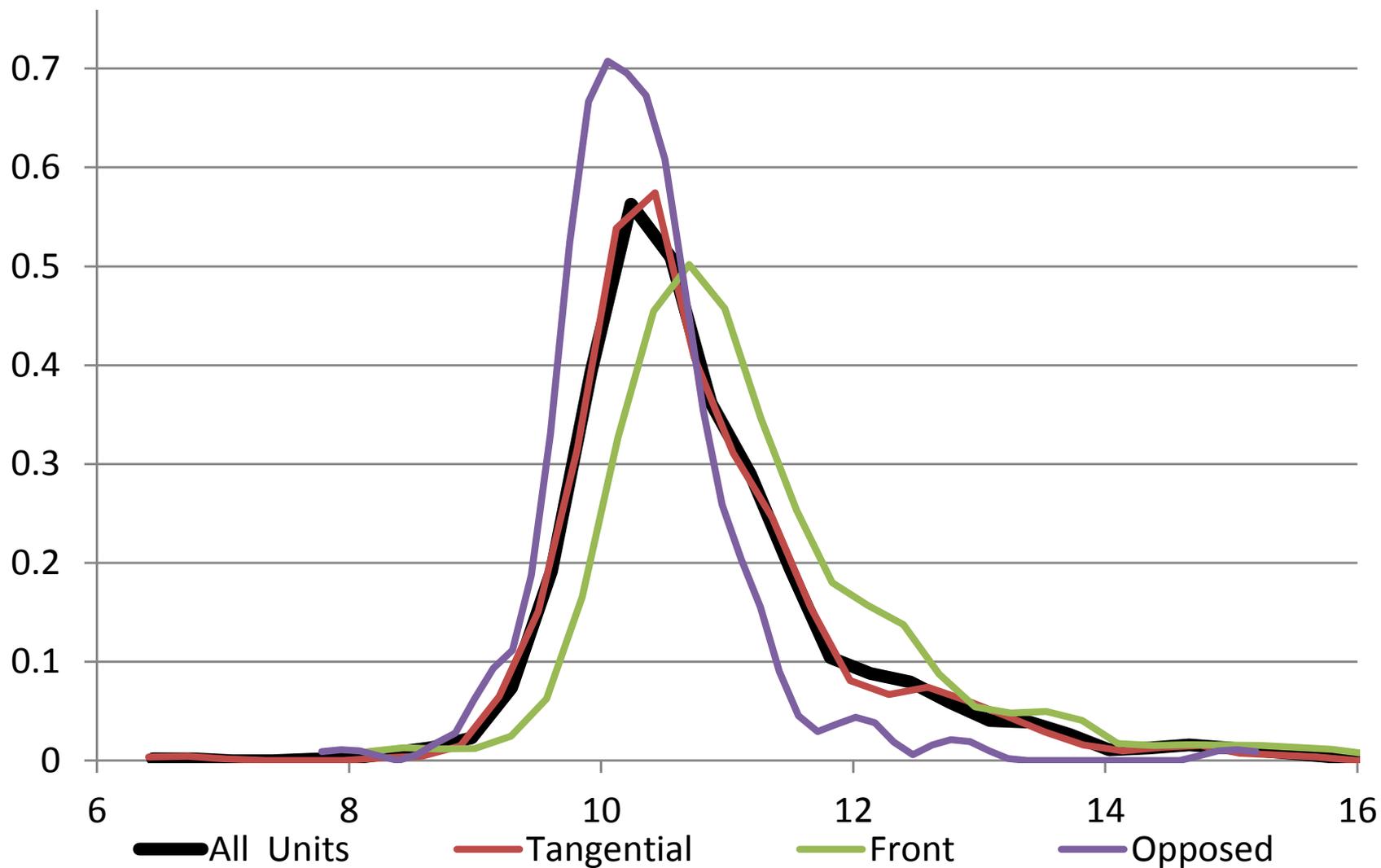
Empirical: opportunity is less promising; cost is similar.

- Observations of 0.1 – 0.4% (at \$1.64/ton).
- Implies 0.6-2% at \$10 carbon fee **holding utilization fixed**.

Rebound: a) reduced variable cost; b) longer lifetime

- In performance standard simulations, rebound is 22-33%.
(It is much less under a tax!)

Estimated Heat Rate Distribution by Firing Type



Possible approaches and conundrums

Heterogeneity across plants.

- Efficient standard would require a component approach.
- But EPA may have to impose a one-size-fits-all approach.

The standard solution is compliance **flexibility**,... a slippery slope.

- A possible approach is a fuel specific standard.
- EPA's new view: the electricity sector is not a *system*. It would be inconsistent to allow trading/averaging across facilities.
- EPA might designate authority to a state to consider flexibility.
 - a) Could flexibility reach across state borders, fuel type?
 - b) FIP / SIP inconsistency?
- Or, EPA could impose trivial requirements.

Is a "little" emissions reduction **sufficient**?