

Projections of Global demand for HFCs



In the light of indications from the European Commission of consideration of an HFC “cap-and-allocation”, EFCTC has assessed the implications of such potential future legislation and has elaborated the following analysis and proposal. This has included the effect of reducing the availability of HFCs by a scheme to cap the quantities, as CO₂ equivalent, placed on the market in the EU. This could be a mechanism to reduce demand in a transparent manner. EFCTC member companies will decide individually how to organize their own market strategies.

The Business as Usual Scenario

Demand, in terms of the quantities expected to be placed on the market, has been projected for HFCs for the major consuming regions of the world. The values for regions other than SE Asia are based on the quantities reported by Parties to the United Nations Framework Convention on Climate Change (UNFCCC) and published in the Greenhouse Gas Emissions Inventories on *unfccc.int*. These data are shown as the solid lines in all of the Figures.

Countries in Annex B of the Kyoto Protocol

The Business as Usual case for the developed world is shown in Figure 1. In Europe, Russia, Japan and Australasia, demand is projected to continue to increase at the same absolute rate as in recent years. For North America, demand is presumed to increase at the rate predicted in a recent presentation to the Parties to the Montreal Protocol by U.S. Industry¹ until 2011; thence it is predicted to grow at the same absolute rate as in recent years. The surge in growth over the period 2008 through 2010 reflects a transition from HCFCs to HFCs in North America. However, HCFCs have already been mostly phased out in Europe and such an increase in demand (to replace HCFCs) is not possible. Demand in Russia, Japan and Australasia is comparatively low but there is growth that, if it continues, would be reflected in the long term trends shown.

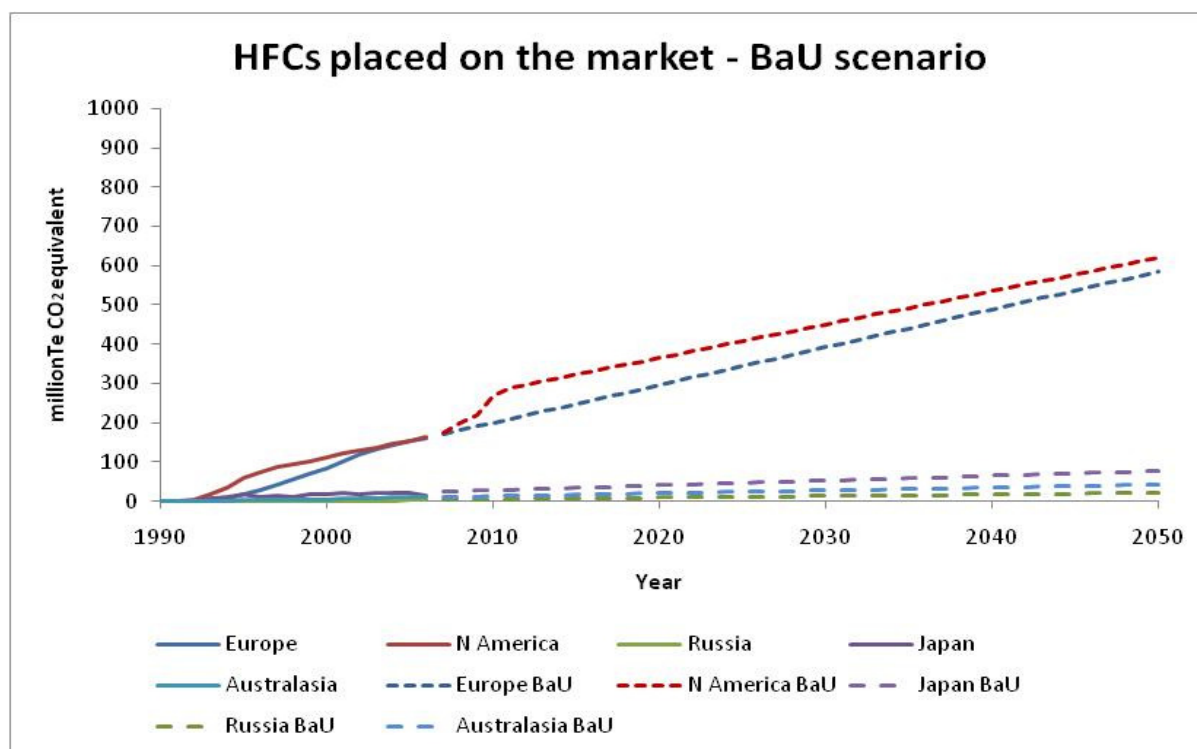


Figure 1. Projected HFC demand for the Developed World

¹ McFarland M., Potential Climate Benefits of a Global Cap and Reduction Agreement for HFCs, Doha, Qatar, 18 November, 2008

Global Demand, including non-Annex B Countries

Figure 2 shows the same projections for the Annex B countries and also includes the expectations for the other principal region producing and using HFCs - South East Asia (Peoples Republic of China, India and Republic of Korea). These countries do not report data to UNFCCC in the same way as the Annex B countries and the historical demand there was estimated from commercial consultants' data on capacity² and an assumption that the plant occupancy was the same as that for other fluorocarbons. The principal producing country is China and Chinese data are rather less certain than those for countries reporting to UNFCCC. However, it is clear that the rate of growth of production of all fluorochemicals in China has been spectacular and is likely to remain so. Projection of the SE Asian demand at the same rate as now leads to that region becoming the principal user (and hence the main region for emissions) within the next ten years. This is exactly what has happened in the case of HCFCs, where China is now the main producer of HCFC-22 in the world and is second only to the U.S.A. in total fluorochemicals production.³

In 2050, the IPCC Business as Usual Scenario predicts about 100,000 million tonnes of CO₂ equivalent emissions, so that the BaU production projected here would amount to about 2%. Slightly under half of this (44%) would be Chinese.

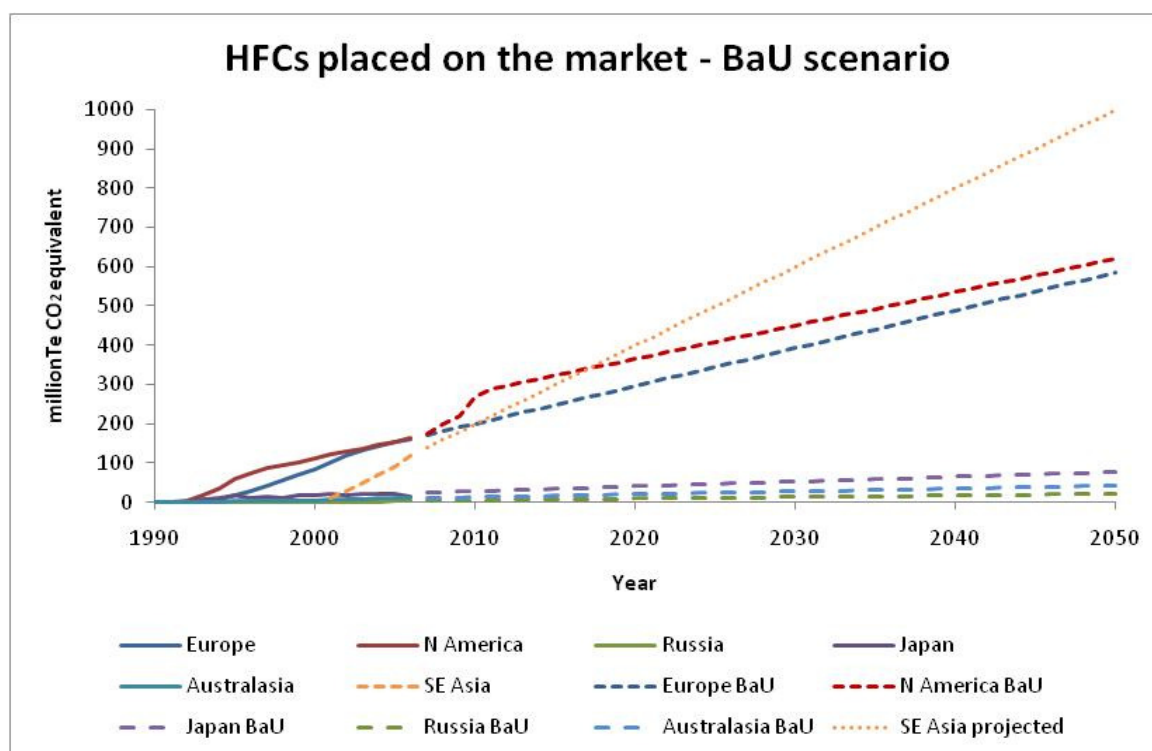


Figure 2. Business as Usual Case for Global Demand for HFCs

² Will R., Global Fluorspar Supply and Demand Trends, *SRI Consulting*, Industrial Minerals FO7 Conference, Frankfurt, 5-7 Nov 2007.

³ Will R. and H. Mori, Fluorocarbons, Chemical Economics Handbook 543.7000 of SRI Consulting, Access Intelligence (www.sriconsulting.com), 2008.

Mitigation Case

North America

The mitigation scenario for N. America is based on the current on-going discussions in the USA of a proposed USA HFC cap (presented by industry to UNFCCC¹ and embodied in proposed legislation⁴). This predicted compound growth until 2010 and then a prescribed reduction in the quantities placed on the market until 2033, with constant consumption thereafter.

This is shown as the dashed red line in Figure 3.

Europe

The scenario here was developed by EFCTC in response to the Commission’s reflection on the possibility of an international cap and consumption scheme for HFCs. Reductions in the quantities placed on the market commence in 2012, with a return to a baseline value equivalent to the 2005 level, shown as the dashed blue line in Figure 3. Thenceforth reductions proceed stepwise from 2020 at five year intervals to reach a similar absolute quantity placed on the market as in North America in 2045. This represents an overall reduction of 2/3rds from the 2005 baseline, which is very much greater than the reduction proposed for emitters of other greenhouse gases.

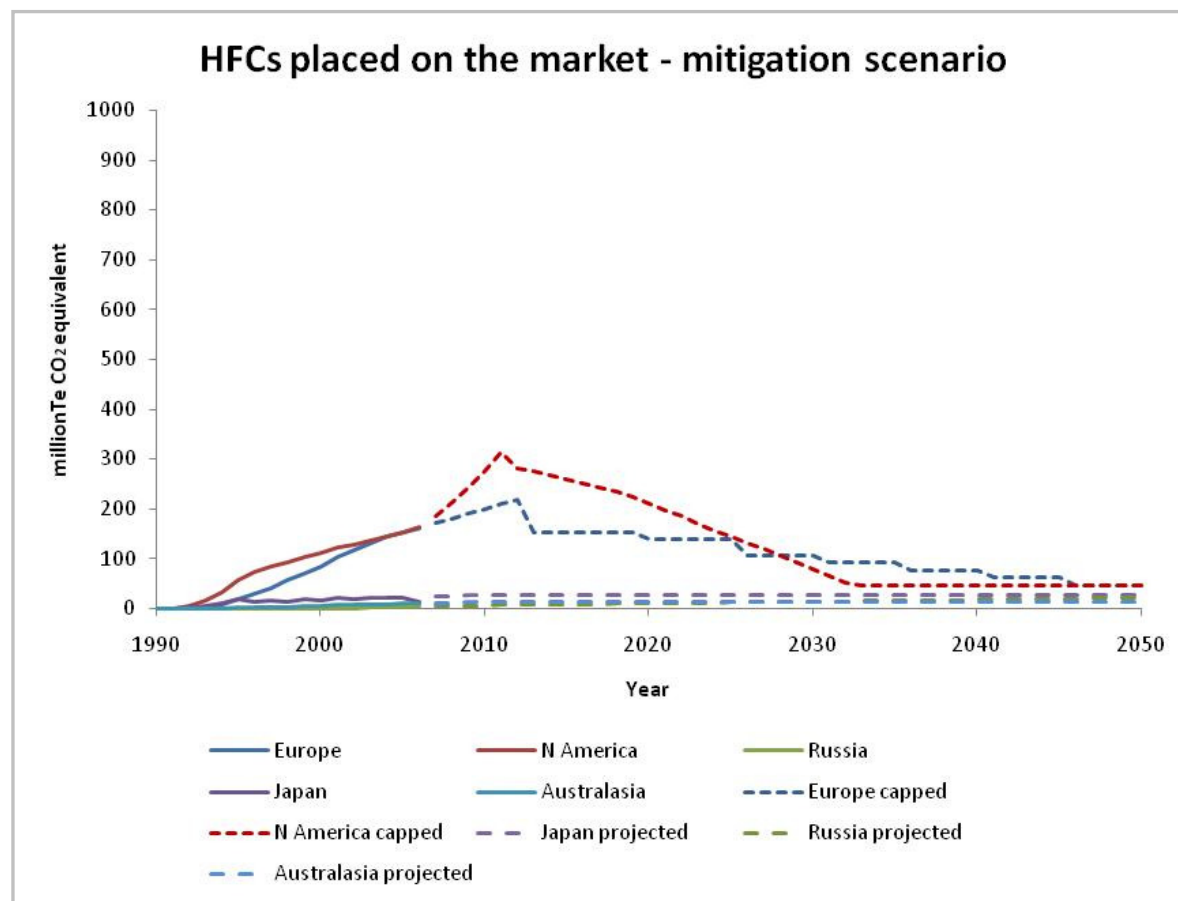


Figure 3. Mitigation Scenarios for Annex B Countries

⁴ Waxman Markey proposed amendments to Section 322 of the U.S. Clean Air Act

Other Annex B Countries

Russian consumption is projected to double over this period and the quantities placed on the market in Japan and Australasia are expected to remain constant.

The resulting total quantity placed on the market by Annex B countries in 2050 would be under 200 million tonnes/year as CO₂ equivalent, or 0.2% of the total emission expected in that year.

South East Asia

Countries in this region have dramatic historical growth in the uses (and hence consumption) of fluorocarbons. This evident in Figure 4 in the dashed line captioned "SE Asia including HCFCs". These countries are not yet committed to reduce emissions of HFCs but are now expected to reduce HCFC production and consumption under the revised Montreal Protocol, resulting in the projected quantities of HCFCs and HFCs shown in Figure 4. If demand for the systems using fluorocarbons continues to grow here, which is a likely scenario, the reduction in total quantity of HCFCs and HFCs placed on the market will be seen by these countries as making a significant contribution to mitigation of the potential emissions of greenhouse gases.

Unless a binding commitment to reduce HFCs is gained from SE Asia, the likely net effect will be to shift global HFC production to that region. The significant financial cost to the developed world will not result in a similarly significant environmental benefit. The history of the outcome of HCFC reductions in Europe teaches that, far from being reflected in a similar reduction in SE Asia, making up the global shortfall in production presents a business opportunity to SE Asian producers.

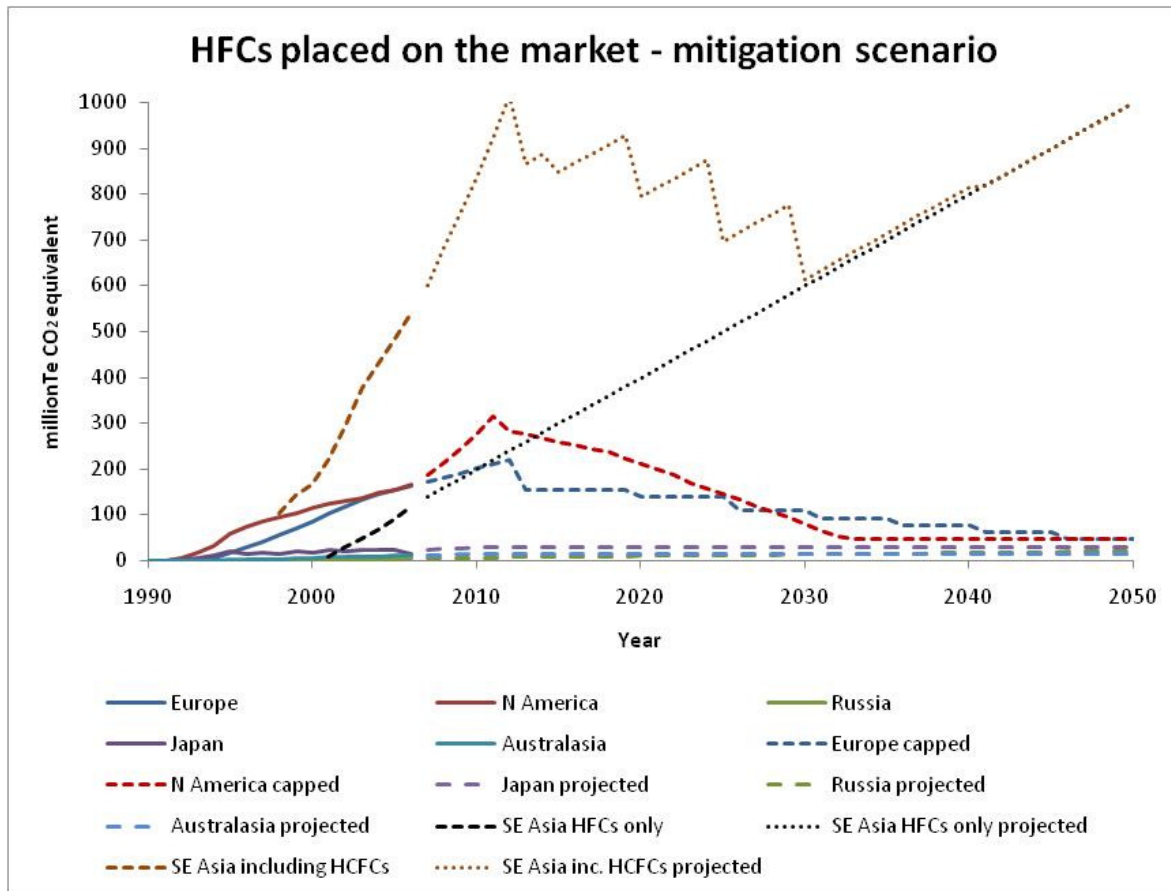


Figure 4. Global Mitigation Scenarios