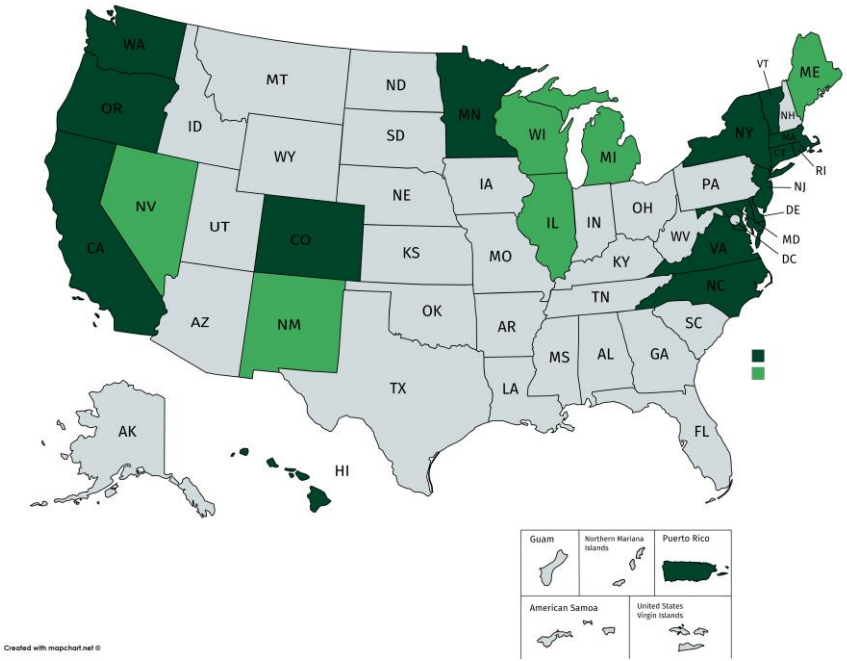
Kristin Igusky, U.S. Climate Alliance

REDUCING SHORT-LIVED CLIMATE POLLUTANTS: PROTECTING OUR HEALTH, FOOD, AND CLIMATE

New Jersey Clean Air Council | April 9, 2019

United States Climate Alliance

A **bipartisan** coalition of 23 governors committed to uphold the Paris Agreement

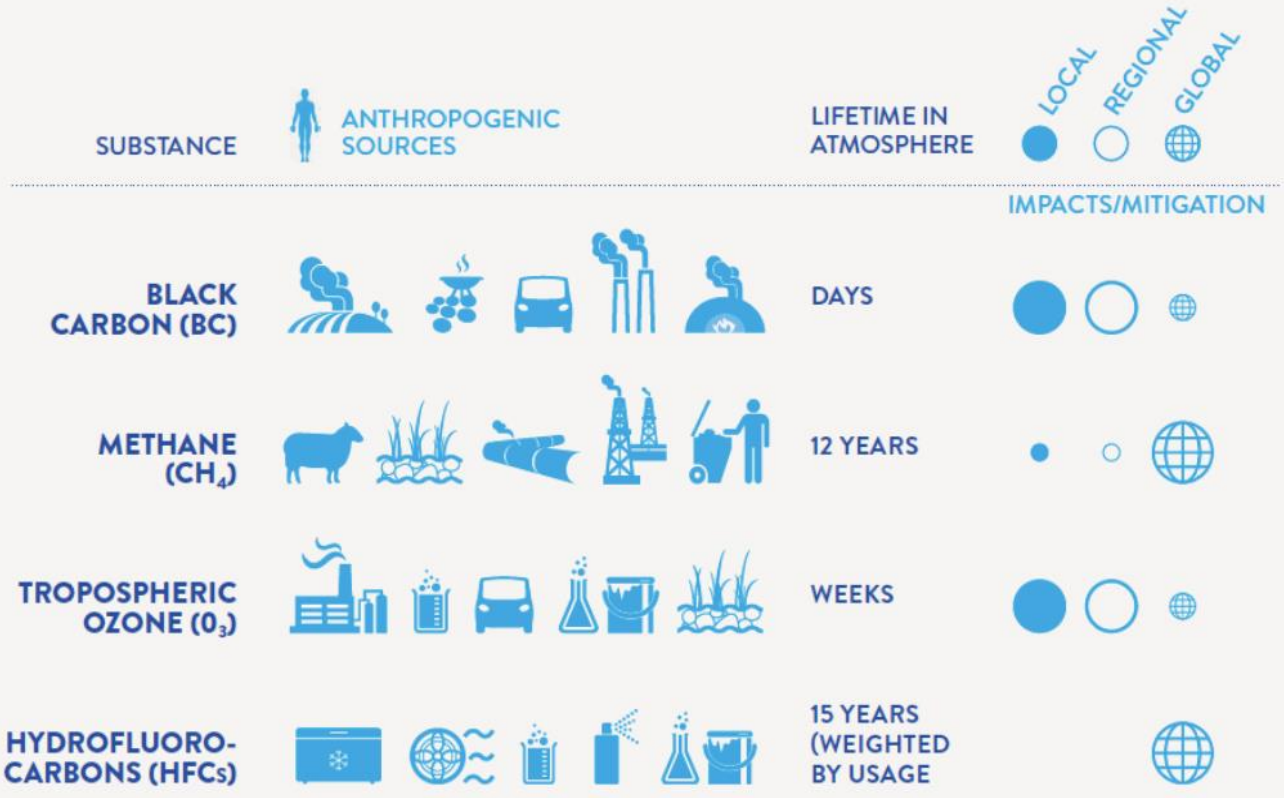


Alliance States commit to:

1. Reduce GHGs by at least 26-28 percent below 2005 levels by 2025;
2. Track and report progress; and
3. Accelerate implementation of existing and new policies.

USCA Members in 2017/2018
USCA Members joining in 2019

SLCPs – Near term response to mitigation



CLIMATE & CLEAN AIR COALITION
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

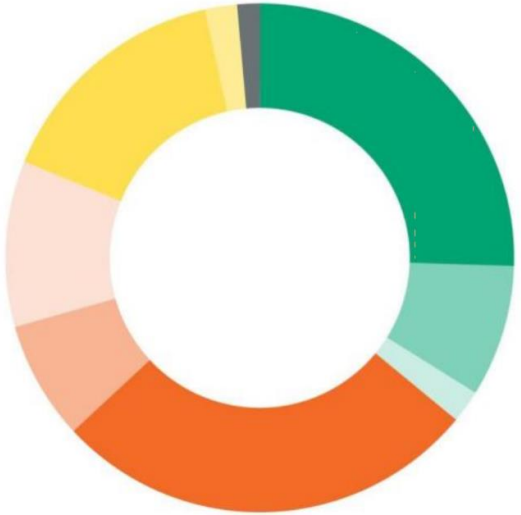
Methane Sources in USCA-17 vs U.S.

Agriculture
- 27% Enteric Fermentation
- 18% Manure Management
- 2% Rice & Other

Energy
- 16% Natural Gas
- 5% Oil
- 4% Coal Mines

Waste
- 21% Landfills
- 5% Wastewater & Other Wast

Other
- 3% Other



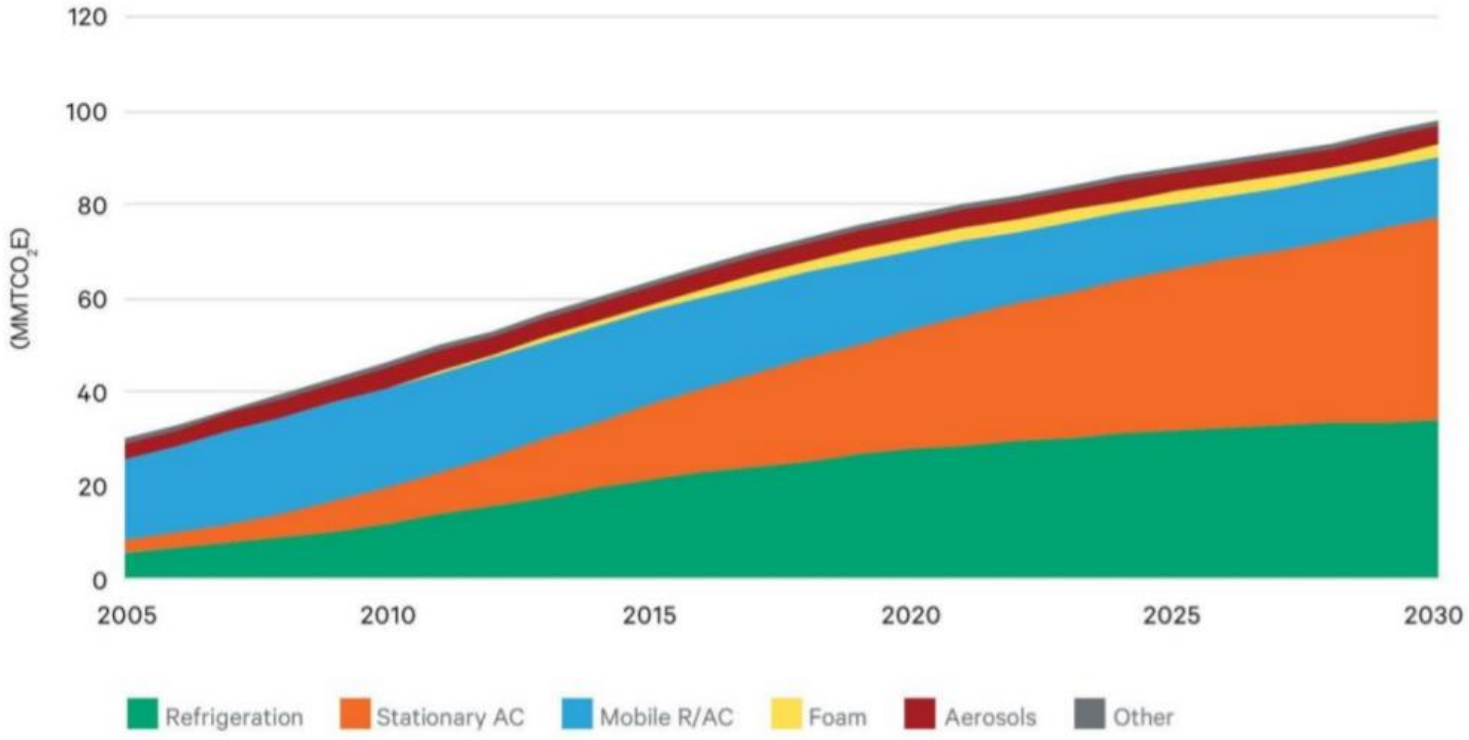
Agriculture
- 25% Enteric Fermentation
- 8% Manure Management
- 2% Rice & Other

Energy
- 27% Natural Gas
- 8% Oil
- 11% Coal Mines

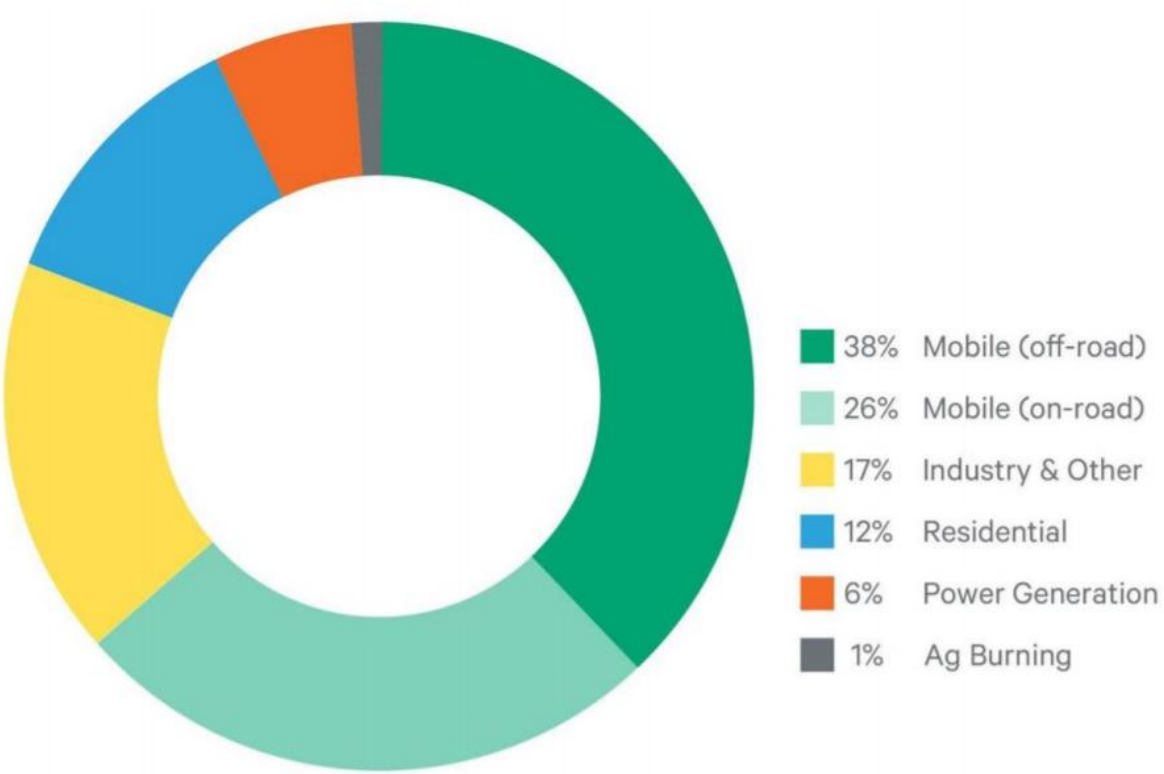
Waste
- 15% Landfills
- 2% Wastewater & Other Waste

Other
- 1% Other

HFC emissions in USCA-17



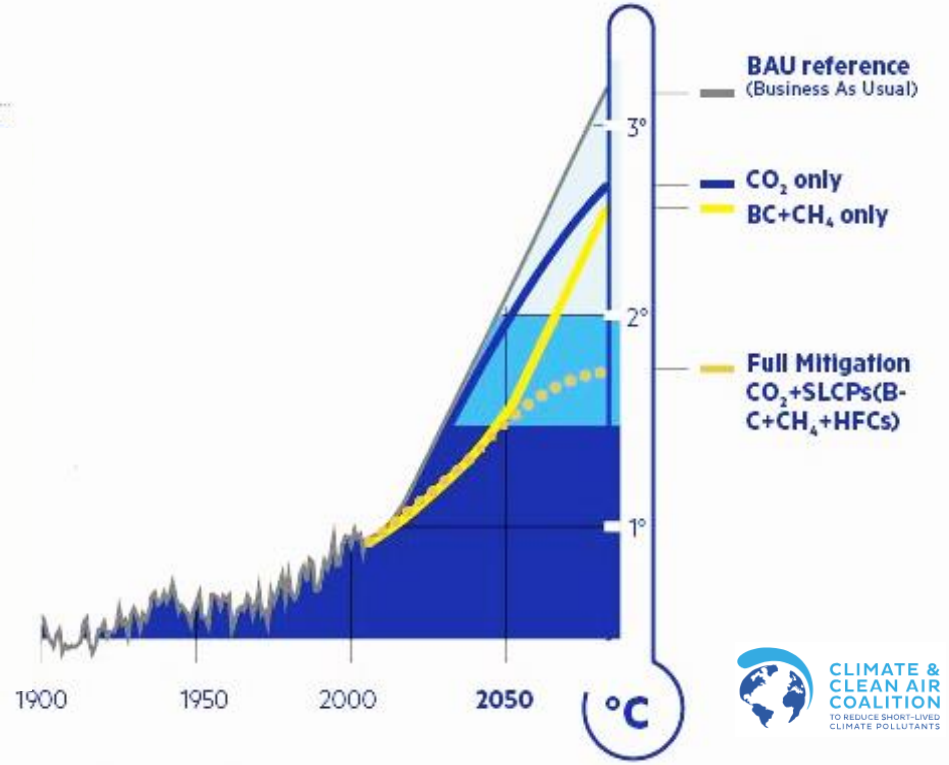
Black Carbon emissions in USCA-17



SLCP Climate Benefits

Avoided Global Warming by 2050

BC + CH4	0.5°C
HFCs	0.1 ° C
SLCPs	0.6 ° C



SIMULATED TEMPERATURE CHANGE UNDER VARIOUS MITIGATION SCENARIOS

Climate Benefits

Strategies exist to reduce SLCP emissions below current levels by

40-50% by 2030

Action across the U.S. would reduce GHG equivalent of taking

140 million

cars off the road

Health and Agricultural Benefits

Widespread global SLCP reductions would avoid …

200,000
premature deaths

6 million tons
of crop losses

…in the **United States** annually by 2030

Economic Benefits

Reducing SLCP emissions provides numerous economic benefits…

Competitive edge, with new & diverse revenue streams

Reduced costs

Improved worker safety and health = increased productivity

American companies offering global solutions

Jobs, jobs, jobs

…..leading to voluntary corporate action

Administration Rollback of SLCP Rules

ENVIRONMENT

President Trump Decides To Pull U.S. Out Of Paris Climate Agreement

June 1, 2017 · 4:44 PM ET

Heard on A

CHR

Presiden

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HOME

Trump EPA Gives Landfills a Pass on Climate-Warming Methane

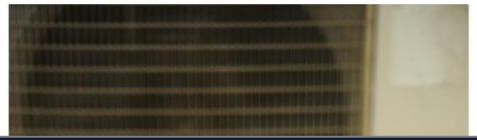
EPA Administrator Scott Pruitt quietly gave the nation's largest waste management companies a heads-up nearly three weeks earlier that a reprieve would be coming.

The New York Times

Trump Administration Formally Rolls Back Rule Aimed at Limiting Methane Pollution

US Court of Appeals Rescinds HFC Ban

Court decision overturns Honeywell, Chemours appeal, determines the EPA doesn't the authority to require manufacturers to utilize low-GWP replacement refrigerants



SLCP Challenge

Committed to reducing SLCPs as a critical component to meeting the Paris Agreement goals.

The Alliance will work to comprehensively address SLCPs, including through:

- new and continued actions to improve emissions inventories;
- quickly identify and address methane leaks and “super emitters;”
- promote energy efficiency, including in refrigeration and cooling;
- phasedown the use of HFCs;
- improve management of organic and agricultural waste streams; and
- define other targets and measures to rapidly reduce SLCPs.

SLCP Challenge to Action Roadmap – Goals

- North America O&G methane
- Food loss and waste, organics diversion, and landfill management
- Manure management and enteric fermentation in support of farmers/ranchers
- Methane emissions from “super emitters”
- HFC reductions on scale of Kigali and federal regulations; refrigerant management
- “Soot free” transportation
- Clean energy and natural and working lands strategies

SLCP Challenge to Action Roadmap - Implementation

Develop state-level strategies to reduce SLCPs and work toward shared Roadmap goals:

- Improve state-level emissions inventories
- Provide technical assistance
- Develop model regulations and incentives
- Expand partnerships
- Report on progress annually

https://www.usclimatealliance.org/slcp-challenge-to-action

UNITED STATES
CLIMATE ALLIANCE

Thank you

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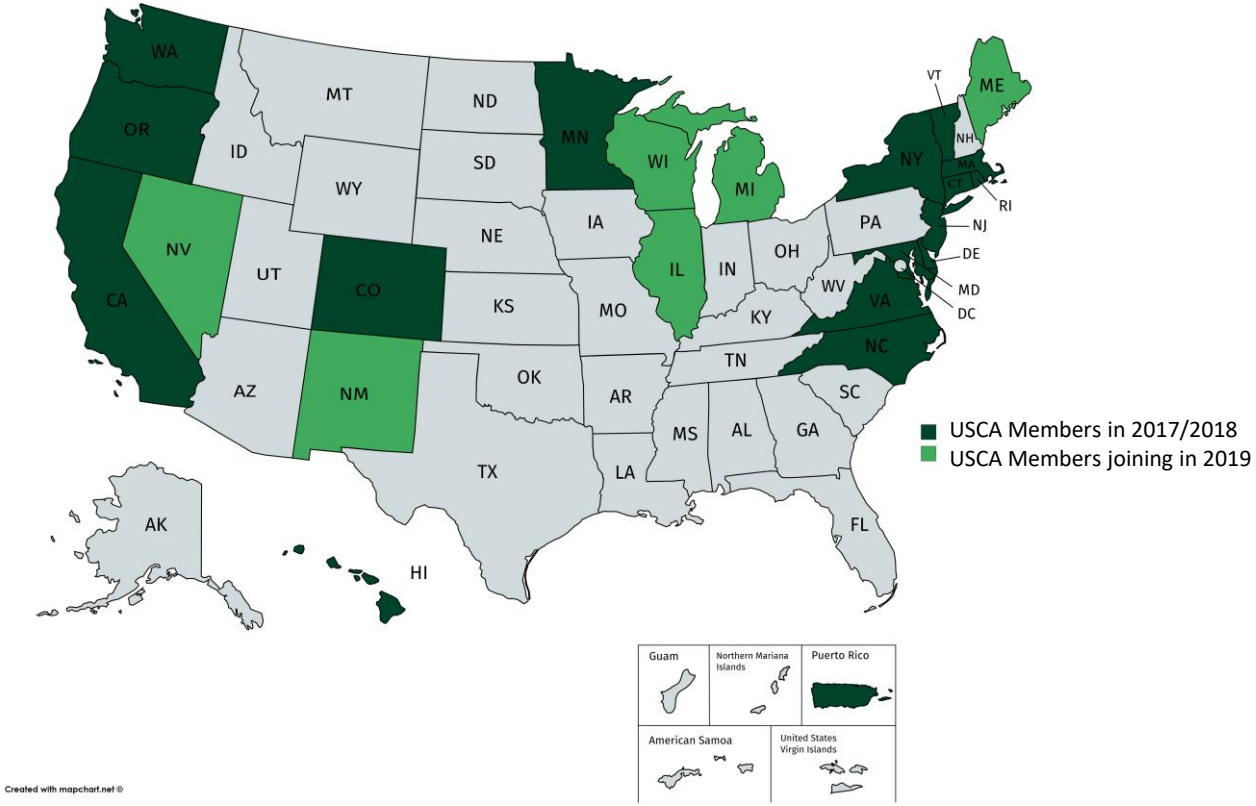
US Climate Alliance



23

51%

57%

36%

Table 8.7 | GWP and GTP with and without inclusion of climate–carbon feedbacks (cc fb) in response to emissions of the indicated non-CO_2 gases (climate-carbon feedbacks in response to the reference gas CO_2 are always included).

	Lifetime (years)		GWP_{20}	GWP_{100}	GTP_{20}	GTP_{100}
CH_4[b]	12.4[a]	No cc fb	84	28	67	4
		With cc fb	86	34	70	11
HFC-134a	13.4	No cc fb	3710	1300	3050	201
		With cc fb	3790	1550	3170	530
CFC-11	45.0	No cc fb	6900	4660	6890	2340
		With cc fb	7020	5350	7080	3490
N_2O	121.0[a]	No cc fb	264	265	277	234
		With cc fb	268	298	284	297
CF_4	50,000.0	No cc fb	4880	6630	5270	8040
		With cc fb	4950	7350	5400	9560

Notes:

Uncertainties related to the climate–carbon feedback are large, comparable in magnitude to the strength of the feedback for a single gas.

[a] Perturbation lifetime is used in the calculation of metrics.

[b] These values do not include CO_2 from methane oxidation. Values for fossil methane are higher by 1 and 2 for the 20 and 100 year metrics, respectively (Table 8.A.1).

Methane (CH_4)

Methane emissions caused by human activities are one of the most significant drivers of climate change. Methane is also the main precursor of tropospheric ozone, a powerful greenhouse gas and air pollutant.

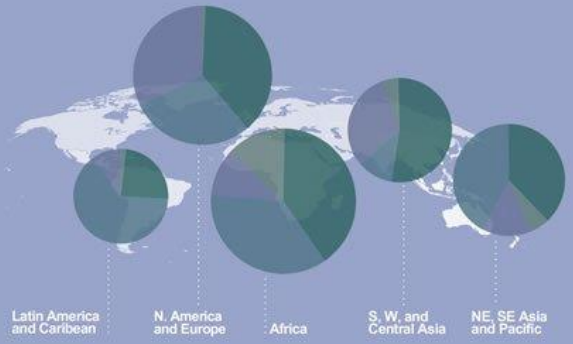
LIFETIME IN ATMOSPHERE

12 years

CH_4 is a powerful GHG contributing to **global warming**

EMISSIONS

and main sources by region and sector (2005)



Major anthropogenic **SOURCES** (60% of methane emissions come from human activities)

310 Mt Global CH_4 **anthropogenic emissions** in 2005

IMPACTS

Globally, increased methane emissions are **responsible for half of the observed rise in O_3 levels**

While methane does not cause direct harm to human health or crop production, its role **as precursor gas contributes greatly to the health and agricultural impacts of O_3**

CCAC

Hydrofluorocarbons (HFCs)

HFCs are man-made fluorinated powerful greenhouse gases rapidly building up in the atmosphere. They are used as replacements for ozone-depleting substances (ODS) in air conditioning, refrigeration, foam-blowing, fire retardants, solvents, and aerosols.

LIFETIME IN ATMOSPHERE

15 years

(Weighted by usage)

HFCs are powerful GHGs which contribute to **global warming**

CONSUMPTION

by sector

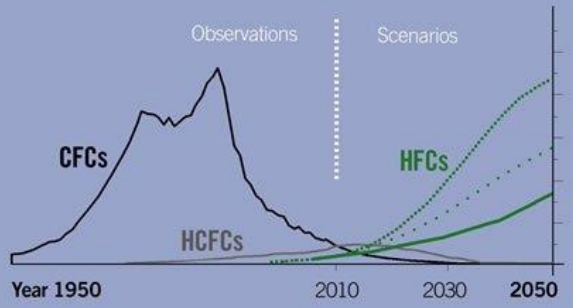
While HFCs have caused less than 1% of total global warming to date, production, consumption, and emissions of these factory-made gases are **growing at a rate of 8% per year**.

Consumption by sector 2010

PROJECTED GROWTH

The demand for **air conditioning** and **refrigeration** is **increasing** as the world warms and as wealth increases.

The use of HFCs is rapidly growing because they are widely adopted as replacements for Ozone Depleting Substances (ODS), such as Chlorofulorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs), whose use is being phased out under the Montreal Protocol.



CCAC

Black Carbon (BC)
and Co-pollutants from Incomplete Combustion

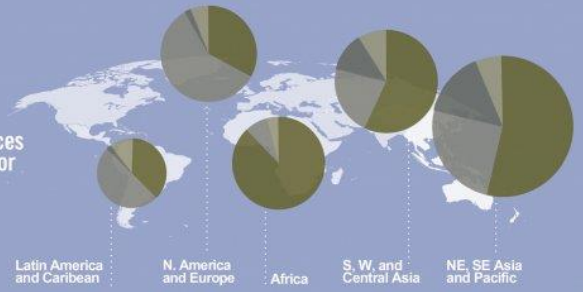
Black carbon particles are formed from the incomplete combustion of biomass and fossil fuels. It is a powerful climate forcer and dangerous air pollutant.

LIFETIME IN ATMOSPHERE

Days

EMISSIONS

Main BC-rich sources by region and sector (2005)



PRIMARY BLACK CARBON-RICH SOURCES

BC is always emitted with co-pollutant particles, some of which have a cooling effect on climate. The ratio of BC to co-pollutants varies by source and determines if a measure has a **net warming or net cooling effect.**

Resident. **biofuel** cooking and heating

Resident. **coal** cooking and heating

On-road diesel engines

Off-road diesel engines

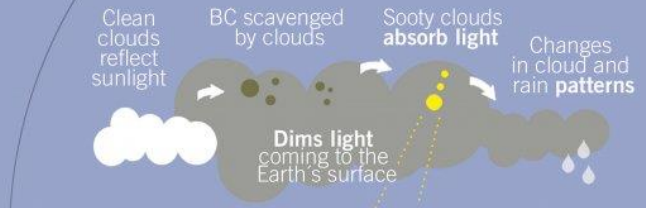
Industrial **coal** and **brick kilns**

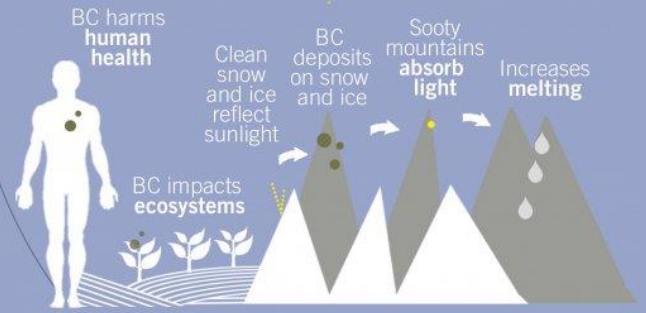
Open burning agricultural fields

IMPACTS

Suspended in the atmosphere, BC particles contribute to **global warming** by absorbing energy and converting it to heat

BC is a dangerous local air pollutant which can also be **transported across the globe**





CCAC