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# **Putting a Price on HFC Pollution: Australia's CO<sub>2</sub>-e HFC Levy**

**Brent Hoare - Executive Director  
Green Cooling Association**

**Montreal Protocol 32nd Open Ended Working Group  
UNCC Bangkok, Thailand - 27 July 2012**

# The SGG Levy



Why?



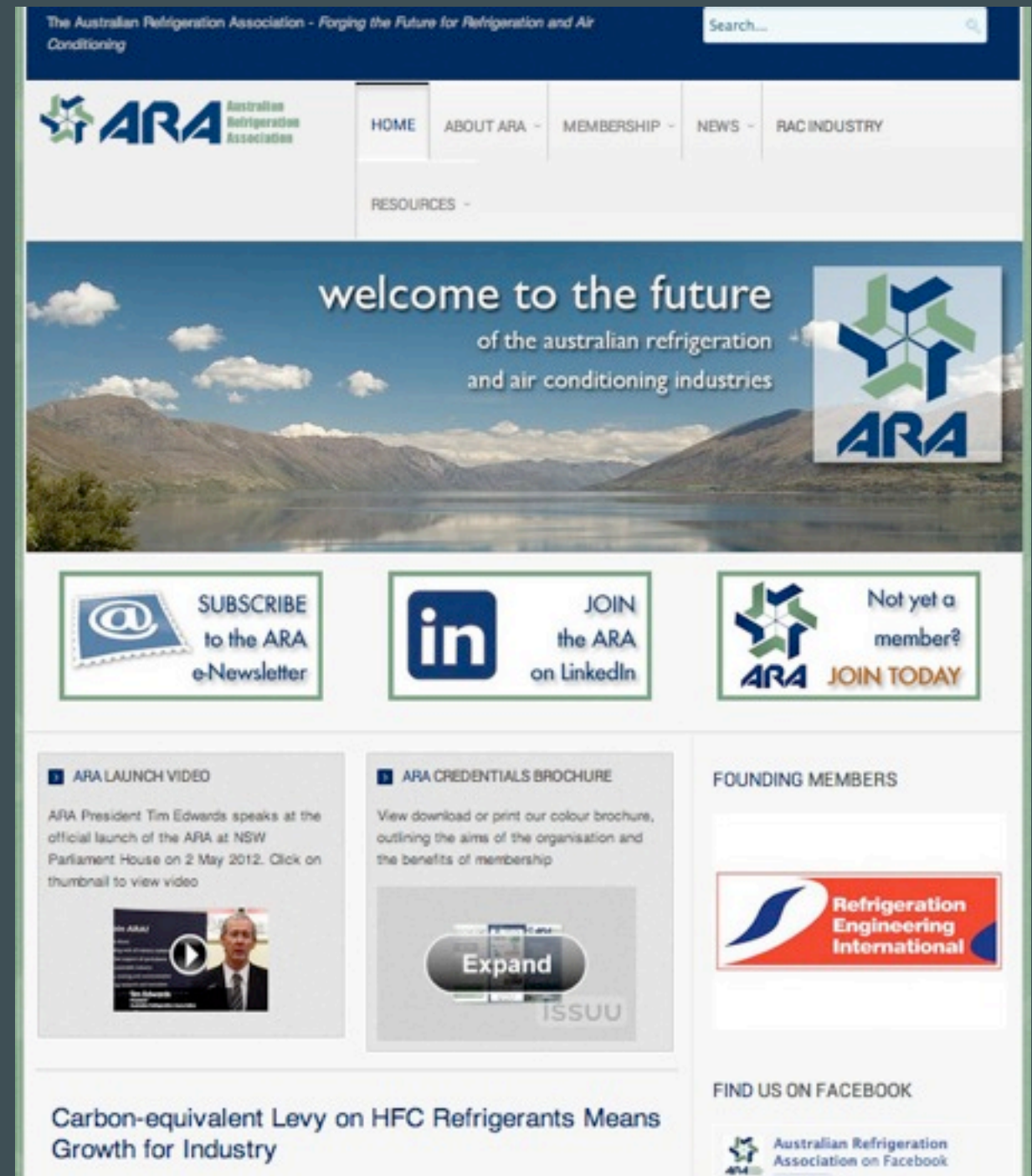
What?



How?



Industry implications?



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# Clean Energy Future

## Why?

- \* To show leadership to the world and thereby encourage reduced global emissions,
- \* To recognise that Australia has high per capita emissions,
- \* To adapt to a low carbon technology / future
  - ➔ Employment
  - ➔ Competitive Advantage



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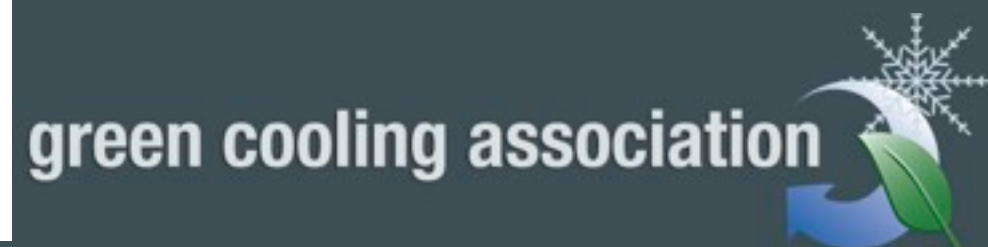
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“Placing a price tag on synthetic greenhouse gases will encourage both industry and consumers to consider products using alternative gases, improve containment and increase the incentive for recycling.”





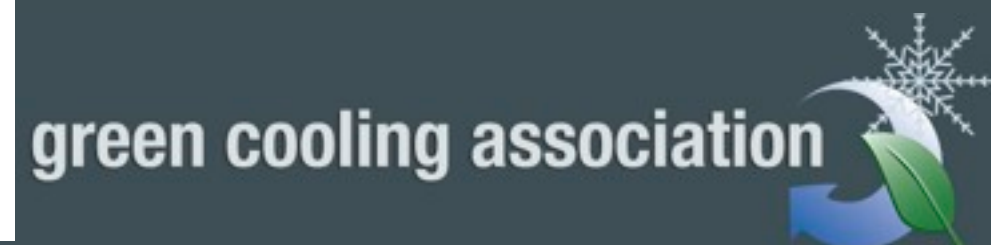
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"Incentive payments will be provided for destruction of waste synthetic greenhouse gases and ozone depleting substances recovered at end of life..... These payments will be made after verification of destruction of the gas"



# Clean Energy Future

## - Synthetic Greenhouse Gases

### **Australian Government Intent:**

The equivalent carbon price encourages:

- increased recycling of synthetic greenhouse gases
- improved servicing of existing equipment to reduce leakage
- a switch to equipment using natural refrigerants
- innovation by manufacturers

- \* It is also clear that the increased price of HFCs will promote the use of available retrofit refrigerant solutions, in particular the use of hydrocarbon refrigerants in vehicle air-conditioning, transport refrigeration, small commercial refrigeration and split system air-conditioning, among others.
- \* Total RAC industry GHG emissions are in the order of 11% of national emissions, around 8% from indirect emissions and 3% direct emissions - higher if GWP 20 year values are recognised.
- \* We believe it will be possible to reduce this by 50% by 2030

# The Synthetic Greenhouse Gases Levy – - What / How

- \* The Carbon Tax as applied to refrigerants, +/- \$200 M PA
- \* At point of importation (bulk and contained) - 1 July 2012
- \* Via the OPSGG Management Act levy on HFCs
- \* Does not apply to HCFCs, but HCFC phase out is nearing completion - 2015
- \* \$23.00 per tonne of CO<sub>2</sub>-e by SGG species
- \* Will increase the wholesale cost of fluorocarbon refrigerants by *3 to 5 times* depending on species GWP
- \* Impact at contractor level uncertain due to compounding margins and variability of discounting from “list price”

# Clean Energy Future

## - Synthetic Greenhouse Gases

### Value of the levy - examples

GWP  
SGG levy  
Govt cost recovery levy  
**Total**

HFC 134a	HFC 143a
1300	3800
\$29.90/kg	\$87.40/kg
\$0.165/kg	\$0.165/kg
<b>\$30.065/kg</b>	<b>\$87.565/kg</b>

Global Warming Potentials of Synthetic Greenhouse Gases covered by the Kyoto Protocol

Gas	Chemical Formula	Global Warming Potential
<b>Hydrofluorocarbons (HFCs)</b>		
HFC-23	$\text{CHF}_3$	11,700
HFC-32	$\text{CH}_2\text{F}_2$	650
HFC-41	$\text{CH}_3\text{F}$	150
HFC-43-10mee	$\text{C}_3\text{H}_2\text{F}_{10}$	1,300
HFC-125	$\text{C}_2\text{HF}_5$	2,800
HFC-134	$\text{C}_2\text{H}_2\text{F}_4$ ( $\text{CHF}_2\text{CHF}_2$ )	1,000
HFC-134a	$\text{C}_2\text{H}_2\text{F}_4$ ( $\text{CHF}_2\text{CF}_3$ )	1,300
HFC-143	$\text{C}_2\text{H}_3\text{F}_3$ ( $\text{CHF}_2\text{CH}_2\text{F}$ )	300
HFC-143a	$\text{C}_2\text{H}_3\text{F}_3$ ( $\text{CF}_3\text{CH}_3$ )	3,800
HFC-152a	$\text{C}_2\text{H}_4\text{F}_2$ ( $\text{CH}_3\text{CHF}_2$ )	140
HFC-227ea	$\text{C}_3\text{HF}_7$	2,900
HFC-236fa	$\text{C}_3\text{H}_2\text{F}_6$	6300
HFC-245ca	$\text{C}_3\text{H}_3\text{F}_5$	560

For the moment, 2nd Assessment Report values are being used, but Government has indicated an intent to bring these into line with modern 4th AR values in parallel with adjustments to UNFCCC accounting methodologies.

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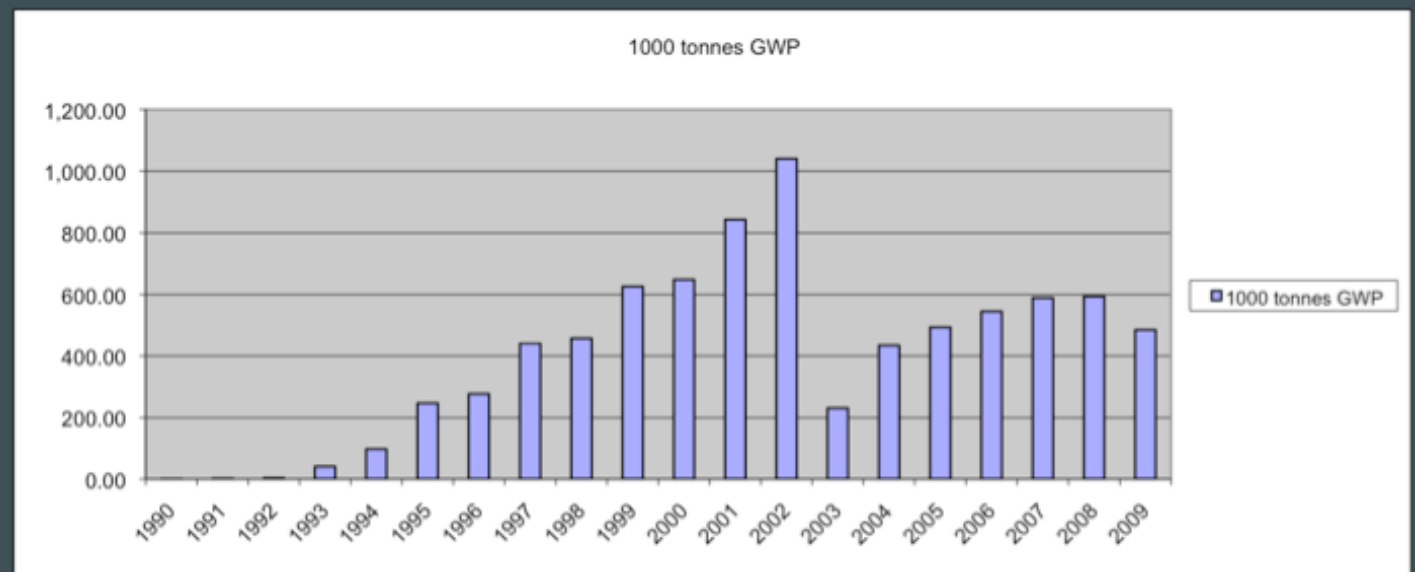




# Implications for the HVAC&R industry?

Danish and Norwegian experience:

- \* Refrigerant costs go up – emissions go down...  
– well, that's the theory! (and experience...)
- \* Levy based on global warming potential (GWP)
- \* R134a - GWP 1300 - \$29.90/kg
- \* R404a - GWP 3260 - \$74.98 /kg
- \* R410A - GWP 1725 - \$39.68/kg



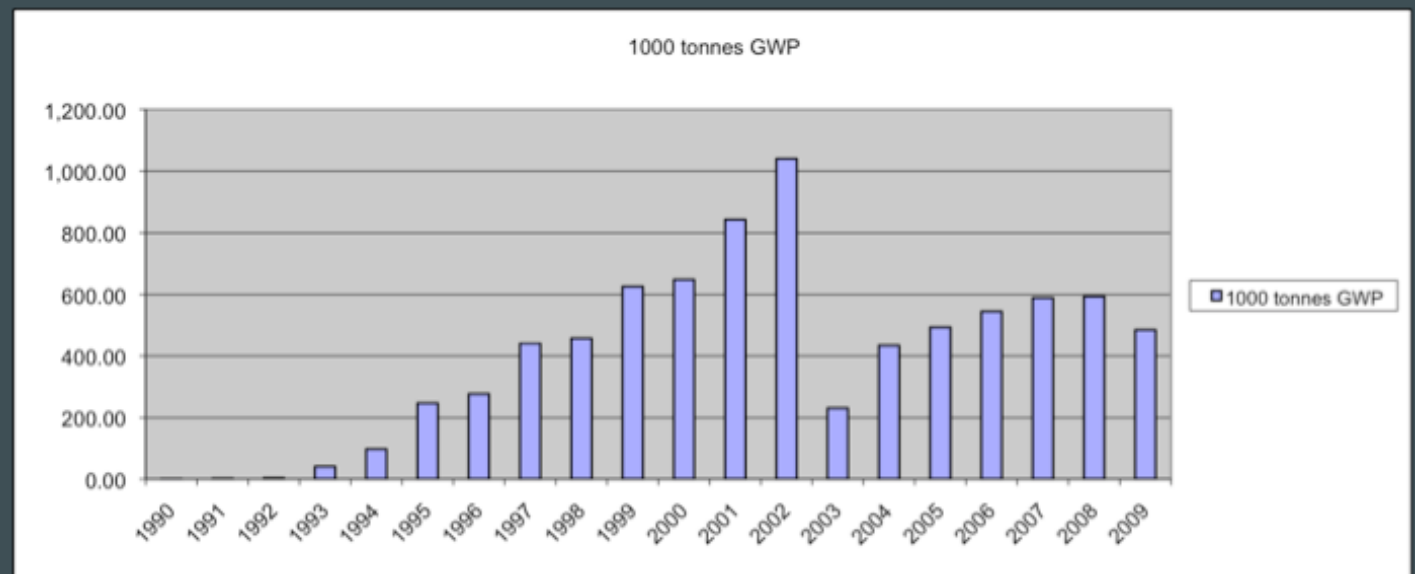
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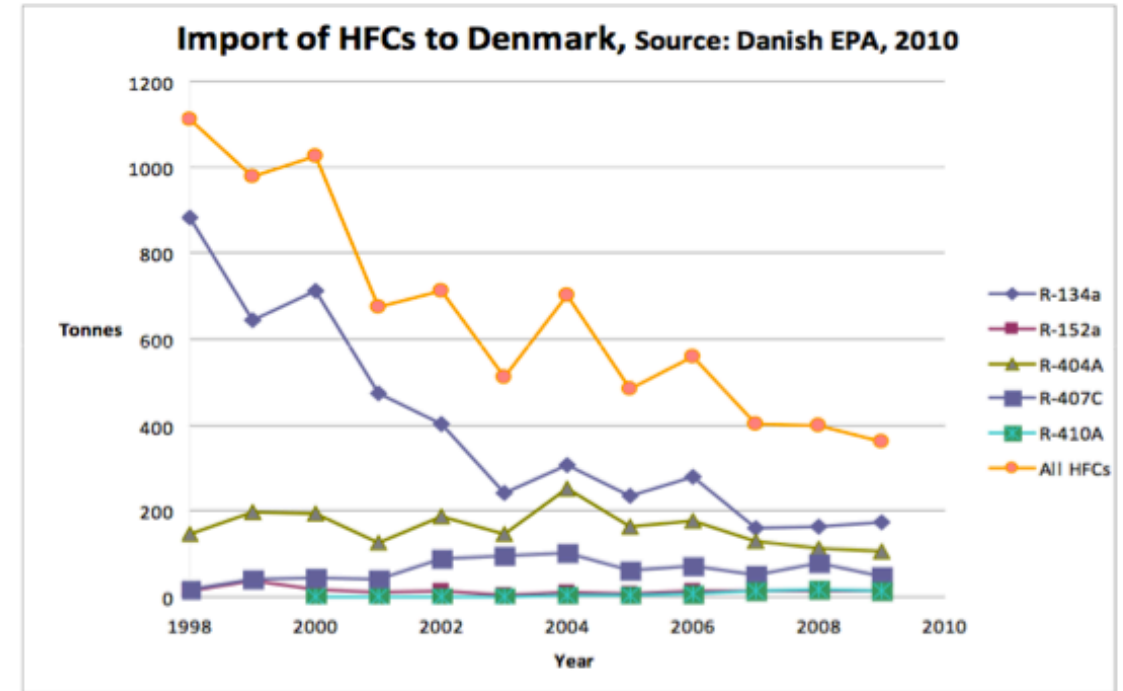
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Danish Ministry of the Environment  
Environmental Protection Agency

SIDE 3

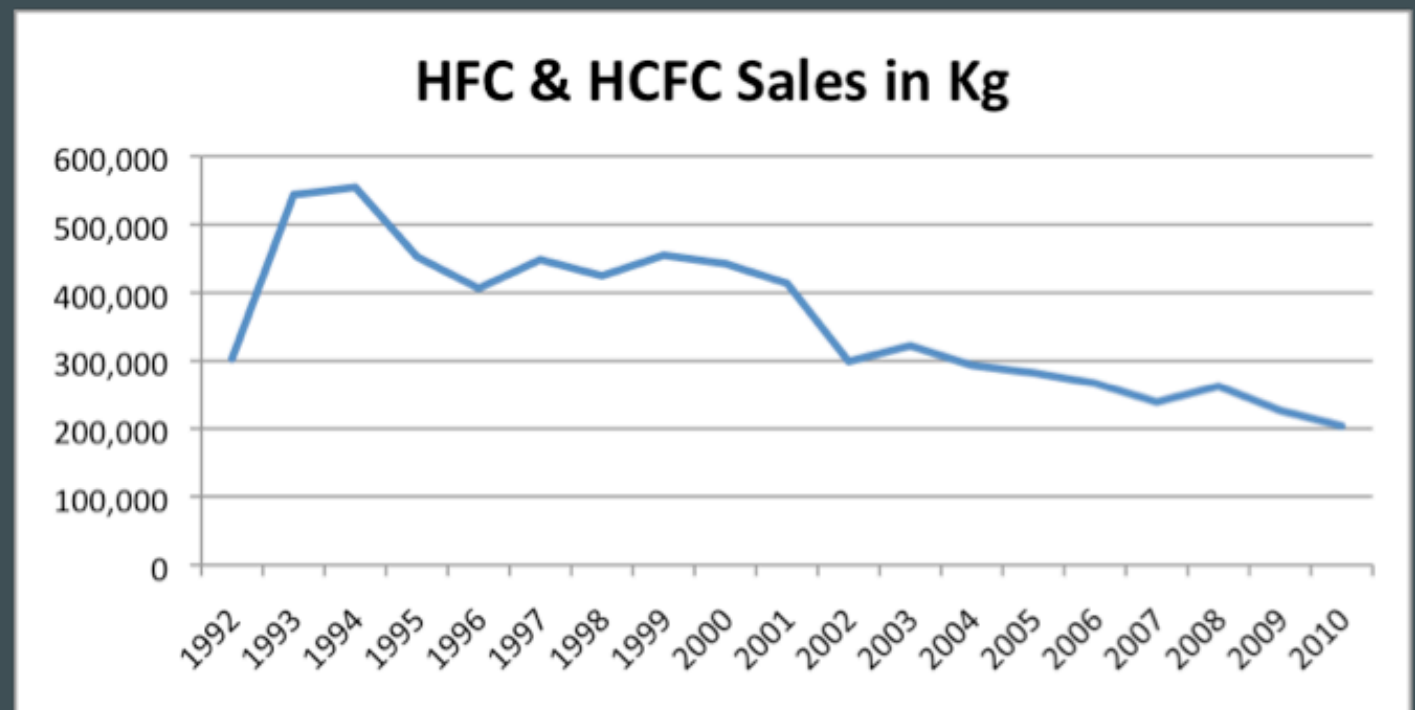
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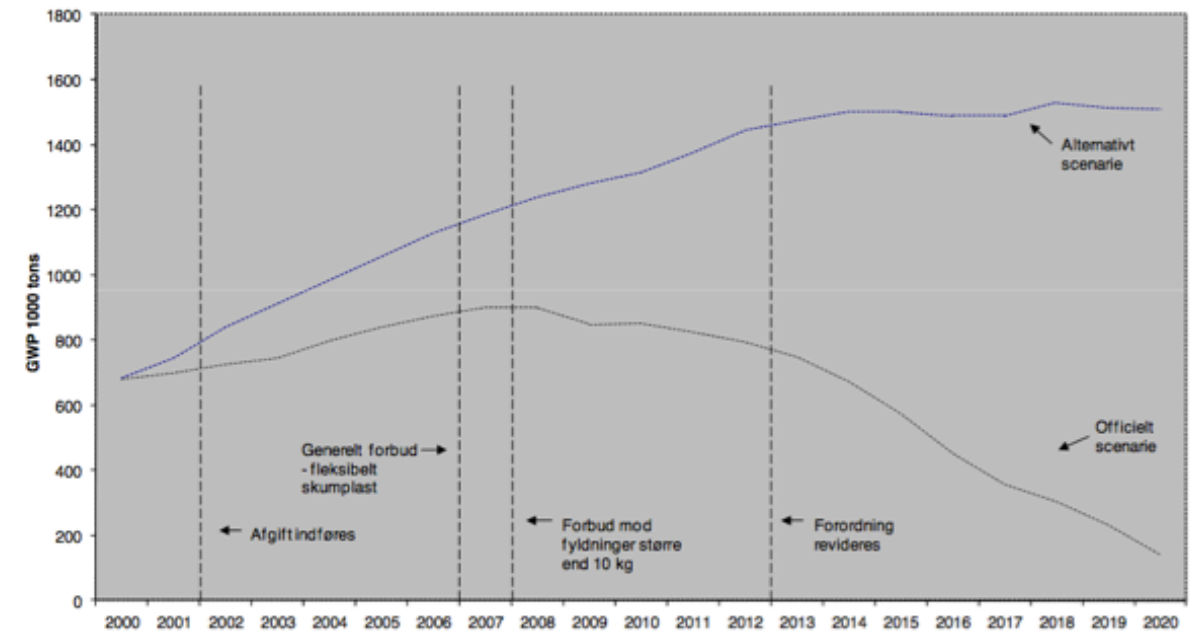




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SIDE 4

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# The SGG Levy – Implications

- \* Transition to a Low Carbon RAC Industry:
- \* To reduce the cost impact of the SGG levy
- \* Reduced SGG leakage – better leakage monitoring and management
- \* Increased recycling (to reduce costs and reduce release to atmosphere)
- \* To consider low GWP refrigerants – Natural and Synthetic
- \* Focus on energy efficiency
- \* Better end of life management – degas prior to disposal

# The SGG Levy – The Process

- \* Transition is a major undertaking - requires:
- \* Industry coordination including end users;
- \* with government;
- \* many elements to consider:

- ☒ Awareness

- ☒ Standards

- ☒ Licensing

- ☒ Legislation

- ☒ Training

- ☒ R&D



Funding?

# The SGG Levy – The Opportunity

**The levy provides a strong incentive to consider Natural Refrigerants:**

- \* Avoid the up front and through life cost of SGGs
- \* Increased energy efficiency
- \* Strong commercial rationale in most RAC sectors
- \* Significant incentives available under CEF for manufacturers and training / awareness
- \* Requires standards, licensing, training
- \* End user involvement for safety management



# The SGG Levy – Risks

**There are a number of implementation risks:**

- \* Client shock
- \* Insurance claims, legal conflict
- \* Cash Flow pressure
- \* Theft and Profiteering
- \* Capacity constraints – cylinders, HCFC
- \* Safety
- \* Misinformation and disinformation
- \* “Evil price gouging” - Climate Change Minister Greg Combet, MP

# Pricing Impacts

Dear Customer,

Refrigerant Price Increases – Effective 13th June and 9th July, 2012

The Refrigerants market is moving through a period of unprecedented change. Heatcraft has recently been advised of significant increases in our costs of Refrigerants, which prompts the need to increase our Refrigerant list prices.

Effective 13th June 2012 Heatcraft list prices on all Refrigerants will increase by 20%, with the exception of R134a and R407C, which will increase by 15%.

In addition, the list prices on all Refrigerants will be further increased, effective 9th July, 2012 to the levels detailed in the table below.

Heatcraft List Price Increase Schedule <sup>1</sup>		
Refrigerant Type	List Price - 13 June, 2012, \$/kg	List Price - 9 July, 2012, \$/kg <sup>2</sup>
R23	748.80	1690.15
R134a	65.72	181.82
R404A	92.88	377.71
R507	111.38	384.69
R407C	97.87	213.10
R410A	90.58	227.91
R424A	153.40	308.71
R434A	153.40	370.08
R437A (Isceon MO49+)	124.22	251.52
R438A (Isceon MO99)	153.40	296.40
R22	108.36	170.83
R123	113.90	228.03
R408A	154.74	296.40
R409A	149.69	186.17

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# The SGG Levy – Immediate Next Steps

- \* Industry coordination (for the first time in ten years?)
- \* Government & Industry collaboration to preempt misinformation
- \* Advice to all stakeholders
- \* Training - technicians & designers
- \* Planning – a road map for the industry and funding

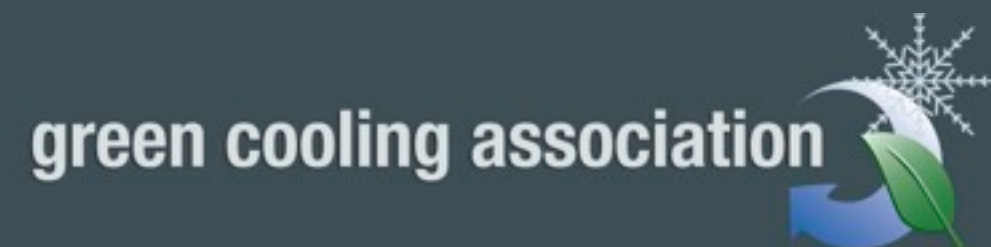
# Australian Refrigeration Assn

- \* To advance the science and practice of refrigeration; in the national interest, in all of its applications, in the development of its methods and technology, and in its uses in the community by:
  - \* Serving all participants
  - \* Encouraging Research and Innovation
  - \* Promoting safe and sustainable solutions
  - \* Publishing
  - \* Promoting education and communication
  - \* Collaborating with all stakeholders
- \* To develop a strategy for Transition in collaboration with all stakeholders.



**President:** Tim Edwards  
Strategic Initiatives

**Vice-President:** Ben Adamson  
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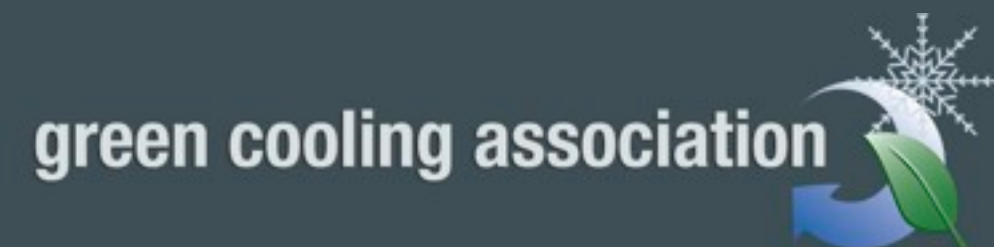
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# Thank you for your attention

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[brent@greencooling.org](mailto:brent@greencooling.org)

