



## EFCTC comment on the paper on future HFC emissions by Velders et al.

"The large contribution of projected HFC emissions to future climate forcing" by G.J.M. Velders, D.W. Fahey, J.S. Daniel, M. McFarland and S.O. Andersen was published in *Proceedings of the National Academy of Sciences*, 22 June 2009 as doi/10.1073/pnas.0902817106."

### **EFCTC supports regulation on a global basis under an international agreement in order to contain and reduce potential growth in HFC emissions. International co-ordination is essential for technological, economic and environmental reasons.**

EFCTC welcomes the impetus to discussion on approaches to reduce HFC emissions globally. However, in this paper the future predictions for growth appear to be based on business-as-usual, continuing the rapid increases that occurred during phase out of CFCs. EFCTC considers that more attention should be paid to elements like regulation and actions that have recently been implemented, as well as to ongoing technology developments which have been underestimated (see Projections of Global demand for HFCs – EFCTC position paper). Moreover, the growth projections appear to be based on the assumption of unlimited availability of raw materials which in reality are facing serious long term reserve constraints.

Not taking these elements into consideration leads to a huge growth in HFC emissions in the future predicted in the paper, which would preclude the possibility of delivering the reductions in global CO<sub>2</sub> emissions needed to start to stabilise the climate. Furthermore, the demands for resources implied by such colossal growth in future consumption exceeds the known and potential reserves of raw materials.

**Notwithstanding this, EFCTC agrees that the projected growth scenarios presented in the paper should not be allowed to occur.** It should be noted that none of the increases proposed in the paper has actually happened; currently, HFCs represent about 1% of global greenhouse gas emissions. It is vital that decisions are taken that enable optimal and appropriate use of HFCs by society.

### **Technology will change**

EFCTC member companies are already developing substantially lower Global Warming Potential refrigerants and foam blowing agents that will considerably reduce the projected growth in HFC use and emissions if adopted globally. Legislation already in place will ensure a more efficient use of all fluorocarbons and related raw materials. While this is happening now, the inclusion under the Kyoto Protocol or a future equivalent Climate Change treaty of a specific scheme for progressively reduce the placing in the market of high GWP HFC could further boost technology developments allowing huge reductions in the potential growth of emissions.



Furthermore, the energy efficiency of applications that use any type of refrigerant will need to continue to improve and energy generation will need to be decarbonised.

### **Energy related CO<sub>2</sub> emissions**

The growth projections for HFCs are associated mainly with applications that use energy, such as room or house air-conditioners, car air-conditioning, commercial and supermarket refrigeration and high performance insulating foams.

These uses require energy whose production will entail two to three times as much CO<sub>2</sub> emissions than the release of HFC could generate. For the average of the HFC scenarios, this associated energy emission would be equal to the total emissions from all other human activities under a CO<sub>2</sub> stabilisation scenario. Effectively, the unchecked growth presented in the paper would result in a doubling of CO<sub>2</sub> emissions in 2050.