



ATMO sphere





Australia's policy and legislation

HFCs and HCFCs

Overview

- The benefits of the Montreal Protocol
 - ozone layer
 - the climate system
- International action
- Australian action
- The future

The ozone layer

- A protective layer that shields the earth from UVB radiation
- Too much UVB
 - skin cancers
 - other cancers
 - cataracts
 - damage to plant and aquatic life
 - damage to property

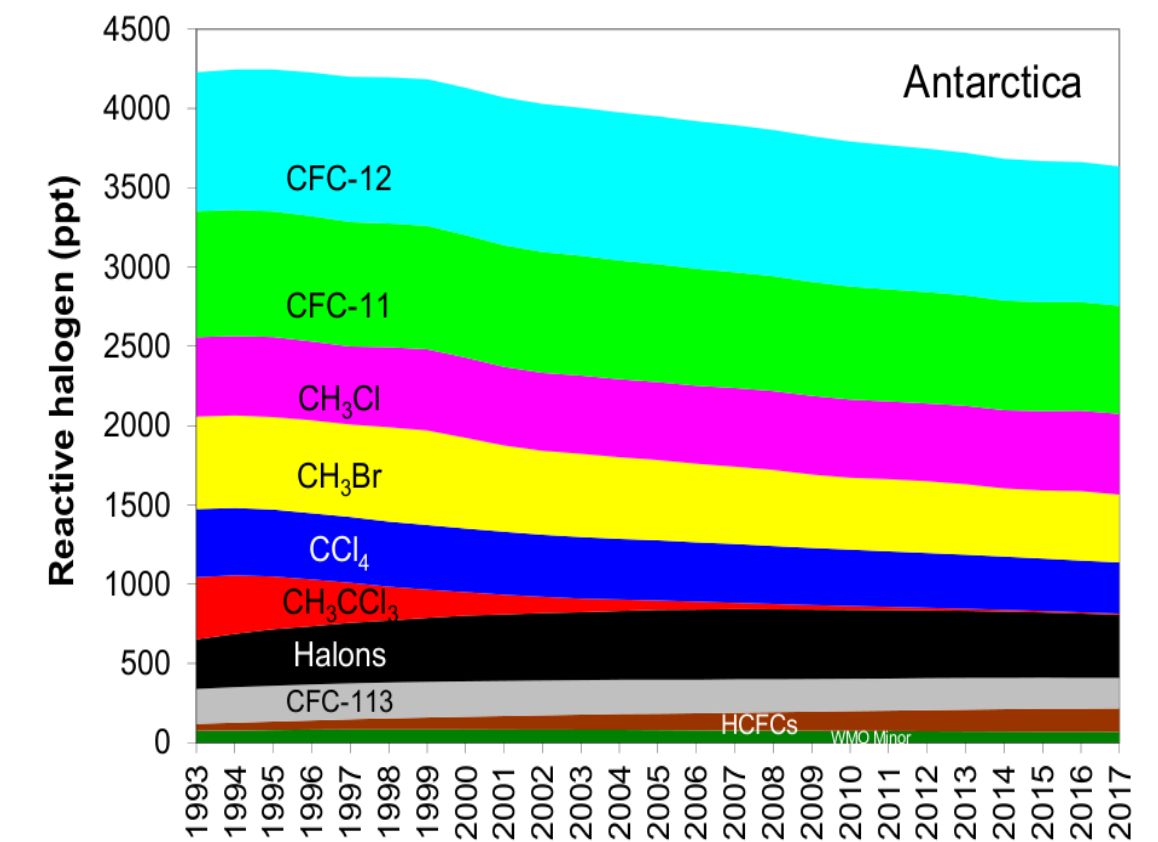
The Montreal Protocol

- Agreed in 1987
- It works because
 - all 197 UN countries have obligations
 - trade controls
 - compliance mechanism
 - financial assistance to developing countries
 - sound science
 - commitment by business
 - commitment by government



Benefits of the Montreal Protocol

- Has phased out over 99% of production of the most potent ozone depleting chemicals
 - only methyl bromide and HCFCs remain
- Ozone layer starting to recover
 - mid century in the mid-latitudes
 - Antarctica around 2070



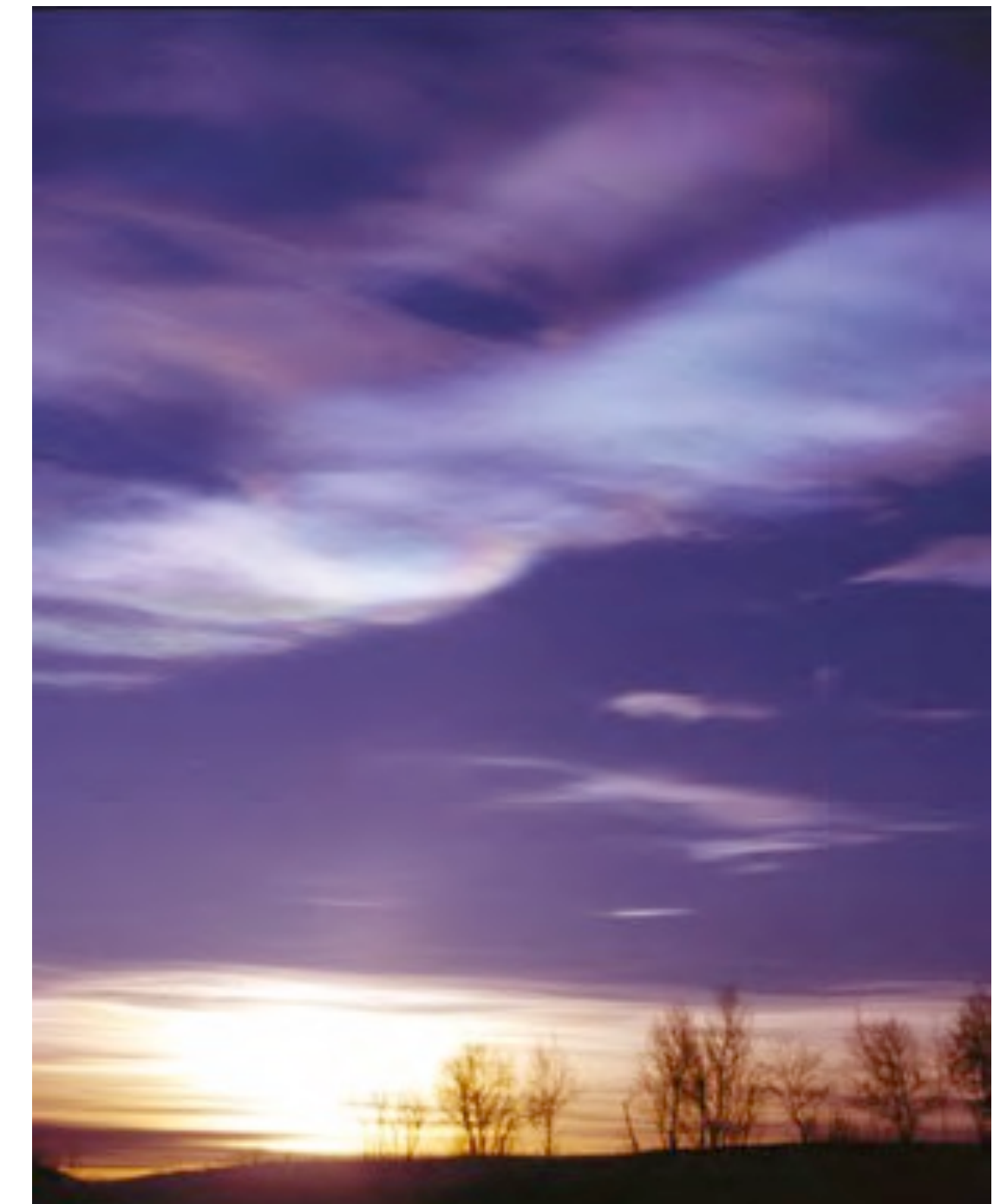
Benefits of the Montreal Protocol

- Globally has reduced greenhouse gas emissions by 135 billion tonnes between 1990 – 2010
- The HFC phase-down will avoid 72 billion tonnes of emissions up to 2050



HCFC phase out

- Developed countries have phased out 90% of HCFC production
 - reach 99.5% from 2020
 - Australia reached 99.5% in 2016
 - 100% from 2030
 - imports to be used only for servicing refrigeration and air conditioning from 2020
- Developing countries have phased out 10%
 - 35% from 2020
 - 67.5% from 2025
 - 97.5% from 2030



Why control HFCs?

- Hydrofluorocarbons (HFCs) are synthetic greenhouse gases
- HFCs generally have a high global warming potential (GWP)
- Modelling indicated a large increase in HFC use, particularly in developing countries



HFC phase-down under the Montreal Protocol

- Developed countries
 - 10% from 2019
 - 40% from 2024
 - 70% from 2029
 - 80% from 2034
 - 85% from 2036
- Developing countries delayed by 10 years



International safety standards

- Safety standards need to be reviewed to consider new technology
 - level of safety not to be reduced
 - inclusion of engineering solutions to manage risk
- The Montreal Protocol has no authority for safety standards but is interested in the outcome

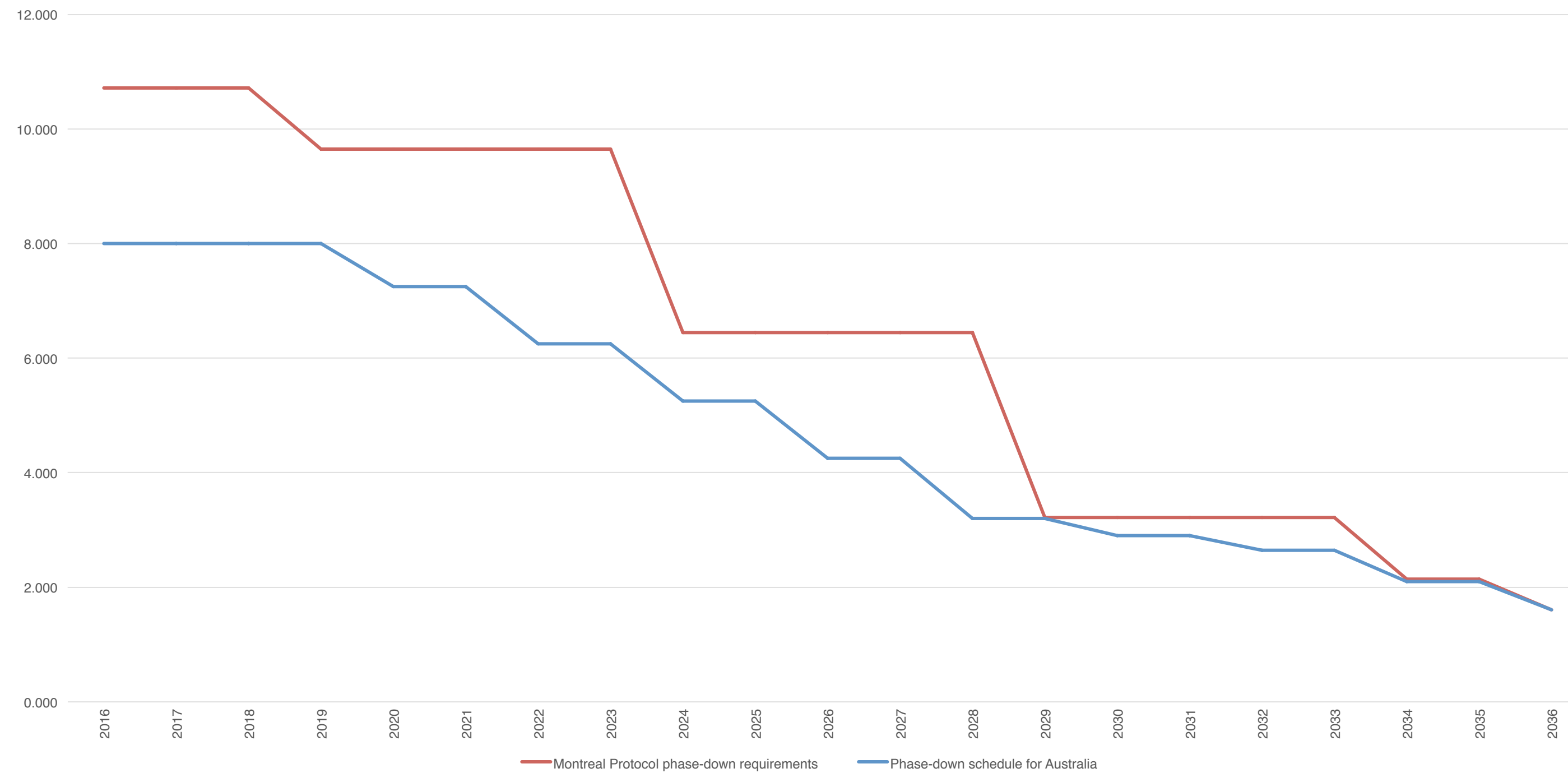
Energy efficiency

- HCFC and HFC transition provide opportunities to improve equipment efficiency
 - 60% improvement in Australia in the last 20 years
- Technical Report on opportunities and challenges in mid-2018
- Energy efficiency workshop in July in Vienna

Australia's HFC phase-down

- Australia's phase-down started on 1 January 2018, a year earlier and greater reduction than Montreal Protocol requirements.
- Gradual reduction of imports of bulk HFCs into Australia
- Import limit of 8.0 million tonnes CO₂e
- Reaches 1.6 million tonnes CO₂e in 2036
- More regular, smaller steps than Montreal Protocol

Australia's HFC phase-down



Montreal Protocol Reductions:

- 10% from 2019
- 40% from 2024
- 70% from 2029
- 80% from 2034
- 85% from 2036

Australia's HFC phase-down

Quota allocation period	Year	New phase-down schedule for Australia (megatonnes CO ₂ e)	Montreal Protocol phase-down schedule (megatonnes CO ₂ e)
1	2018	8.000	10.718
	2019	8.000	9.646
2	2020	7.250	9.646
	2021	7.250	9.646
3	2022	6.250	9.646
	2023	6.250	9.646
4	2024	5.250	6.431
	2025	5.250	6.431
5	2026	4.250	6.431
	2027	4.250	6.431
6	2028	3.200	6.431
	2029	3.200	3.215
7	2030	2.900	3.215
	2031	2.900	3.215
8	2032	2.650	3.215
	2033	2.650	3.215
9	2034	2.100	2.143
	2035	2.100	2.143
10 and onwards	2036 and onwards	1.607	1.607

How does the phase-down work

- Phase-down managed through a gradually reducing quota on bulk imports
- Quota divided between a ‘grandfathered’ system and a ‘non-grandfathered’ system
- Initial quota for 2018-2019
 - 90% allocated to importers of HFCs and HCFCs between 2009 and 2014
 - 10% open to all applicants

LICENSEE NAME	LICENCE EXPIRY DATE
CONTROLLED SUBSTANCE LICENCE for synthetic greenhouse gases (SGG)	
ABB AUSTRALIA PTY LIMITED	31-Dec-17
ACTROL PARTS PTY LTD	31-Dec-19
ACTRON ENGINEERING PTY LTD	31-Dec-19
A-GAS (AUSTRALIA) PTY LIMITED	31-Dec-19
AIR LIQUIDE AUSTRALIA LIMITED	31-Dec-19
AIREFRIG AUSTRALIA PTY LTD	31-Dec-19
ALSTOM GRID AUSTRALIA LIMITED	31-Dec-17
ATOMIC CAPITAL AUSTRALIA PTY LIMITED	31-Dec-19
AUTOMOTIVE IMPORTS PROPRIETARY LIMITED	31-Dec-19
AVT SERVICES PTY LIMITED	31-Dec-19
BEUER REF AUSTRALIA PTY LTD	31-Dec-19
BLUONE PTY LTD	31-Dec-19
BOC LIMITED	31-Dec-19
BOSTIK AUSTRALIA PTY LTD	31-Dec-19
CAC Gas & Instrumentation Pty. Ltd. as the Trustee for CAC Gas and Instrumentation Unit Trust	31-Dec-17
CONOCOPHILLIPS (03-12) PTY LTD	31-Dec-17
COREGAS PTY LTD	31-Dec-19
DEPARTMENT OF ECONOMIC DEVELOPMENT JOBS TRANSPORT AND RESOURCES	31-Dec-17
GREENCHEM INDUSTRIES PTY. LTD.	31-Dec-19
HAITON INTERNATIONAL PTY. LTD.	31-Dec-17
HEATCRAFT AUSTRALIA PTY LTD	31-Dec-19
HIGHGATE INDUSTRIES WHOLESALE PTY LTD	31-Dec-19
HONEYWELL POLYMERS (AUSTRALIA) PTY LIMITED	31-Dec-19
IXOM OPERATIONS PTY LTD	31-Dec-19
KIDDE AUSTRALIA PTY LTD	31-Dec-19
NINHUA GROUP CO. LTD	31-Dec-19
P D BULBECK PTY LTD	31-Dec-19
PACIFIC URETHANES PTY LTD	31-Dec-19
POWER RENTAL OP CO AUSTRALIA LLC	31-Dec-17
QGC PTY LIMITED	31-Dec-17
QUEENSLAND ELECTRICITY TRANSMISSION CORPORATION LIMITED	31-Dec-17
READYGAS AUSTRALIA PTY LTD	31-Dec-19
REBAIN INTERNATIONAL (AUST) PTY LTD	31-Dec-19
REECE PTY LTD	31-Dec-19
SCITEK AUSTRALIA PTY LTD	31-Dec-17
SHELL AUSTRALIA PTY LTD	31-Dec-17
STAREAST INTERNATIONAL PTY. LTD.	31-Dec-19
SUPAGAS PTY LTD as The Trustee for A F T UNIT TRUST	31-Dec-19
SYDNEY WHEEL REPAIRS & TYRES PTY LTD	31-Dec-17
SYTHREE PTY LIMITED	31-Dec-19
THE CHEMOURS COMPANY (AUSTRALIA) PTY LTD	31-Dec-19
TJH2B ANALYTICAL SERVICES PTY LTD	31-Dec-17
WILHELMSSEN SHIPS SERVICE PTY LIMITED	31-Dec-19

What is covered by the HFC phase-down

- Applies to bulk gas imports only
 - HFC in equipment is accounted for in the country of manufacture
- Provision for bans on import and manufacture of new equipment
 - bans considered alternatives are not being introduced into the Australian market at the expected rate, or if demand for bulk HFCs looks to be outstripping supply

Table 2: HFCs covered in the phase-down				
HFC-23	HFC-32	HFC-41	HFC-125	HFC-134
HFC-134a	HFC-143	HFC-143a	HFC-152	HFC-152a
HFC-227ea	HFC-236cb	HFC-236ea	HFC-236fa	HFC-245ca
HFC-245fa	HFC-365mfc	HFC-43-10mee		

What does it mean for equipment users

- Equipment owners
 - will not have to replace existing equipment
 - will not have to retrofit existing equipment
 - should consider alternative technologies when existing equipment needs replacing



Alternatives

- New equipment uses a range of alternatives including
 - non-SGG alternatives
 - ammonia
 - carbon dioxide
 - hydrocarbons
 - lower GWP HFCs such as R32
 - hydrofluoro-olefins (HFOs)
- Not in-kind technology

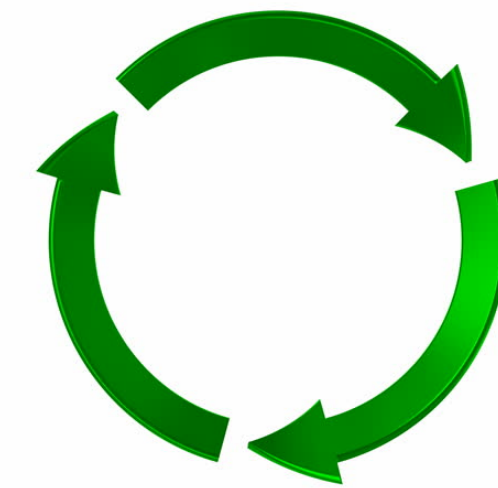
What does it mean for Australia

- Pace of introduction of alternative technology will increase
- Provides for long term investment certainty
- Increases the range of products available
- Provides for long term planning



Maintenance

- We will be developing an awareness program to increase the level of preventative maintenance
- Preventative maintenance can:
 - reduce business operating costs
 - reduce refrigerant leaks
 - reduce energy use and related greenhouse gas emissions



Questions

- More information at:

<http://www.environment.gov.au/protection/ozone>



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Thank you very much!

