Climate Risk and the Fossil Fuel Industry

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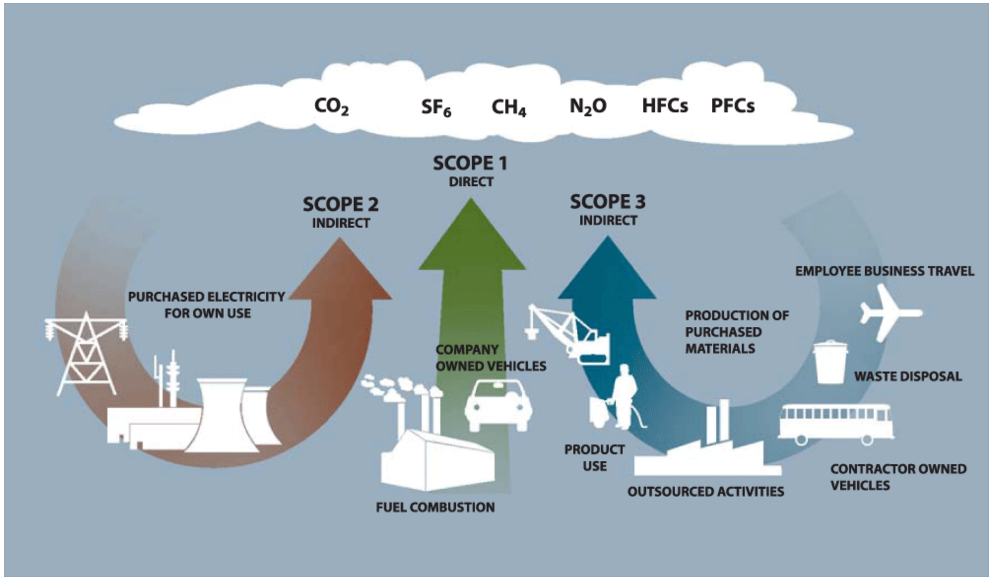
Key points

- Burning fossil fuel is responsible for 2/3 of human GHG emissions
- The same fuels provide the financial underpinning of resource-rich countries and world's largest firms
- Action on climate means danger for the fossil fuel business
- What are the risks?
- How are they distributed?



What they say

Leave two-thirds of fossil fuels in the ground

“... take swift and unified action on climate.”

Types of risk that could affect the fossil fuel industry: 4 main categories

- **Policy risk**: Government policies, regulations, and pledges that reduce carbon emissions; or that support competing technology
- **Demand risk**: Decline in fossil fuel demand due to climate
- **Divestment risk**: Shareholder activism or investor avoidance of fossil fuel shares
- **Competition risk**: Rivalry for market share among producers seeking to monetize reserves before they are rendered unburnable; competition between fossil and non-carbon sources of energy

Policy Risk

Government-imposed restrictions on fossil fuels, such as:

- Paris INDCs (Obama's pledge to cut CO2 emissions by 28%)
- Carbon pricing or cap-and-trade schemes (EU ETS, BC carbon tax)
- Fracking bans (NY, France, Germany, etc)
- Gov't encouragement (subsidies) for non-fossil substitutes
  - EV incentives, efficiency standards
- Future: "Climate club" blocs could impose duties on imports from "free riding" countries

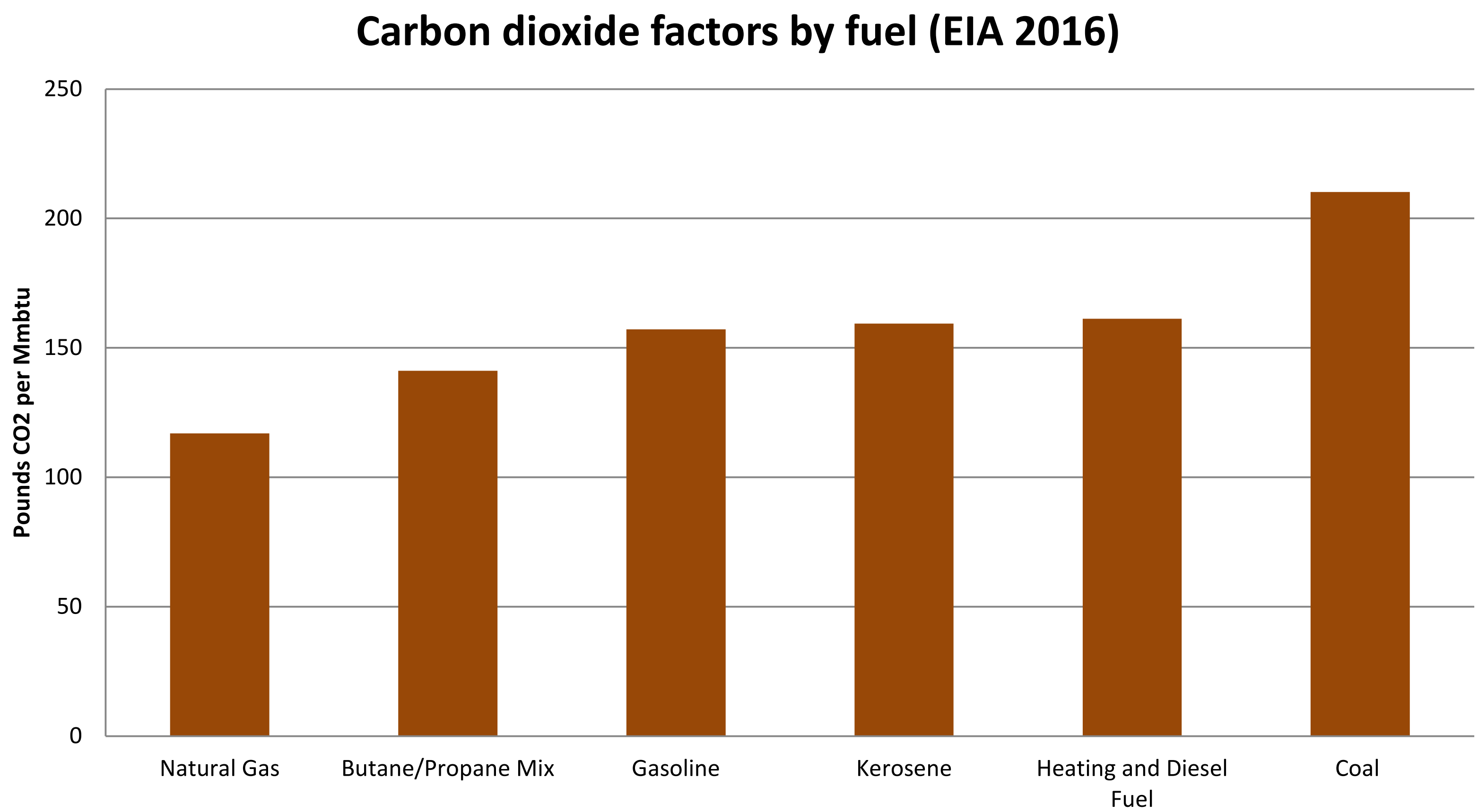
Climate Club

Demand Risk

Coming "peak demand" point for fossil fuels

- Maturing economies, retiring capital equipment, improvements in non-carbon substitutes
- Coal: Demand may have already peaked
  - But: Coal still competitive on cost and simplicity
- Gas: The "bridge" to decarbonization as coal substitute
  - Divestment campaigns ignore it
  - Long-term growth story, surpassing coal in US now, globally 2030
  - But: Plenty of substitutes for gas
- *Alt story: BNEF – fossil generation peaks in 2025, chased out by cheap renewables and battery storage*
- Oil: Peak between 2025-50
  - No viable substitutes

Carbon emitted relative to energy output



Divestment Risk

- Pension funds, religious organizations, city governments, universities are selling off coal and oil co. shares, based on:
  - Ethical concerns: Companies profiting while damaging the climate
  - Financial concerns: Risk of stranded reserves
- Divestment *could* reduce funding availability and raise business costs.
  - One paper finds a 2.5% reduction in coal demand by 2030 as a result
  - Activist shareholder resolutions
- Investor tools/products that reduce carbon risk in portfolios
  - Bloomberg's Carbon Risk Valuation Tool
  - FFI "fossil free indexes"

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Only socially responsible funds

Hide Funds With Flagged Holdings
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Choose your fossil fuel sectors

- The Carbon Underground 200™ ☑
- Filthy 15 ☑
- All Coal Industry ☑
- All Oil/Gas Industry ☑
- Fossil-Fired Utilities ☑

✔ See all flagged holdings

Set to Defaults

Showing results for: SRI ✖ Clean only ✖ United States ✖

Ticker	Fund Name	Fund Net Assets	Category	Flagged Holdings	% of Fund Flagged	tCO_2e/\$1M USD invested	SRI	5 Badges
PARWX	Parnassus Endeavor Investor	$1,536,250,031	Large Growth	0	0%	25	✔	✔
CSIEX	Calvert Equity A	$2,296,185,363	Large Growth	0	0%	24	✔	✔
PARNX	Parnassus	$765,168,074	Large Growth	0	0%	93	✔	✔
PHO	PowerShares Water Resources ETF	$709,339,510	Miscellaneous Sector	0	0%	64	✔	✔
ALTFX	AB Global Thematic Growth A	$625,863,072	World Stock	0	0%	13	✔	✔
CEYIX	Calvert Equity I	$2,296,185,363	Large Growth	0	0%	24	✔	✔
PORTX	Portfolio 21 Global Equity R	$444,710,267	World Stock	0	0%	45	✔	✔
BAWAX	Brown Advisory Sustainable Growth Adv	$344,543,792	Large Growth	0	0%	29	✔	✔
CIEYX	Calvert Equity Y	$2,296,185,363	Large Growth	0	0%	24	✔	✔
GCBLX	Green Century Balanced	$185,345,745	Allocation--70% to 85% Equity	0	0%	56	✔	✔

Divestment Risk II

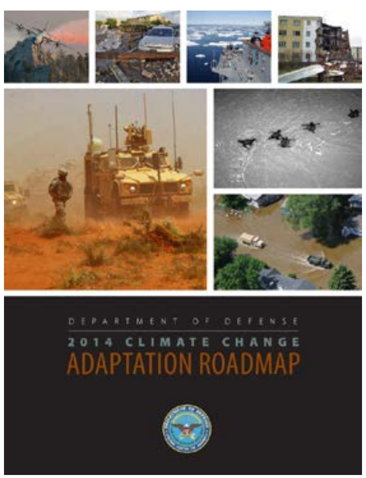
- Insurance risk: Insurers have financial stake in successful climate progress
  - Some are divesting : AXA shift coal assets into “green” assets
- Lending risk: Big banks refuse to lend to coal
  - Citigroup “risk review” for oil sands loans
- Asset risk - aka “carbon bubble”
  - Market caps exaggerated because firms will be prevented from producing booked reserves
  - NOCs are exempt from valuation issues, but risk stranded reserves
- McGlade & Ekins – stranded resources in 2° scenario:
    - COAL: 80% unburnable; worth $60 trillion
    - GAS: 50% unburnable; $23 trillion
    - OIL: 33% unburnable; $30 trillion

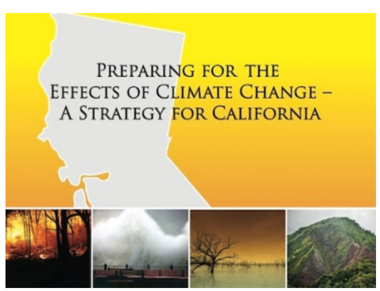
Competition Risk

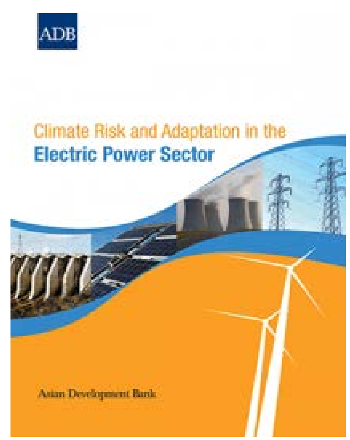
- Intensified competition in the energy sector, including on carbon content
  - Green Paradox could incentivize short-term production
  - Carbon restrictions that intensify over time make fossil fuel more attractive now
- Inter-fuel competition for transport market?
- EVs have three factors holding them back: Battery cost, charging time, electric grid that has not yet decarbonized
  - EVs need government incentives to replace ICE vehicles
- IOCs vs NOCs: NOCs dominate production (90%) and reserves (97%)
  - IOCs are subject to policy risk, divestment risk
  - NOCs are exposed to "carbon clubs" and face greater chance of stranded assets

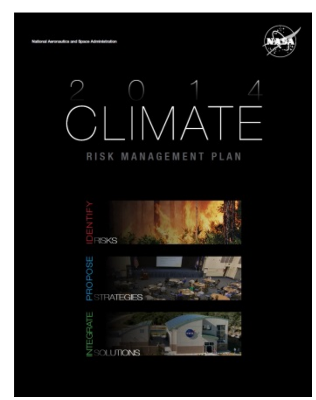
Conclusion

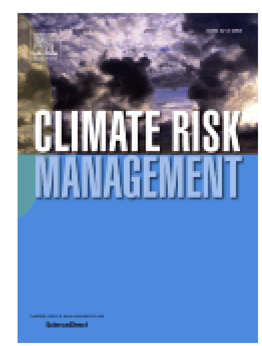
- Sector responsible for 68% of GHG will come under pressure
- Risks increase as climate progress increases
- Without a technical breakthrough, it's a zero-sum game
  - Paris commitments conflict with exploration and booking of reserves
- Cos. can "future proof" business models to reduce exposure
- Some may change strategic direction
- The biggest risk of all is that climate actions may fail











Thank you!

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