

107-121 Station Street, Aspendale VIC 3195  
PMB 1, Aspendale VIC 3195, Australia  
T +61 3 9239 4400 • ABN 41 687 119 230

9 November 2015

Dr Richard Chadwick  
General Manager  
Adjudication Branch, ACCC  
GPO Box 3131 Canberra ACT 2601

Re: A91515 – Refrigerant Reclaim Australia – submission

Dear Dr Chadwick

CSIRO wishes to make a submission to the Australian Competition & Consumer Commission (ACCC) on the likely public benefits of Refrigerant Reclaim Australia (RRA) seeking re-authorisation for five years to allow it to continue to operate a product stewardship scheme to recover ozone depleting and synthetic greenhouse gases.

CSIRO has been measuring continuously Australia's refrigerant emissions – chlorofluorocarbons (CFCs – since 1978), hydrochlorofluorocarbons (HCFCs – since 1998) and hydrofluorocarbons (HFCs – since 1998) - via atmospheric measurements at Cape Grim, Tasmania, and Aspendale, Victoria, independent of the estimates of emissions for these refrigerants made within the Australian government Department of the Environment National Greenhouse Accounts (NGA) process. CSIRO's research on refrigerant emissions is funded by CSIRO, the Department of the Environment, the Bureau of Meteorology, Refrigerant Reclaim Australia and the National Aeronautics and Space Administration (NASA, USA).

CSIRO estimates refrigerant emissions from direct measurements of elevated levels of refrigerants in the atmosphere caused by Australian emissions. The NGA estimates emissions from the levels of refrigerant imports and assumed emission factors, consistent with methodologies recommended by the Intergovernmental Panel on Climate Change (IPCC). The Department of the Environment reports Australia's refrigerant emissions (NGA and CSIRO estimates) to the United Nations Framework Convention on Climate Change (UNFCCC), as required and/or recommended of signatory nations to that Convention (DoE, 2015a).

CSIRO research has shown that Australia's CFC/HCFC refrigerant emissions have declined significantly (by over 80%) since 1995, from 5800 ozone depletion potential (ODP)-weighted tonnes to 1100 ODP tonnes in 2013 (DoE, 2015b). In terms of carbon dioxide equivalent (CO<sub>2</sub>-e) emissions, this is a decline of 45 M tonnes CO<sub>2</sub>-e, from 55 M tonnes CO<sub>2</sub>-e in 1995 to 10 M tonnes CO<sub>2</sub>-e in 2013. This is a major environmental benefit for Australia, whose annual greenhouse gas emissions are of the order of 550 M tonnes CO<sub>2</sub>-e per year.

CSIRO's research has also shown that Australia's HFC refrigerant emissions are likely in decline, from 3800 tonnes in 2010 to 3300 tonnes in 2103, a decline of close to 15%, suggesting that the refrigeration industry is emitting less refrigerants than is estimated in the NGA process, presumably by improved stewardship of refrigerants which is likely not reflected in the time-invariant refrigerant emission factors employed in the NGA process (DoE, 2015c). This is a decline of 1.6 M tonnes of CO<sub>2</sub>-e, from 9.6 M tonnes CO<sub>2</sub>-e in 2010 to 8.0 M tonnes CO<sub>2</sub>-e in 2013.

Integral to these beneficial environmental outcomes, in terms of combating ozone depletion and climate change driven by synthetic greenhouse gases (CFCs, HCFCs, HFCs), is the successful refrigerant reclaim

program operating in Australia, managed by RRA. The RRA program has recovered approximately 5400 tonnes of refrigerant since 1993, equivalent to 10 M tonnes CO<sub>2</sub>-e.

The RRA program has played a significant role in the overall reduction in Australia's refrigerant emissions, directly via the reclaim operation and indirectly via promoting an industry-wide culture of careful refrigerant stewardship. The RRA program is recognised world-wide for its impact and excellence and CSIRO wishes to support RRA's application for its continuation over the next five years.

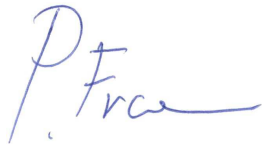
## References

DoE 2015a: Australian Government, Department of the Environment, *National Inventory Report Volume 1, The Australian Government Submission to the United Nations Framework Convention on Climate Change, Australian National Greenhouse Accounts*, May 2015.

DoE 2015b: Fraser, P., B. Dunse, P. Krummel, P. Steele & N. Derek, *Australian and Global ODS Emissions*, Final Report to Department of the Environment, CSIRO Oceans and Atmosphere Flagship, July 2015.

DoE 2015c: Fraser, P., B. Dunse, P. Krummel, P. Steele & N. Derek, *Australian and Global HFC, PFC, Sulfur Hexafluoride, Nitrogen Trifluoride and Sulfuryl Fluoride Emissions*, Final Report to Department of the Environment, CSIRO Oceans and Atmosphere Flagship, June 2015.

Thanks



Paul Fraser

Chief Research Scientist & CSIRO Fellow

[paul.fraser@csiro.au](mailto:paul.fraser@csiro.au), +61 3 9239 4613