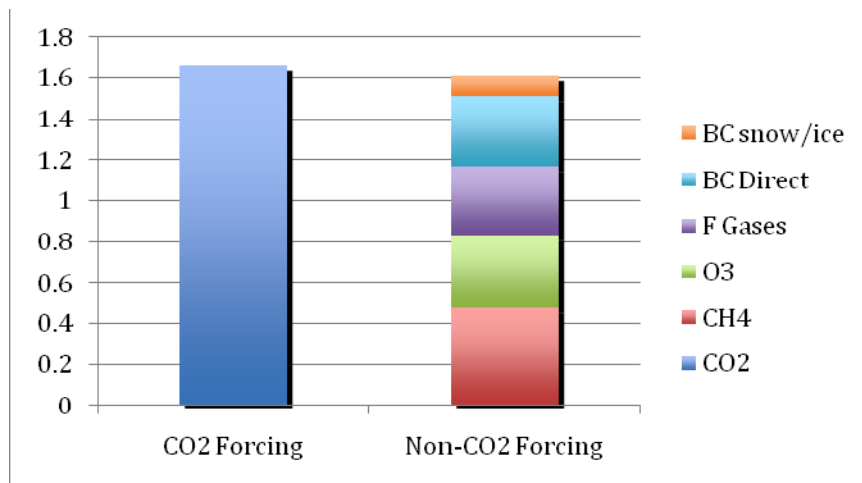


NEAR-TERM CLIMATE MITIGATION

WHY WE NEED FAST MITIGATION TO COMPLEMENT CO₂ REDUCTIONS

- Urgent and sustained carbon dioxide reductions are essential to combat climate change. Carbon dioxide is the primary cause of global warming and must remain the mitigation priority.
- However, carbon dioxide reductions are not enough.
- Carbon dioxide is responsible for only about half of climate forcing, and the climate challenge is too immense to solve by addressing only half of the problem.
- Moreover, carbon dioxide reductions cannot help address near-term concerns, as reducing carbon dioxide, which is long-lived and continues to cause warming for centuries, does not provide near-term, or even mid-term, climate mitigation.
- In fact, after carbon dioxide emissions have stopped, significant temperature reductions will not occur for 1000 years. (Solomon, *PNAS*, 2009)
- Meanwhile, we are likely already committed to warming that exceeds 2°C and puts us in danger of passing tipping points for abrupt and irreversible climate change.
- In addition, for populations already suffering from the adverse impacts of climate change, and for those expected to encounter worsening effects in the next several decades, carbon dioxide reductions will provide little, if any, relief.
- For these vulnerable populations, fast mitigation is needed, now.
- Fortunately, fast mitigation is available from the non-CO₂ half of climate forcing, because non-CO₂ forcing is caused by agents that are short-lived in the atmosphere.
- Warming caused by short-lived agents such as black carbon, tropospheric ozone, HFCs, and methane can be addressed quickly.
- The atmospheric lifetimes of these short-lived substances are as follows:
 - Black Carbon: days to weeks
 - Tropospheric Ozone: days to months
 - Methane: 10-12 years
 - HFCs: 12-15 years
- Reducing emissions of these substances can therefore bring about cooling in a comparably short period of time.



- For example, reducing emissions of black carbon, which is the second or third strongest warming agent overall, would lead to almost immediate climate (and public health) benefits. So would reducing tropospheric ozone.
- Reducing HFCs and methane would produce results within a decade to a decade and a half.
- The climate mitigation from phasing down production and use of HFCs is 5 to 8 billion tonnes of CO₂-equivalent per year by 2050. This is 5 to 8% of the total mitigation needed to stay below 2°C.
- Phasing down HFCs can be done under the Montreal Protocol, which has already phased out nearly a 100 similar chemicals. Micronesia and other low-lying island States, along with the U.S., Mexico, and Canada, have proposed amending the Montreal Protocol in November to phase down HFCs.
- Reducing emission of short-lived forcers is *not* a substitute for reducing CO₂ emissions, but a critical complement.
- In summary, achieving fast near-term climate mitigation by reducing short-lived climate forcers has numerous benefits. It would:
 - Reduce warming significantly in the near term, minimizing destructive impacts
 - Buy time for key longer-term stabilization efforts (e.g., reducing CO₂) to take effect
 - Help avoid passing 1.5°C (or 2°C) and set the stage for returning to 350 ppm CO₂e
 - Forestall imminent tipping points for abrupt and irreversible climate change
 - Improve air quality and public health, especially for women and children
 - Contribute directly to sustainable development and access to energy
 - Protect some of the most threatened and vulnerable elements of the Earth's climate system, such as the Arctic, mountain glaciers, and critical freshwater reservoirs
 - Would help to fulfill the Bali Action Plan call for action "now and up to" 2012, as well as "beyond 2012"
 - Be accomplished largely with existing, cost-effective technologies
 - Build trust among nations and momentum for further effective action