The Clean Power Plan and the US Power Sector

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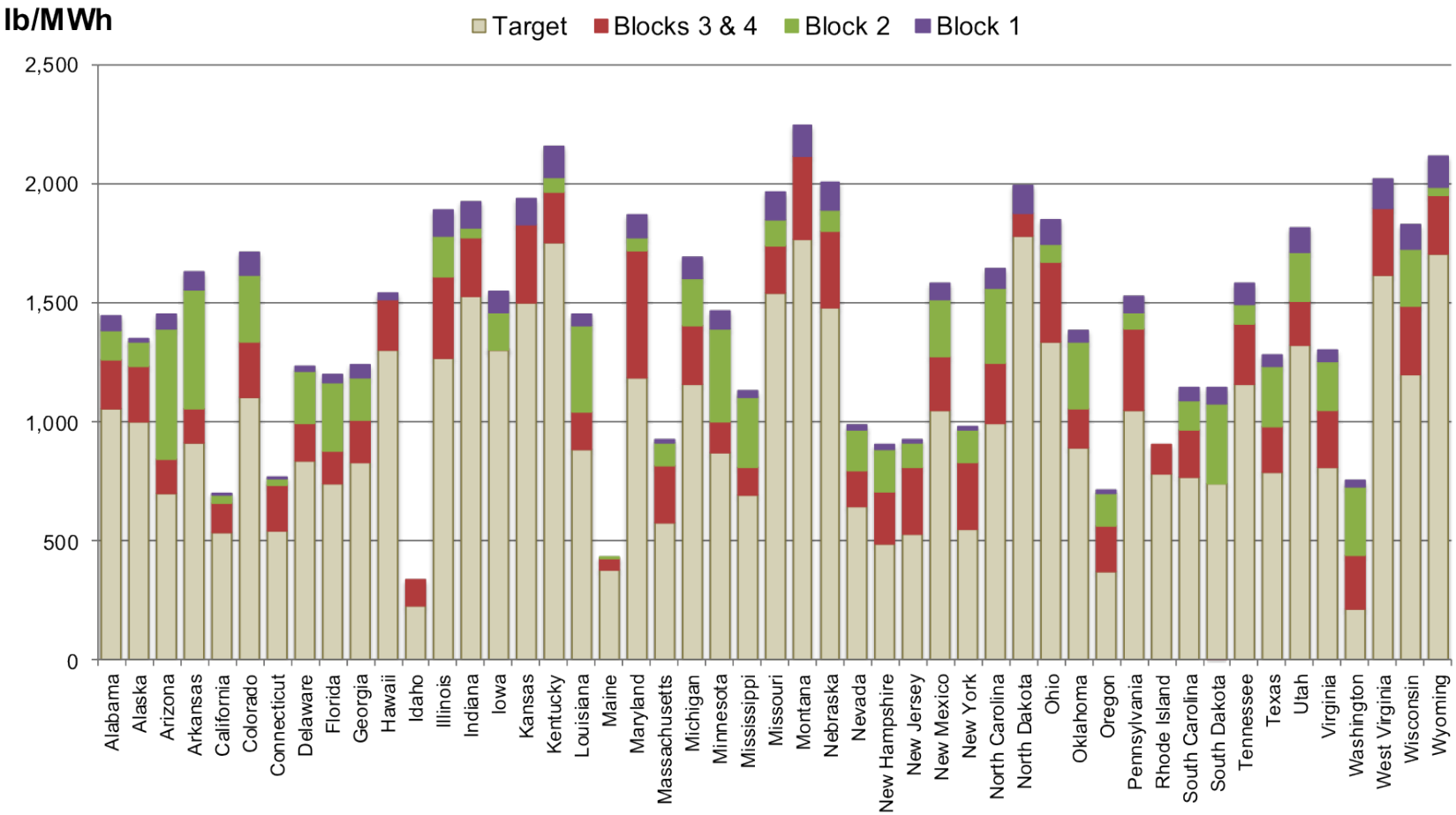
January 2015

Introduction

- Working within the Clean Air Act to reduce GHG emissions from the power sector is posing some implementation challenges.
- My comments will focus on interactions between the structure of the Clean Power Plan and the structure of the power sector.

State-specific emissions standards

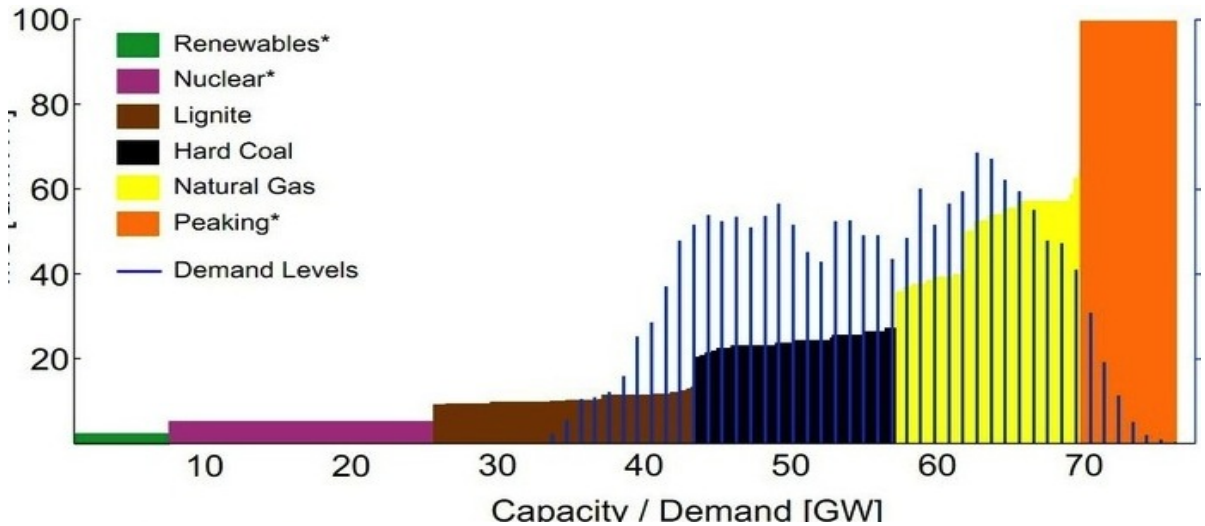


Regionally coordinated power markets

- Whereas the the proposed Plan is implemented at the state level (as per the Clean Air Act), co-ordination of electricity markets is regional.
- In past years, the Federal Energy Regulatory Commission (FERC) has been successfully promoting the development of large scale (multi-state) integrated transmission systems.
- Cross-state electricity flows complicate the implementation of the Clean Power Plan in several ways:
  - Allocation of electricity production (i.e. dispatch)
  - Outside the fence compliance options
  - New capacity investment

Issue 1: Allocative efficiency in dispatch

- In electricity market, the 'merit order' determines the order in which electricity generating units are dispatched to meet load.
- Ideally, plants would be dispatched in ascending order of social (versus private) cost.
- Within a state, more emissions intensive plants will see their operating costs rise by relatively more.
- However, differences in state-level targets can scramble the dispatch order in a regional electricity market (see Bushnell et al., 2014).



Issue 2: Cross-state electricity flows generate a compliance externality

- When electricity flows between states, investments in renewable energy and energy efficiency in one state can affect the compliance status of other states.
- In a state that imports a lot of power (e.g. MD), investments in efficiency programs will be reducing emissions elsewhere.
- An increase in renewables generation in a net exporting state may crowd out fossil fuel production in neighboring states.
- If states cannot fully capture the compliance benefits associated with "outside the fence" compliance options, they may under-invest in these options.

Issue 3: New capacity investment under existing source standards

- Under a rate-based standard, electricity and emissions generated at new plants do not factor directly into the rate calculation.
- This lowers the incentive to invest in new, clean natural gas plants as a means of reducing emissions (versus a standard that covers both new and incumbent sources).
- In contrast , excluding new capacity from a mass-based standard exaggerates incentives to invest in new natural gas generation (as emissions do not count against the cap).
- These investment distortions are exacerbated if states adopting different types of standards (rate versus mass) are linked in a regional power market: esulting in excess generation that was exported to neighboring mass-based regions.

In summary

- The proposed Clean Power Plan is a central component of domestic climate change policy.
- Implementing this rule under the auspices of the Clean Air Act poses some implementation challenges in the domestic power sector.
- Variation in state-specific emissions standards - and associated incentives- has problematic implications for electricity production, compliance choices, and new investment.
- It will be very important to facilitate interstate coalitions under the proposed Plan.