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Government must Deal with Dead Fridge Climate Disaster

An ongoing climate disaster caused by the Australian Government's failure to enforce existing legislation to prevent emissions of powerful synthetic fluorocarbon greenhouse gases must be urgently addressed. The next Government needs to swiftly put in place an effective scheme to provide for the effective recovery and destruction of these gases by the proper "demanufacture" (decommissioning and recycling) of end-of-life refrigeration and air-conditioning equipment.

"Emissions recoverable from even a small fridge can represent 2.8 tonnes of CO₂-equivalent, and recovery from dead fridges and air-conditioners alone could provide abatement of 500,000 tonnes per year. Only a tiny percentage of the refrigerant gases that should be recovered and destroyed are ever captured, and most of the equipment disposal industry is breaking the law by failing to properly handle CFCs, HCFCs and HFCs," said Mr Brent Hoare, Executive Director of the Green Cooling Association.

"People should be alarmed about the global warming emissions from end-of-life refrigeration and air-conditioning equipment, like dead fridges, air conditioners and cars. It is high time we also dealt with the gases trapped in insulating foam (largely CFC-11, with a GWP of around 5000, i.e. - 1 kg CFC-11 = 5 tonnes of CO₂-equivalent radiative forcing), which is currently allowed to be released when fridges are put through the shredders, thanks to a clause in the regulations exempting metal recyclers from recovering these gases," said Mr Hoare.

"Those handling refrigerant gas during disposal of equipment are supposed to recover gas from the cooling circuit, but this law is almost universally ignored, unenforced, and everyone involved in the trade simply says "that's the other guy's job" when questioned about this. Neither the Government nor the Australian Refrigeration Council are doing their job to ensure these environmentally harmful gases are not willfully released, and real action is needed now".

"With recoverable emissions of around 500,000 tonnes of CO₂-e every year from dead fridges and small air-conditioning systems alone, this is not a trivial issue, in spite of being much overlooked. By comparison, the ALP's proposed 'Cash for Clunkers' scheme is aiming to prevent 1 million tonnes of CO₂ over 4 years, at a far higher cost. Recovery of powerful greenhouse gases from end-of-life equipment is among the lowest of the 'low-hanging fruit' emissions abatement measures, which Government must act swiftly to pursue."

"In Europe, requirements to properly 'demanufacture' fridges have been in place for almost a decade, which involve getting every last gram out the pipes and the compressor and shredding the carcass under a vacuum to suck the gas out, and to separate the ground up foam, plastic and ferrous and non-ferrous metals," concluded Mr Hoare.

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Editor's Note:

Green Cooling Association is a refrigeration technology industry environmental group that is concerned about the climate impact of fluorocarbon refrigerant gases and works to promote the use of natural refrigerants (ammonia, CO₂, hydrocarbons, air and water - the "friendly five") as future proof cooling solutions, and seeks to impose carbon pricing and stricter regulation of the high Global Warming Potential (GWP) fluorocarbon gases - www.greencooling.org.

Background Briefing

Climate Change and Comprehensive De-Manufacture of Refrigeration and Air-Conditioning Equipment at End-of-Life

Introduction

Every year in Australia large numbers of refrigerators, freezers and air conditioning units reach the end of their useful life and are scrapped. Often the scrapping process does not ensure that the refrigerant gasses within the system are recovered for destruction. In all cases the refrigerant gasses within the insulation foams are released to the environment, either immediately when the equipment is shredded, or over a period of time as the equipment breaks down in land-fills. Almost all refrigerant gasses have high Global Warming Potential (GWP).

The current regulatory loophole permitting the emission of these gases from the shredding of foam needs to be closed. Current legal requirements to not emit fluorocarbons to atmosphere need to be applied and enforced, and an appropriate pricing mechanism needs to be urgently implemented to ensure recovery of these gases before the size of the available bank shrinks from ongoing leakage.

Green Cooling Assn proposes the immediate provision of a comprehensive refrigeration equipment de-manufacturing scheme to achieve strong environmental and economic outcomes, and is certain of its feasibility in effectively contributing to a reduction in greenhouse gas emissions in Australia.

Magnitude of the Issue

It is estimated that approximately 710,000 refrigerators, freezers and air conditioning units (RACE) are scrapped each year in Australia. This does not count air conditioning units in cars. The majority of these units use CFCs or HCFCs as their refrigerant gas, although some may use HFCs. All three of these families of gas have high GWP, some as high as 10,600 times greater than the same weight of CO₂. Additionally, CFCs and HCFCs cause depletion of the ozone layer.

In many cases, refrigerators, freezers and air conditioners are shredded for their metal without verifying that they have been degassed, resulting in any remaining refrigerant gas being emitted to the atmosphere. Even if the unit is conventionally degassed, refrigerant gas remains dissolved in the oil contained within the compressors in refrigeration units, but will then be emitted to the atmosphere over time. Refrigerators and freezers also contain insulation foam, which in older units contains CFCs and HCFCs. Although Australia's regulations prohibit the deliberate release of refrigerant gasses, insulating foams and compressor oil are excluded from these regulations, and therefore a large portion of the contained gas is released during shredding operations to recover metal from the equipment. Any residual gas releases over time as the foam and oils break down in landfills.

It has been calculated that comprehensive de-manufacture of refrigeration equipment could directly result in a reduction of greenhouse gas emissions of over 500,000 tons CO₂-e per annum. Although this is only a small portion of Australia's total emissions, it is over 1% of Australia's industrial emissions, or close to 10% of the emissions from the consumption of halocarbons². The greenhouse gasses contained within end-of-life equipment is further expected to more than triple by 2018³.

Conclusions

There is a clear case for Government to support a comprehensive de-manufacturing scheme for end-of-life refrigerators, freezers, air conditioners and insulating foams, which will significantly reduce emissions of greenhouse gasses in Australia.

- The environmental and social benefits to Australia from comprehensive de-manufacture extend beyond the direct reduction of greenhouse gas emissions.
- The cost of such a scheme is low compared to many alternate actions that have been proposed to reduce Australia's emissions.
- A comprehensive RACE de-manufacture scheme can commence operation within a few months of an appropriate funding model being approved, and be fully operational in the major population centres of Australia within 12 months of start-up.

Given the constant leakage of potentially recoverable emissions from the bank of equipment, the need to establish a comprehensive RACE de-manufacture scheme is too urgent to be delayed until the implementation of the CPRS, and an interim arrangement is required now to enable recovery and destruction of these easily avoidable emissions to commence as soon as possible.

