

# Mitigating Near-Term Climate Change

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## Question:

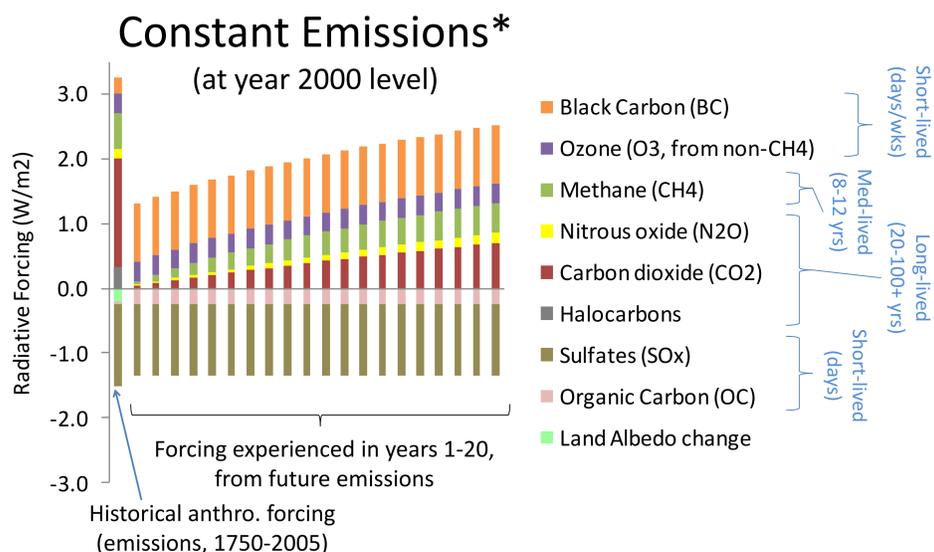
What does near-term climate forcing tell us about mitigation policy?

## Answer:

- A rapid decline in CO<sub>2</sub> emissions is necessary, but insufficient.
- Aggressive parallel policies are needed for medium-lived (methane) and short-lived (black carbon, ozone) pollutants
- Instrument choice must be appropriate to the measurability of sources

**Over 65% of near-term (20-year) incremental climate forcing will be caused by non-CO<sub>2</sub> emissions (black carbon, methane)**

### Forcing Produced by Next 20 Years of Emissions



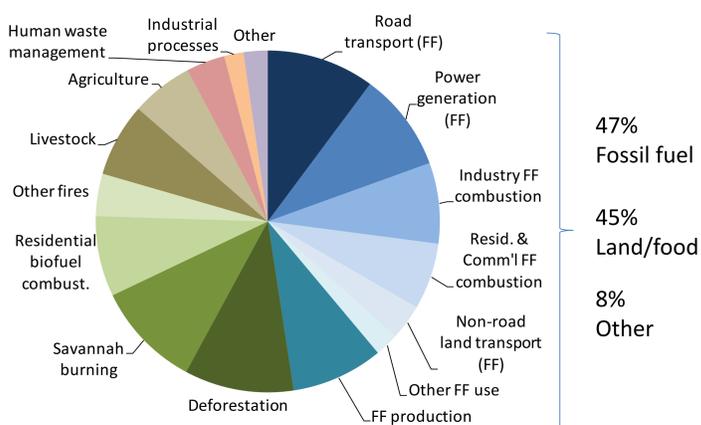
- Near-term emissions matter:
  - Emissions over the next 20 years will produce additional forcing in Year 20 (last column) comparable in magnitude to today's forcing from total historical emissions (1<sup>st</sup> column)
  - Even forcing from a single year (2<sup>nd</sup> column) is large relative to history
- Non-CO<sub>2</sub> emissions matter:
  - Over 65% of the additional contributions to Year 20 forcing will be from short-lived (BC, O<sub>3</sub>) and medium-lived (CH<sub>4</sub>) pollutants
- Results are similar for steady growth scenario and all SRES scenarios
- Results are similar for Year 50: ~50% forcing from short- and med-lived

**Chart Interpretation:** Impact of emissions between Year 1 and Year X, in terms of radiative forcing experienced in Year X  
Short-lived pollutant impact is the same each year; medium- and long-lived pollutant impact grows each year.

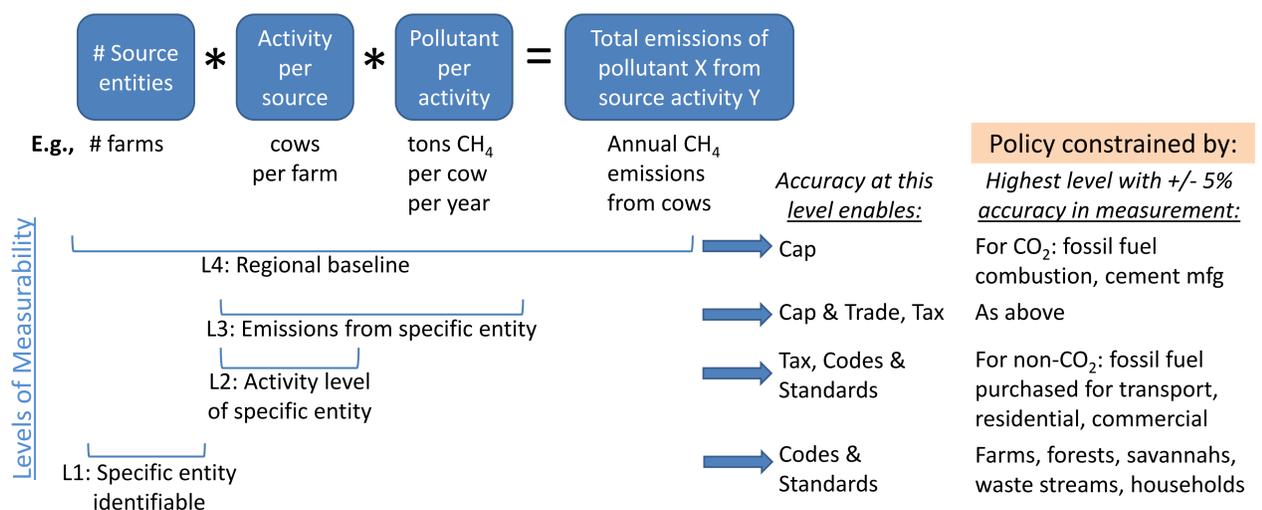
**Most near-term forcing is produced by sources with poor measurability, requiring a variety of policy instruments:**

### Global Sources of Pollutants

Contributions of Future Emissions to Year 20 Forcing (as % of gross positive forcing)



### Measurability Constrains Policy



#### \*Footnotes:

Historical sulfate column includes other non-soot aerosols  
Historical O<sub>3</sub> includes O<sub>3</sub> produced by CH<sub>4</sub>; future does not  
Historical CH<sub>4</sub> excludes reaction products; future includes  
Halocarbon RF in next 20 years is too small to appear

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#### Data Sources:

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