Sensitive Intervention Points in Supply Side Climate Policy

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CEENRG

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Institute for
New Economic Thinking
AT THE OXFORD MARTIN SCHOOL

Core research question

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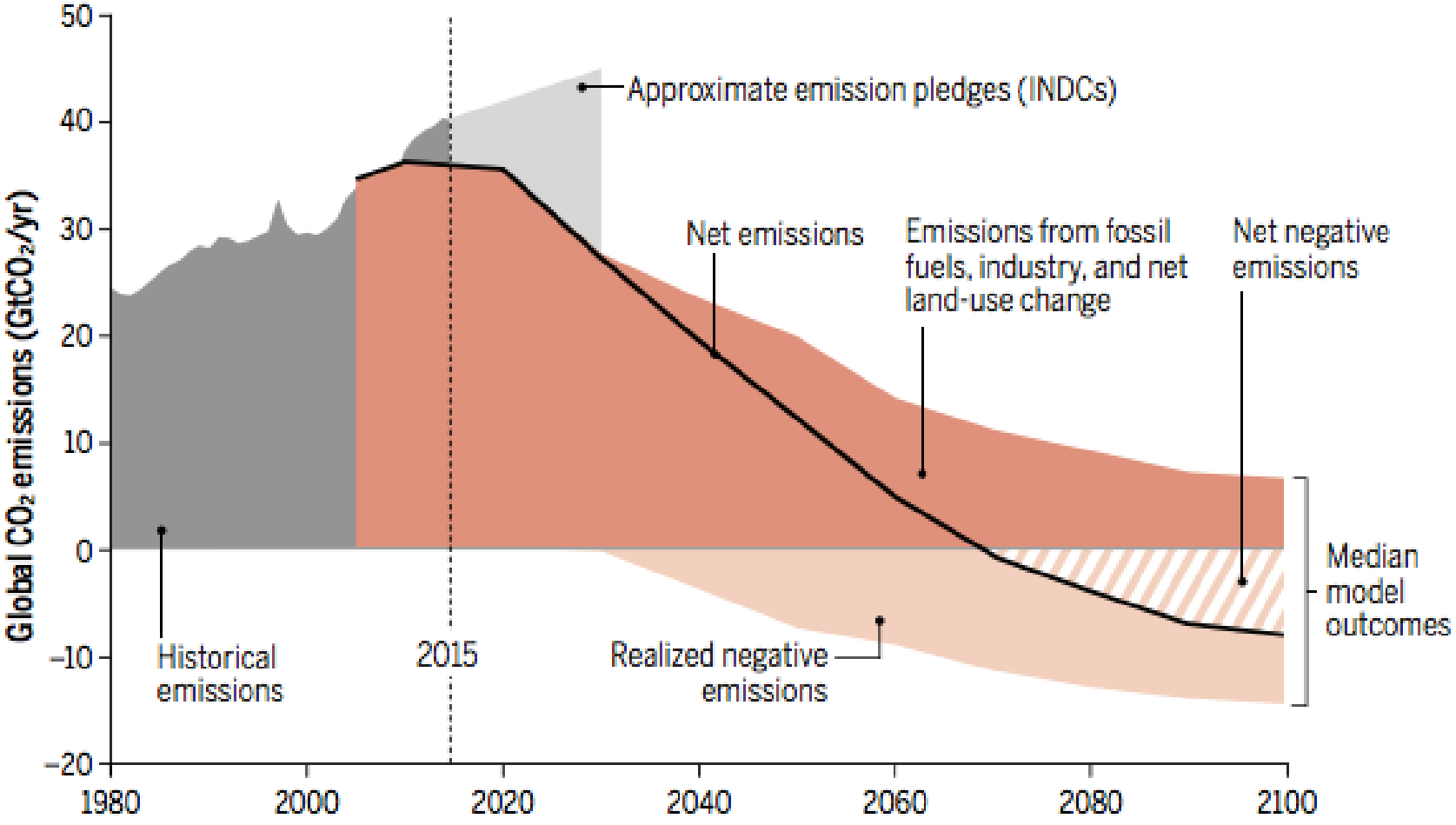

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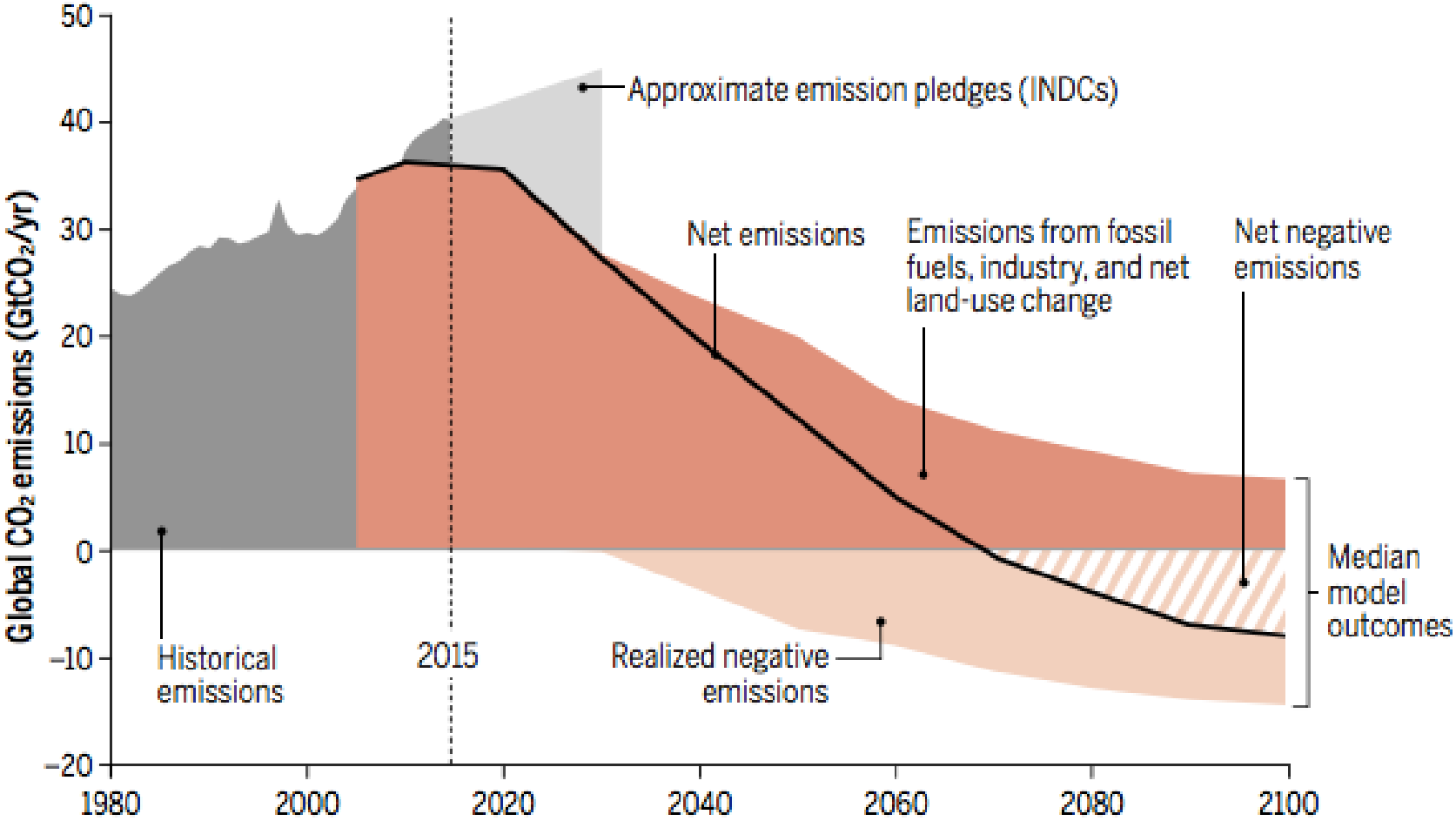
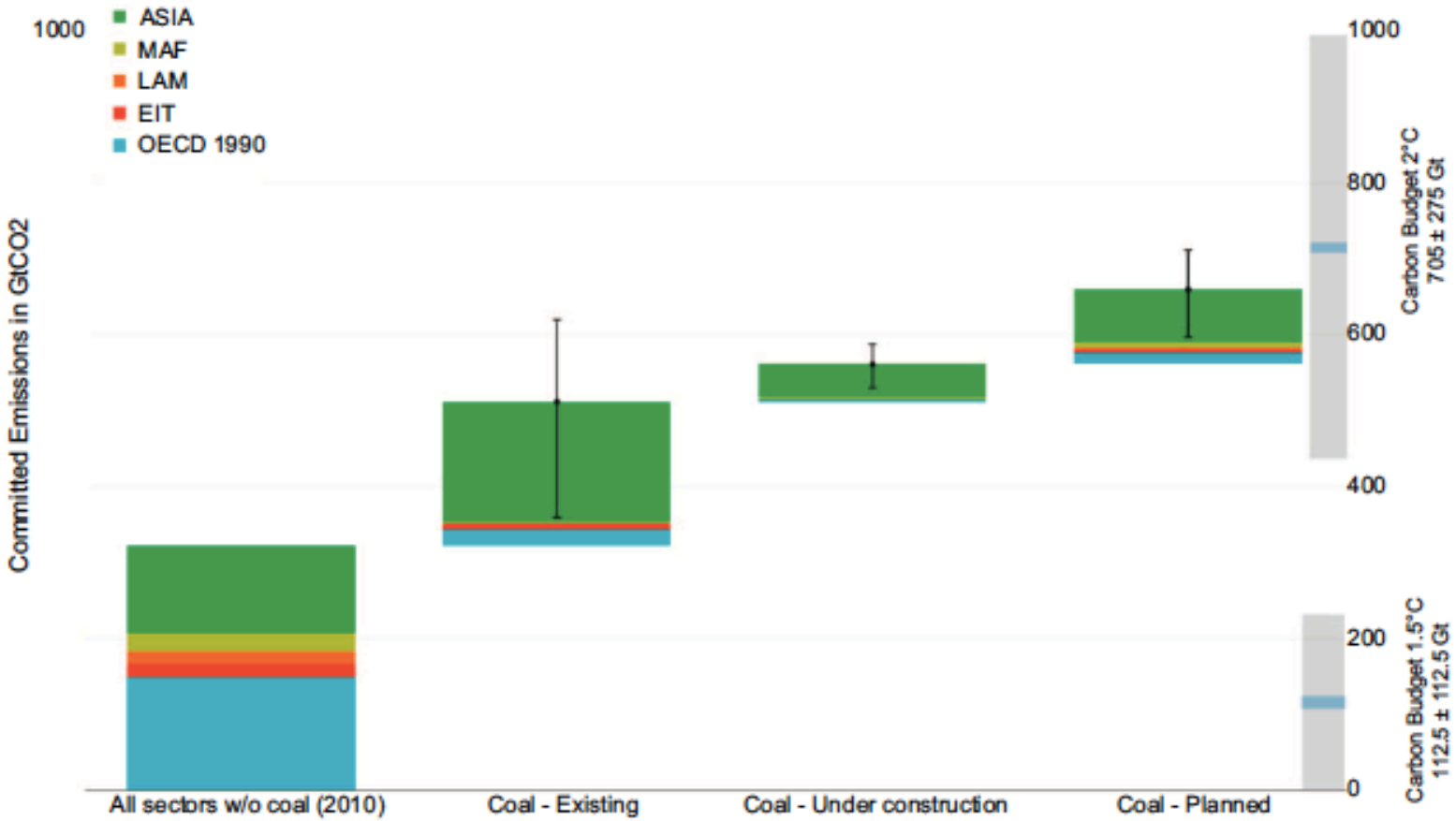


*Anderson and Peters (2016). The trouble with negative emissions, *Science*, 354(6309), 182-83.

Motivation

- "Reports of coal's terminal decline may be exaggerated" (Edenhofer *et al.* 2018).



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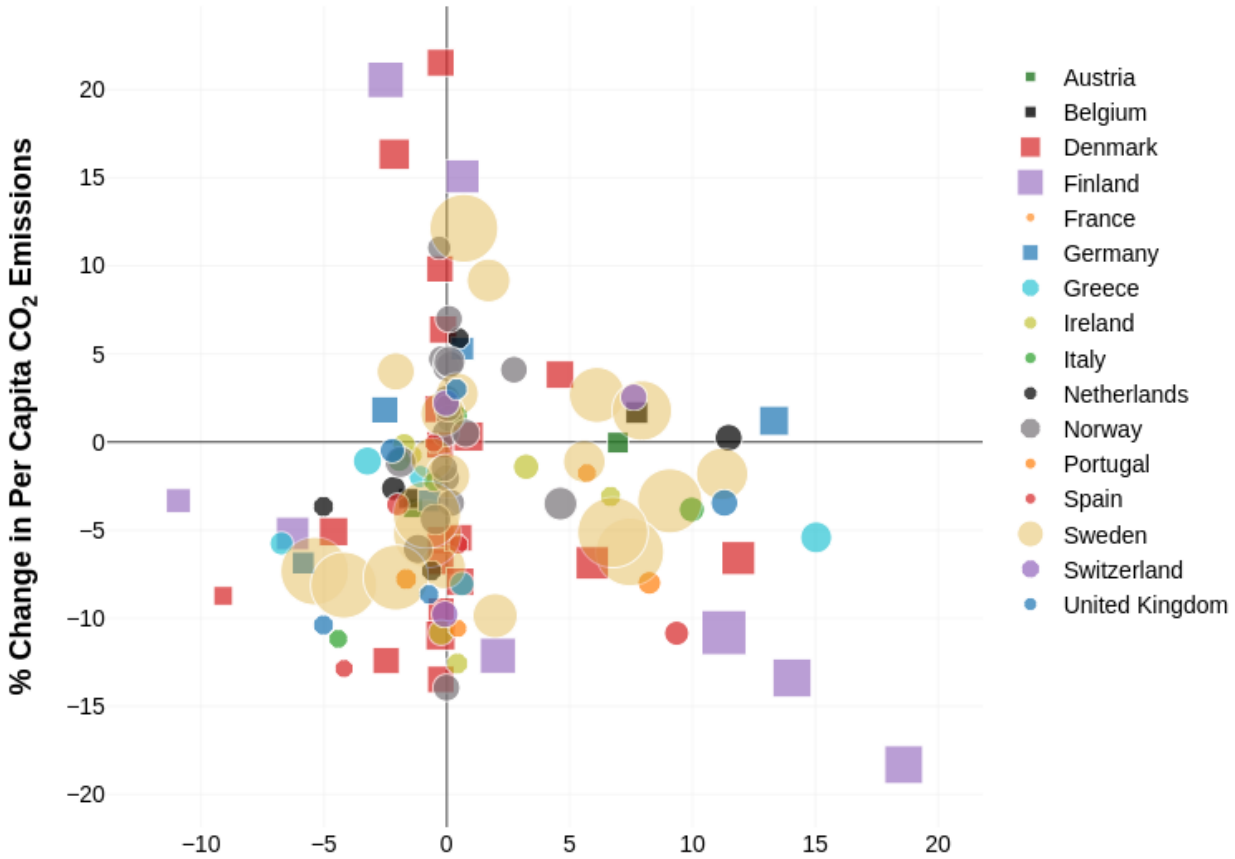
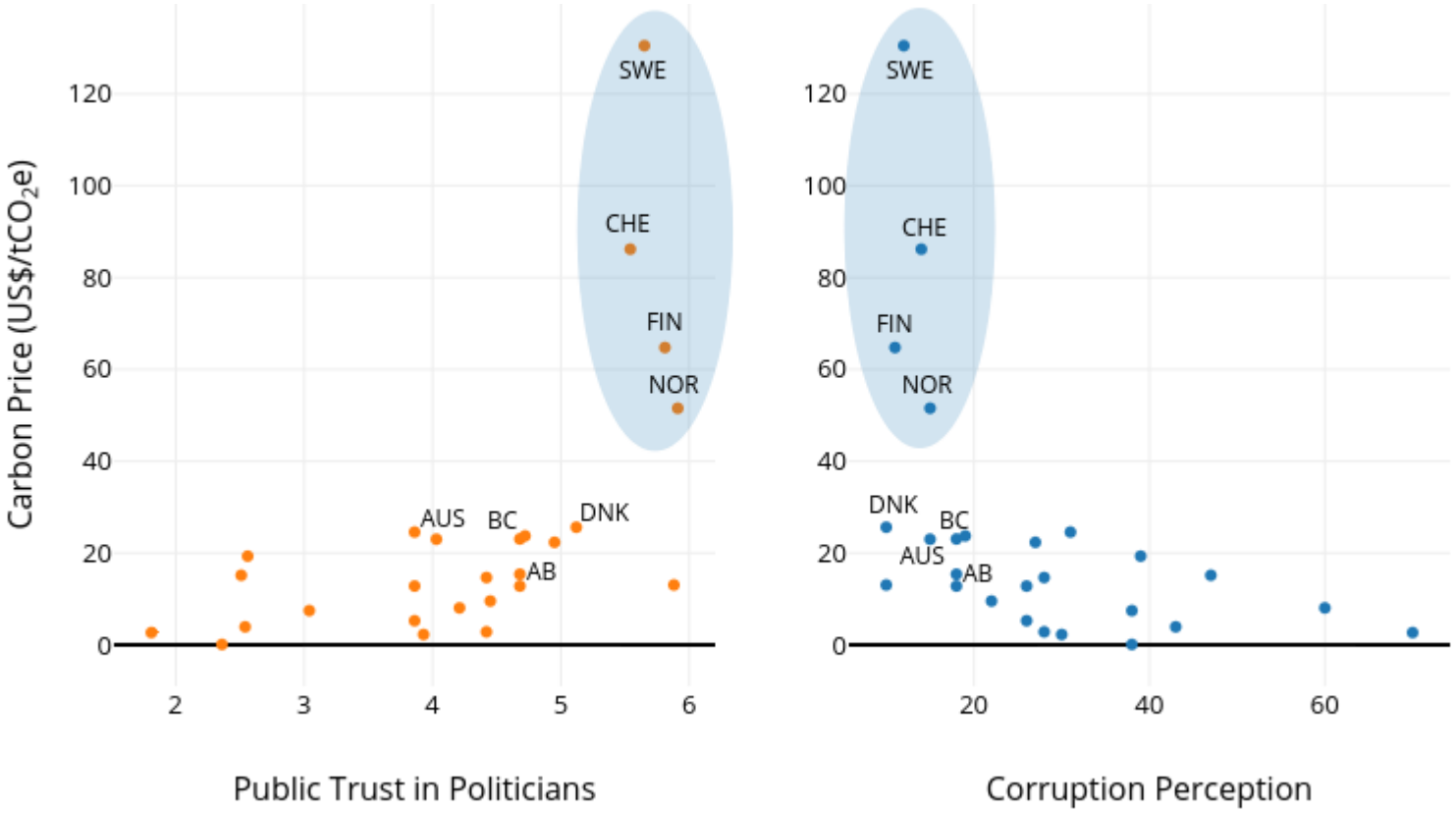
- Carbon prices are generally still too low to elicit significant emissions reductions (Dolphin 2016; Rafaty and Dolphin 2018, in prog.).



*Markers indicate the effective carbon prices in each country for the particular year, with larger sizes corresponding to a higher price.

Motivation, continued

- Political distrust and perceptions of corruption have weakened climate policies (Rafaty 2018). The only states with carbon prices >\$40/tCO_2 are high-trust, low-corruption (Klenert *et al.* 2018).



Motivation, continued

- Energy system adjustments on this scale typically take 30-40 years, implying that price or regulatory "shocks" need to drive investments sooner than later (Grubb *et al.* 2018).

Quadrants of demand and supply side policies

Increasing low-carbon supply

RD&D spending - solar, EVs, grid, storage, efficiency, CCS, NETs
Green infrastructure and public transport investment
Low-carbon manufacturing subsidies
Renewable portfolio standards
Procurement
Regulatory standards
Voluntary performance standards - trade associations
Building codes, retrofit grants

Carbon pricing
Carbon-intensive materials charge
Regulatory standards
Energy efficiency investments
Nitrogen fertilizer tax
Congestion charge
Product labeling

Reducing fossil fuel demand

Carbon pricing
Feed-in tariffs for solar, wind, geothermal
Tax breaks and incentives
Installation grants for renewables capacity
Refund mechanisms
Performance-based billing

Increasing low-carbon demand

Eliminate production subsidies
Remove tax deductions
Product bans or phase-outs
Cease issuing new exploration and/or extraction leases
Renegotiate leases
Increase royalties
Expropriate existing leases

Reducing fossil fuel supply

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  - "Climate policies in a fossil fuel producing country: Demand versus supply side policies" (Faehn *et al.* 2017).
  - California Air Resources Board has resolved to study "supply side" climate policy --- i.e. could limiting oil production help the state reduce GHG emissions?

Examples in classical economics

J.S. Mill, *Principles of Political Economy* (1848):

"[i]s there not the earth itself, its forests and waters, and all other natural riches, above and below the surface? These are the inheritance of the human race, and there must be regulations for the common enjoyment of it. What rights, and under what conditions, a person shall be allowed to exercise over any portion of this common inheritance cannot be left undecided. No function of government is less optional than the regulation of these things, or more completely involved in the idea of civilized society."

A.C. Pigou, *The Economics of Welfare* (1920):

Pigou was not just in favor of "corrective" taxation of externalities (e.g. pollution). He also said outright prohibition of the production or consumption of some items might sometimes be in order, especially under non-competitive conditions.

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- Could also be initiated through litigation introduced by citizens, if the state has broken a law or if the citizen is personally harmed.

Legal basis

Justice Brandeis, dissenting opinion in Pennsylvania Coal Company *v.* Mahon, 260 US 393 (1922):

"Coal in place is land; and the right of the owner to use his land is not absolute. He may not so use it as to create a public nuisance; and uses, once harmless, may, owing to changed conditions, seriously threaten the public welfare. Whenever they do, the legislature has power to prohibit such uses without paying compensation; and the power to prohibit extends alike to the manner, the character and the purpose of the use."

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- Eminent domain powers of the state ("expropriation" law in Europe).

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- Companies are reducing extraction costs to unlock as-yet "unproven" reserves.
- Those reserves could be preemptively removed from the leasing and permitting auctions.
- So, constraining supply doesn't *necessarily* just hand more of the market to OPEC and Russia.

Fossil fuel companies already recognize the risks

ExxonMobil, 10K Report (2016):

"Lack of legal certainty exposes our operations to increased risk of adverse or unpredictable actions by government officials, and also makes it more difficult for us to enforce our contracts." Risks include "government actions to cancel contracts, re-denominate the official currency, renounce or default on obligations, renegotiate terms unilaterally, or expropriate assets. Legal remedies available to compensate us for expropriation or other takings may be inadequate."

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Peabody Energy, 10K Report (2015):

"We are exposed to various political risks, including political instability, the potential for expropriation of assets, costs associated with the repatriation of earnings and the potential for unexpected changes in regulatory requirements. Despite our efforts to mitigate these risks, our results of operations, financial position or cash flow could be adversely affected by these activities."

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  - Several non-profit organizations challenged the panel's approval of the project, alleging that it had failed to seriously consider the climate change impacts of the project.

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- Vulnerable to backsliding (e.g. transition from Obama to Trump).
- Companies will still seek extraction rights elsewhere in less politically stable countries.

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- Modeling supply-side carbon leakage (very difficult task ex ante).

Themes for further research

- Identifying the highest-impact sensitive intervention points (e.g. tar sands and forests) in countries with favorable political conditions.
- Timing matters: is there an optimal political strategy? (e.g. start with coal and possibly natural gas, move to oil later when low-carbon fuel substitutes are available and demand is more price elastic).
- Modeling supply-side carbon leakage (very difficult task ex ante).
- How to align demand and supply side policies to ensure cohesion and maximize effectiveness, given partisan swings in government?

From mines to UNESCO World Heritage Sites?

"It was like lying in a great solemn cathedral, far vaster and more beautiful than any built by the hand of man." - Theodore Roosevelt, after visiting Yosemite National Park, one of the many public lands he helped preserve.