



REFRIGERANT  
RECLAIM  
AUSTRALIA



2015

2016

EXECUTIVE SUMMARY

2015 — 2016

# CHAIRMAN'S REPORT

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RRA has enjoyed another very successful year in 2015/2016. Our continued success is due to the ongoing commitment of the refrigeration and air conditioning industry to the recovery and return of contaminated and unwanted refrigerant, the prevention of emissions, and compliance with environment protection regulations. The volume of refrigerant being returned in recent years has grown consistently since the repeal of the carbon tax. In 2015/16 we have taken back a total of 381 tonnes for destruction, compared to 350 tonnes last year and 224 tonnes the year before.

A major impact on recovery now is the amount of product being retained, reclaimed, and reused, particularly R22. It is difficult to know the actual volume but some indication is given by the reduction in R22 recovery. Recovery of R22 peaked at 260 tonnes per annum and is now less than 50 tonnes.

Of the refrigerant that was recovered and entered the RRA program, around 80 tonnes was reclaimed to new specification and sold back into the market. This places the total annual recovered volume within the RRA program at 460 tonnes.

RRA has contributed to the industry in other ways during the year. Our commitment to the CSIRO atmospheric research program and the Cape Grim research station remains strong despite the turmoil that organisation has suffered. Our long-term commitment has proven crucial to the continuation of that program. Our support of the World Skills apprenticeship competition supports widespread involvement and promotes improved training and higher standards. A new initiative is a major commitment to improving the nationwide communication and cooperation by TAFE colleges and teachers. Other work included input to various standards, cylinder designs, and safety matters.

RRA's financial performance continues to be sound with sufficient funds available to meet future returns of recovered refrigerant. The audited financial results may be accessed [here](#).

RRA's Board has representatives from contractor organisations, both stationary and mobile, bulk refrigerant importers, equipment manufacturers and importers, and wholesalers. Along with our professional team we collectively seek to meet our industry's needs for recovery and safe disposal, and compliance with all environmental and safety regulations and standards. We are always seeking constructive feedback and would enjoy you contacting us anytime at [info@refrigerantreclaim.com.au](mailto:info@refrigerantreclaim.com.au)



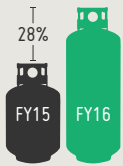
[John McCormack](#)  
RRA Chairman

# 2015/16 PERFORMANCE

The amount of refrigerant entering the RRA program continued to grow strongly in 2015/16 to further enhance the environmental performance of the industry.

The increase in refrigerant being reclaimed was marked growing from 8 tonnes in FY15 to 80 tonnes in FY16. This refrigerant is essentially harvested from the waste stream and purified to new specification. Additionally, a large volume of refrigerant was retired for reuse by contractors and equipment owners due to the growing scarcity of phased out refrigerants, particularly R22.

Please note that all contaminated, unwanted, and unusable refrigerant ultimately received at our processing centre is safely destroyed to prevent its emission to the atmosphere.



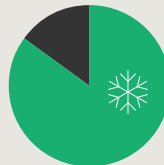
Total refrigerant recovery grew to 460 tonnes (80 tonnes reclaimed) compared to 358 tonnes (8 tonnes reclaimed) last year.



All refrigerant wholesalers participate and take back recovered refrigerant.



The quantity of refrigerant recovered since the program commenced stands at 5,866 tonnes almost all of which has been destroyed.



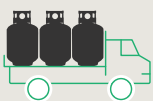
Revenue from the refrigerant levy contributed 85% of revenue while investments provided the balance.



198 tonnes has been reclaimed (purified to new specification) and 115 tonnes was used for feedstock (remade) in the very early days of the program.



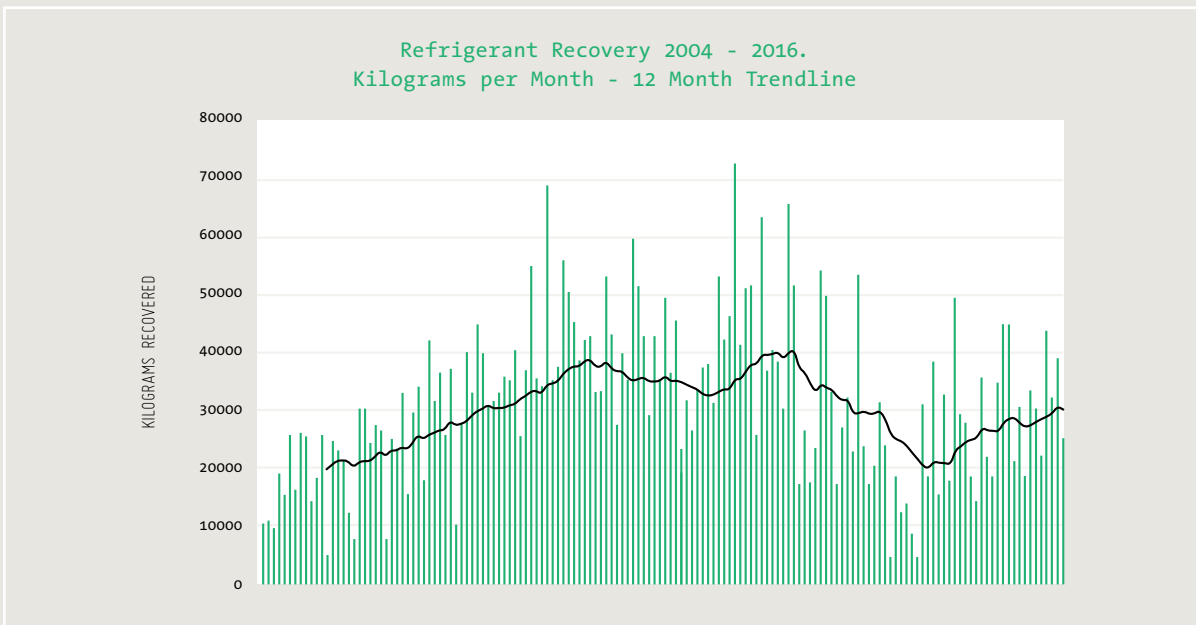
\$3.8 million dollars was provided back directly to the industry through rebates for returning refrigerant.



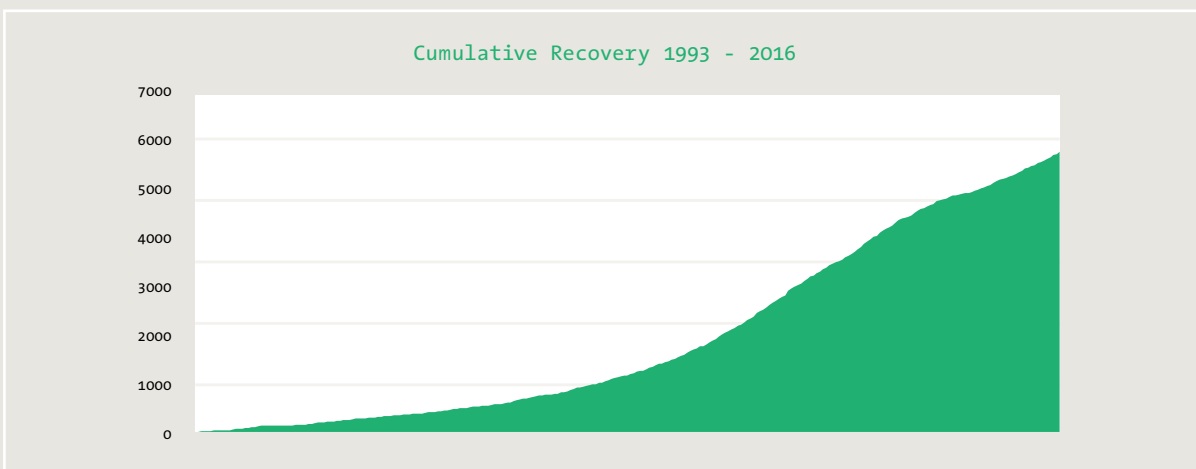
More than 1,000 importers of refrigerant, either as bulk or contained in equipment, contribute to the RRA recovery program.

# LONG-TERM PERFORMANCE

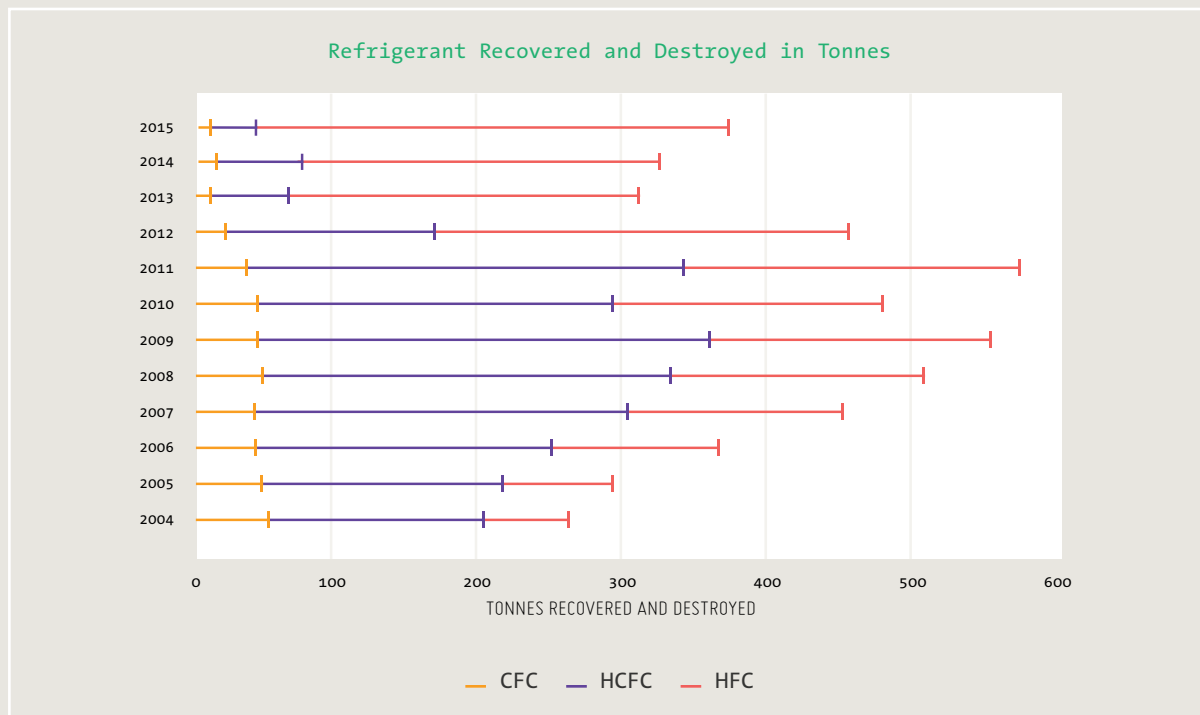
The graph Refrigerant Recovery plots monthly collections from 2004 till now. The trendline is a moving 12 month average. The impacts of the global financial crisis reduced industry activity and caused higher levels of reuse thereby lowering collections. As the economy recovered returns improved to a higher peak. The following rapid and deep decline was caused by the introduction of the carbon tax. Since it was repealed the quantity being recovered and returned for safe disposal has grown strongly.



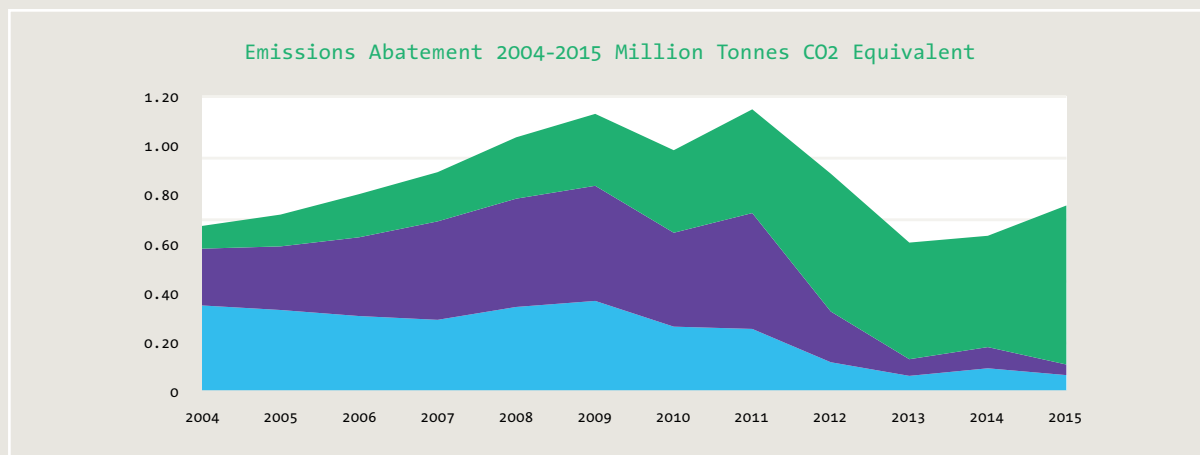
Since commencement in 1993, RRA has taken back and safely disposed of 5,866 tonnes of waste and unwanted ozone depleting and synthetic greenhouse gas refrigerants, as can be seen in the graph titled Cumulative Recovery.



The types of refrigerant being collected have changed over time. In the early years CFCs dominated recovery until HCFCs, mainly R22, became the most returned refrigerant in the 2000's. The tightening supply situation of R22 has resulted in its retention by the commerce chain. The volume of HFCs recovered has grown consistently since collections began in 2002/03 and their volume will continue to grow strongly.



The wonderful effort by the whole industry has been achieved kilogram by kilogram and year after year. The results are spectacular with more than 10 million tonnes of stratospheric ozone saved from destruction, and the prevention from emission of more than 10 million tonnes of carbon dioxide equivalent.



# CHALLENGES

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## GROWING USE OF FLAMMABLE REFRIGERANTS

A major challenge is the transition to increased use of flammable refrigerants. The introduction of Class A2L mildly flammable refrigerants will require profound changes to the way refrigerant is managed and handled. Refrigerants such as R1234yf and R32 will be used in increasing quantities and will grow to be more than half the bank of refrigerant by 2030. Over the next few years collection, transport, handling, and destruction systems and equipment will need to be upgraded to handle increasing volumes of flammable refrigerants. All actors in the recovery chain will be impacted.

## GROWING VOLUME OF REDUNDANT REFRIGERANT

Another imposing challenge is the potential for rapidly increasing amounts of refrigerant requiring destruction as some refrigerants may become redundant. While the transition from R134a to R1234yf in the automotive sector may not result in large volumes of unwanted refrigerant it is quite likely that the change away from R410A to R32 will. There is currently about 20,000 tonnes of R410A installed in split air conditioning systems in Australia. As those systems reach end-of-life in the 2020's very large volumes of refrigerant will likely become available for recovery and safe disposal.

## MISUSED AND UNLABELLED HYDROCARBON REFRIGERANT

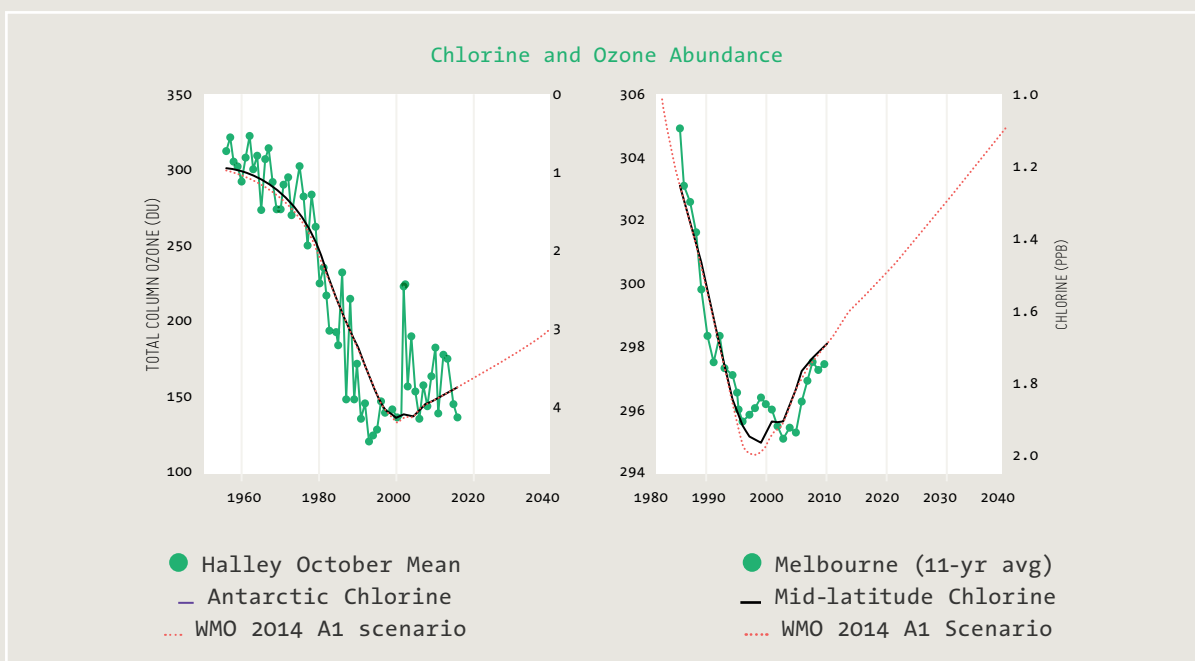
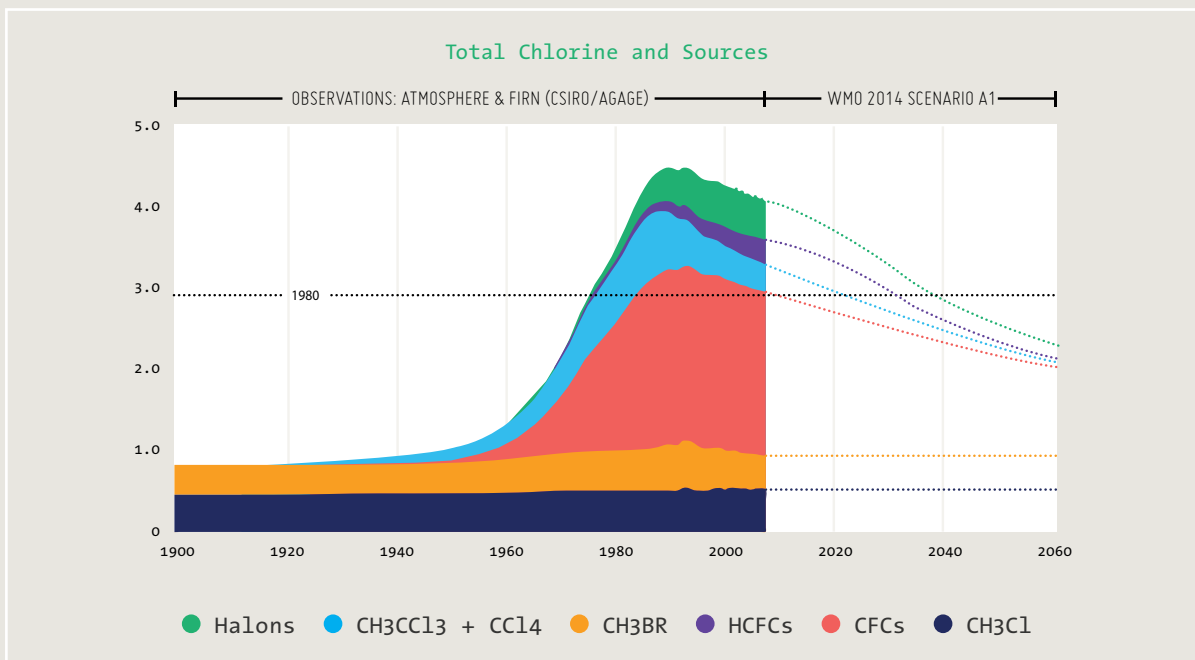
About five per cent of refrigerant sent for destruction is contaminated by hydrocarbons. Although the processing centre has been designed to destroy gas cocktails, the undetected recovery of hydrocarbons creates serious safety risks for everyone handling potentially flammable mixtures.

Most contractors and wholesalers do not have the right equipment to safely decant refrigerant contaminated with hydrocarbons. Until recently recovery cylinders rated for flammables were not available and most in use still aren't. RRA must separately transport contaminated cylinders using costlier hazardous goods vehicles and work practices.

Industry standards and plain common sense require that all systems are properly labelled. RRA encourages everyone to label systems highlighting the refrigerant charge, and to be very wary of older systems where the content isn't known.

# THE ATMOSPHERE

The phasing out of CFCs like R12 has resulted in a reduction of chlorine in the atmosphere and consequently lower ozone depletion. This means the ‘Hole’ will diminish over time and the level of harmful UV radiation will decline. The improvement can already be seen in testing undertaken by the CSIRO.

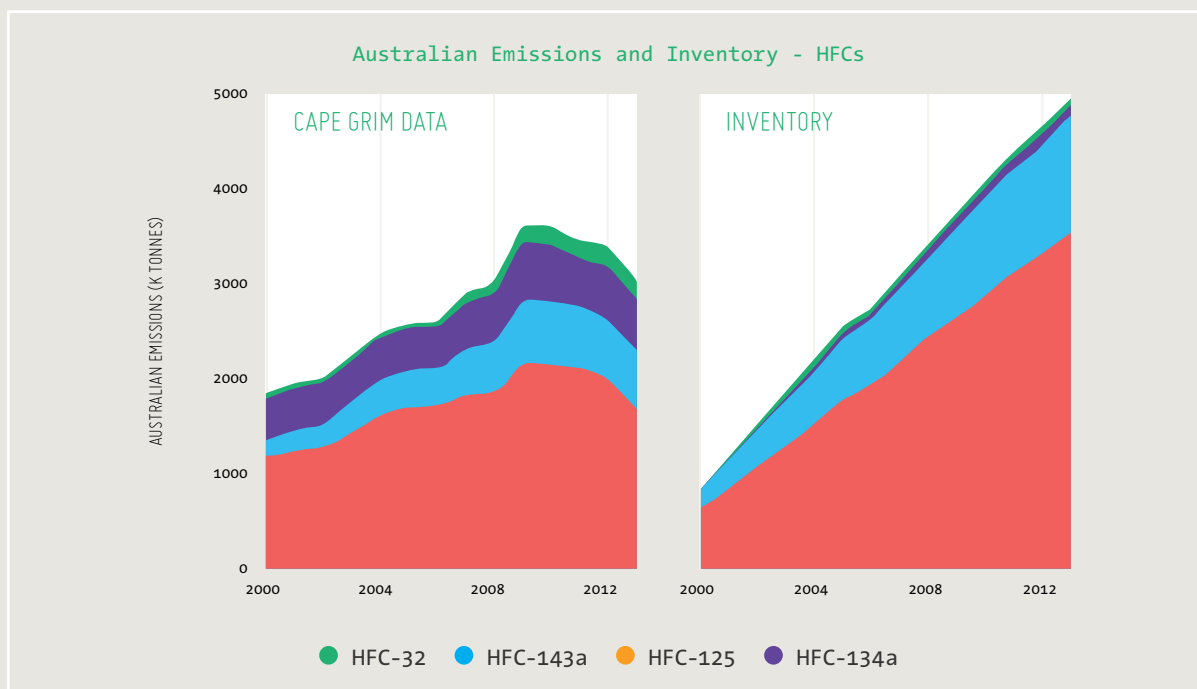
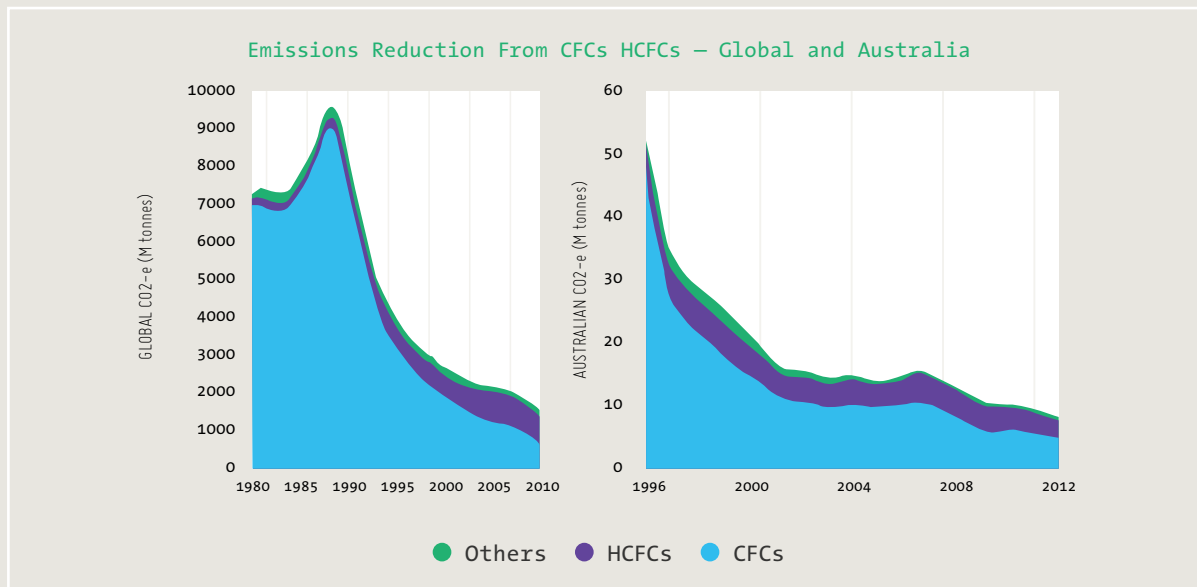


There is a similar good news story for the emissions of greenhouse gases – measured in carbon dioxide equivalent (CO<sub>2</sub>e).

The phase out of CFCs and HCFCs, improvements to equipment and installations, the reduction in leakage rates, and the recovery and destruction of contaminated and unwanted refrigerants has produced a massive reduction in emissions by the refrigeration and air conditioning industry.

About 45 million tonnes of CO<sub>2</sub>e is being prevented from emission each year.

Atmospheric data also indicates the emissions of HFCs have peaked and are in decline, despite the increasing inventory.



# THE FUTURE

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After years of considerable uncertainty, the near to medium future now seems quite settled, at least as far as the regulatory environment is concerned. The recent review of the Ozone Protection and Synthetic Greenhouse Gas Management Act, and the long-awaited adoption of the management of synthetic greenhouse gases under the Montreal Protocol, provide some degree of certainty.

As noted earlier, the Australian air conditioning and refrigeration industry has already reduced direct emissions of CO<sub>2</sub>e in the order of 85% since the early 1990's. With the phase-down of high GWP refrigerants agreed by Australian industry and government, and internationally, a further reduction of 85% will be achieved by the 2030's. This next phase-down is achievable as many low GWP alternatives are available, and more will become available as the global industry makes the transition.

Many of the new refrigerants have very low or zero global warming potential, such as R1234yf that has a GWP less than one. These products will not need to be recovered. This means RRA faces a future of diminishing revenue while costs will increase in line with the growing quantity of refrigerant requiring disposal. To ensure the long-term viability of the program a bank of funds has been accumulated to pay for recovery and destruction many years into the future.

In the 2016/17 the total volume recovered and destroyed will surpass 6,000 tonnes, and a further one million tonnes of CO<sub>2</sub>e will be prevented from emission. The liability for installed refrigerant will increase, the amount of refrigerant being recovered will grow, and flammable refrigerants, particularly R32, will become more prevalent. RRA will continue to work closely with industry to ensure Australia's refrigerant recovery program remains one of the best in the world, and that Australian industry continues to meet its environmental obligations comprehensively and efficiently.



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