




Australian Government
 Department of Sustainability, Environment,
 Water, Population and Communities



Carbon Price on HFCs, Possible International Controls on HFCs
 Patrick McInerney


Australian Government
 Department of Sustainability, Environment, Water, Population and Communities



Clean Energy Future Announcement


10 July 2011 – release of Climate Change Plan

SGG specific:

- Hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) (not from aluminium smelting) and sulfur hexafluoride (SF₆) will incur an equivalent carbon price
- The equivalent carbon price will be administered under the ozone protection and synthetic greenhouse gas legislation
- The equivalent carbon price will be adjusted annually to reflect the prevailing carbon price (and based on the GWP of each gas)

www.environment.gov.au

Australian Government
Department of Sustainability, Environment, Water, Population and Communities




Why a carbon price will be applied to SGGs

- To provide an incentive for low Global Warming Potential (GWP) or nil GWP alternatives
- To increase incentives for correct installation and regular maintenance of equipment
- To increase incentives for end of life recovery and recycling of gases

www.environment.gov.au


Australian Government
Department of Sustainability, Environment, Water, Population and Communities



Changes to Synthetic Greenhouse Gas legislation

- Import/Manufacture levies will be amended for bulk SGGs and equipment containing SGGs
 - levy charged at prescribed rate (\$165 per tonne) + equivalent carbon price, based on the GWP of the gas
- PFCs, SF6 and HFCs will be included
- The scope of pre-charged equipment will be expanded to include all equipment containing a SGG
- Provides for equipment or products to be exempted from the levy by Regulation

www.environment.gov.au




Australian Government
Department of Sustainability, Environment, Water, Population and Communities

Changes to Synthetic Greenhouse Gas legislation

- Levy refunds for exports of SGGs, in bulk or in equipment
- Import reporting period will remain 15 days after the end of the quarter
- Levy payment extended from 15 to 60 days after the end of the quarter
 - The carbon price component will go to consolidated revenue
- Exemptions for some imported equipment defined as a personal effect (private motor vehicles, refrigerators and freezers).

www.environment.gov.au




Australian Government
Department of Sustainability, Environment, Water, Population and Communities

Fixed Price Period

- The equivalent carbon price commences with a three year fixed price period
 - \$23.00 in 2012-13
 - \$24.15 in 2013-14
 - \$25.40 in 2014-15
- After 1 July 2015, the carbon price will be equal to the benchmark average auction charge

www.environment.gov.au




Australian Government
Department of Sustainability, Environment, Water, Population and Communities

Proposed Destruction Program

- Incentives will be provided for destruction of waste SGGs and ozone depleting substances, recovered at end of life
- Payment will be made after verification of destruction of the gas
- Program will be developed in consultation with industry
- Program will start 1 July 2013

www.environment.gov.au




Australian Government
Department of Sustainability, Environment, Water, Population and Communities

Exemptions and Export Refunds

- Legislation allows exemptions from the equivalent carbon price and from the definition of SGG equipment
- Refund for SGGs in bulk or in equipment
- Exemptions can be grant where the carbon price is impracticable or for medical, veterinary, health and safety purposes

www.environment.gov.au




Australian Government
Department of Sustainability, Environment, Water, Population and Communities

Proposed International Controls on HFCs

- Two proposal to control HFCs under the Montreal Protocol
- Phase down HCFC imports and ma
- Similar approach to HCFCs
- Similar proposals have been made for the last 3 years

www.environment.gov.au




Australian Government
Department of Sustainability, Environment, Water, Population and Communities

How does industry adjust

- Improve refrigerant containment
- Transition to available low and reduced GWP alternatives
- Wait for emerging technology

www.environment.gov.au

Australian Government
Department of Sustainability, Environment, Water, Population and Communities




Alternative Refrigerants

- Natural refrigerants (CO₂, ammonia & hydrocarbons) - no carbon levy
- Reduced GWP refrigerants (HFC-32, GWP of 600)
- Minimise GWP risk (charge size and HFC-134a, GWP of 1300)
- Drop in replacements: HFC-407A (GWPs of 2,107) and HFC-407F (GWPs of 1,824), approx. half of HFC-404A
- Beware of magic potions, if it sounds too good to be true, it probably is!

www.environment.gov.au


Australian Government
Department of Sustainability, Environment, Water, Population and Communities



Emerging refrigerant technology

- DuPont and Honeywell have developed three classes of new candidate low or reduced GWP refrigerants:
 - HFO-1234yf (GWP of around 4)
 - Azeotropes, which are blends of refrigerant gases for which the composition of the liquid and the vapor phase are the same, such as Opteon XP10 (GWP of about 600)
 - Developmental refrigerants are made up of mixtures of HFO-1234yf and other stable refrigerants, including HFCs
 - Replicate characteristics of common refrigerants (HFC-410A and HCFC-22 with GWPs < around 400)

www.environment.gov.au




Australian Government
Department of Sustainability, Environment, Water, Population and Communities

HCFC Phaseout (if time)

Australia's HCFC phase out

- Australia has agreed a faster HCFC phase out
- Government and industry agreed to an accelerated phase out in the early 1990s
- Imports of HCFCs essentially cease in 2016
- Stocks of HCFCs in Australia at that time can continue to be used
- HCFCs in Australia can be recycled and re-used
- Australia will use 60% less HCFCs than permitted under the Montreal Protocol

www.environment.gov.au



Australian Government
Department of Sustainability, Environment, Water, Population and Communities

HCFC Phaseout cont'd


Australian HCFC Phaseout Schedule (cont'd)

2010-2011 - 70 ODP tonnes
2012-2013 - 40 ODP tonnes
2014-2015 - 10 ODP tonnes
2016-2029 - 2.5 ODP tonnes

1 ODP tonne of R22 = 18 metric tonnes of R22

www.environment.gov.au

Australian Government
Department of Sustainability, Environment, Water, Population and Communities



HCFC Phaseout cont'd

Equipment Containing HCFC Refrigerant

- Ban on import and manufacture of air conditioning equipment containing HCFCs from 1 July 2010
- Exceptions are:
 - chiller charged with HCFC123
 - replacement part for existing HCFC equipment – this does not include a complete or substantially complete indoor or outdoor unit of a split system air conditioner
 - comprises high static ducted split system components
- Refrigeration uses exempted until 2015

www.environment.gov.au