Supplement of Atmos. Chem. Phys., 14, 4563–4572, 2014
http://www.atmos-chem-phys.net/acp-14-4563-2014/
doi:10.5194/acp-14-4563-2014-supplement

Atmospheric Chemistry and Physics Open Access

Supplement of

Growth of climate change commitments from HFC banks and emissions

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Table S1 Radiative forcing (W m^{-2}) of baseline scenarios of CFCs and HCFCs, and of a reference scenarios and reduction scenarios of HFCs[1]. This data is shown graphically in Figures 4 and 5.

	CFCs	HCFCs	HFCs	HFC production phaseout in			
			Constant[2]	2020	2030	2040	2050
1990	0.24	0.02	0				
2010	0.26	0.05	0.01				
2030	0.21	0.06	0.08-0.11	0.04			
2040	0.19	0.04	0.16-0.24	0.03	0.08-0.11		
2050	0.17	0.02	0.25-0.40	0.02	0.06-0.09	0.15-0.24	
2060	0.15	0.01	0.35-0.55	0.01	0.04-0.06	0.11-0.18	0.24-0.38
2070	0.13	<0.01	0.42-0.66	0.01	0.03-0.04	0.08-0.13	0.18-0.28
2100	0.10	0	0.54-0.84	<0.01	0.01-0.02	0.03-0.05	0.07-0.11
				HFC zero emissions in			
			Constant	2020	2030	2040	2050
2030			0.08-0.11	0.02			
2040			0.16-0.24	0.01	0.05-0.06		
2050			0.25-0.40	0.01	0.03-0.04	0.09-0.14	
2060			0.35-0.55	0.01	0.02-0.03	0.06-0.09	0.15-0.24
2070			0.42-0.66	<0.01	0.01-0.02	0.04-0.06	0.10-0.16
2100			0.54-0.84	0	0.01	0.02-0.03	0.04-0.06
				Reduction from HFC bank destruction[3] in			
			Constant	2020	2030	2040	2050
2030			0.08-0.11	0.02			
2040			0.16-0.24	0.01-0.02	0.04-0.06		
2050			0.25-0.40	0.01	0.03-0.05	0.06-0.10	
2060			0.35-0.55	0.02	0.02-0.03	0.05-0.09	0.09-0.14
2070			0.42-0.66	<0.01	0.02	0.04-0.07	0.08-0.12
2100			0.54-0.84	0	0.01	0.01-0.02	0.03-0.05

1) A blank cell means that the value is identical to the scenario with constant HFC production past 2050.

2) The HFCs are the upper and lower reference scenarios from Velders et al. (2009). In these scenarios the HFC production past 2050 is constant at the 2050-level.

3) Destruction of the bank only. This scenario is the difference from the zero emissions and production phaseout scenario.

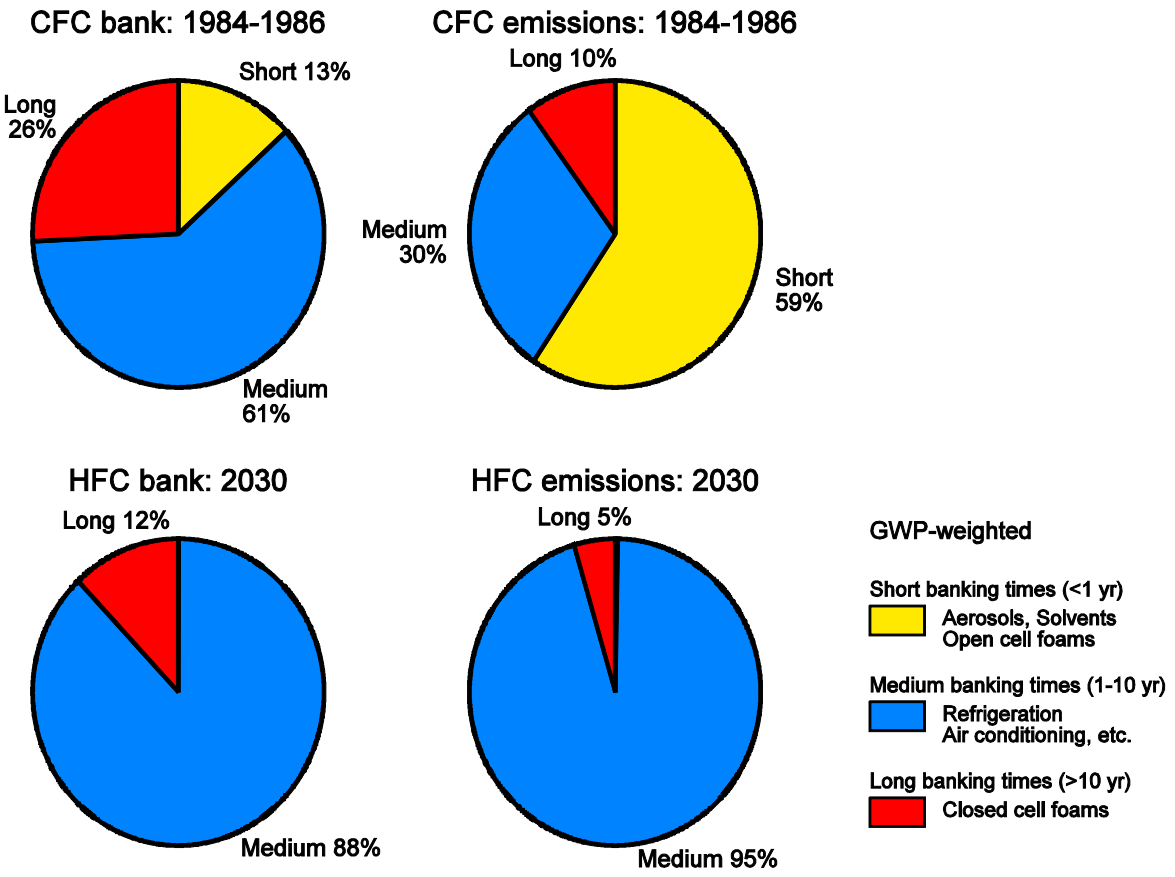

Figure S1 Contributions of different types of applications to the banks and emissions of CFCs in the mid-1980s and HFCs in 2030. The applications differ in the delay times between production and emission (banking times). The banks and emissions are GWP-weighted (100-yr time horizon). HFC banks and emissions are the average of the upper and lower scenarios for 2030 from Velders et al. (2009). The contribution of the very emissive applications (aerosols, solvents and open cell foams) is 0.01% for the GWP-weighted bank and 0.3% for the GWP-weighted emissions in 2030.

Reference

Velders, G. J. M., Fahey, D. W., Daniel, J. S., McFarland, M., and Andersen, S. O.: The large contribution of projected HFC emissions to future climate forcing, Proc. Nat. Acad. Sci., 106, 10949-10954, doi: 10.1073/pnas.0902817106, 2009.