IEAGHG Information Paper; 2012-IP2: Air Conditioning & Climate Change

Background: Article in International Herald Tribune "Rush to be Cool puts Heat on Climate" Thursday 21st June 2012

The article puts forward an interesting perspective on the deployment of air conditioning units in large developing nations like India and China as their middle classes grow and their ability to purchase air conditioning units for domestic use is becoming an attainable necessity.

These air conditioning units contain gases that are regulated under the Montreal Protocol. The Montreal Protocol has been the most successful of the international climate agreements and has actively worked on reducing the most powerful ozone depleting gases used in air conditioning units like CFC's with more benign gases such as, HFC's, HCFC's and even CO_2 and CH_4. The transfer to the lower ozone depleting gases is typically in developed countries. The Developing countries are due to begin switching to the more ozone friendly gases next year under the Montreal Protocol.

The downside of the newer gases, HFC's and HCFC's is that they are powerful greenhouse gases. For example HFC 410a, the standard gas used in air conditioning units in the USA has a GWP that is 2,100 times that of CO_2. The article suggests that the concentrations of HFC's and HCFC's in the atmosphere are steadily rising. So it suggests that solving one environmental problem, ozone depletion, is exacerbating another, global warming.

The article suggests that development of ozone friendly low global warming air conditioning units is proceeding but because of flammability issues, as they use hydrocarbons, regulatory approval is required which is taking its time. The US has suggested a position to developing countries that involves leapfrogging the development of HCFC based systems and going directly to hydrocarbon based systems, something they did not do themselves. The Developing country position seems to be that they have invested in new HCFC production plants and therefore they will continue operation of these, moving to the new gases will slow their development and cost too much.

Some stats:

- In 2011, 55% of all new domestic air conditioning systems were sold in the Asia Pacific region.
- In 2011, China built 70% of the world's domestic air conditioning systems.
- In 2010 China produced 7 times more HCFC's than the USA.
- Eliminating HFC's could reduce global warming by 20% in the next decade.

The aim of this paper was merely to bring attention to an issue related to Global Warming. The issues are covered under the Montreal Protocol, which IEAGHG has not in the past interacted with. While there is nothing the IEAGHG can actively do in this area, we will keep the developments at the Protocol discussions on our radar and highlight any outcomes that may help to reduce global warming.

John Gale, 25/06/12