



**INTERNATIONAL INSTITUTE OF REFRIGERATION
INSTITUT INTERNATIONAL DU FROID**

**Statement by
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Mr. Chairman, Distinguished Delegates, Ladies and Gentlemen,

It is a great honour to address you today on behalf of the **International Institute of Refrigeration, the IIR**.

The IIR is an intergovernmental organization with 61 member countries, representing about 80% of total global population. It wishes to express its opinion in the name of refrigeration practitioners and scientific communities worldwide.

Refrigeration, air-conditioning and heat-pump technology plays a vital role in a wide range of key applications such as food preservation from harvest to the consumer; cooling and comfort in industrial, commercial and residential sectors; and space and water heating thanks to heat pumps.

Refrigeration-sector stakeholders are actively involved in greenhouse-gas emission-reduction campaigns. They have already phased out CFC refrigerants and are now taking measures to phase out HCFCs in compliance with Montreal-Protocol objectives.

Taken together, CFCs and HCFCs represent 10% of total radiative forcing (in 1992) according to estimates provided by the Intergovernmental Panel on Climate Change (IPCC); however, CFCs and HCFCs are not covered by the Kyoto Protocol.

Today, HFCs are the refrigerants the most widely used by refrigeration practitioners in order to phase out CFCs and HCFCs. However, because of their global-warming impact, HFCs are among the 6 greenhouse gases constituting the Kyoto-Protocol-regulated basket.

The refrigeration-sector's impact on global warming has two sources:

- about 20% from refrigerant emissions in refrigerating equipment, a percentage which varies greatly according to the application; for example, it can vary from about 3% for domestic refrigerators to about 30% in mobile air conditioning.

- about 80% derived from carbon dioxide emissions associated with energy consumption of refrigerating equipment. It is noteworthy that the refrigeration, air-conditioning and heat-pump sector consumes about 15% of all electricity produced worldwide.

Thus, the refrigeration sector will have to concentrate on:

- reduction of refrigerant emissions via improved equipment containment and systematic training of all stakeholders;
- further optimization of equipment energy efficiency.

The refrigeration and air-conditioning sectors are thus confronted with the choice of refrigerants. The two main approaches used to address it are: continuing use of HFCs, which are global-warming gases, or replacement refrigerants with no direct impact on global warming such as ammonia or hydrocarbons for which an important choice criterion is the guarantee of the lowest safety and/or health risks associated with their use.

Rather than arbitrarily deciding in favour of HFC- or non-HFC refrigerants, a per-application approach is no doubt preferable. Thus, the optimal approach is, for each application, to opt systematically for the most environmentally friendly solution, taking into account the overall global-warming impact.

Overall equipment emissions, in CO₂ equivalents, throughout the life cycle of the equipment, must therefore be a benchmark consideration.

In conclusion, the IIR's recommendations to reduce global warming are:

- to opt for equipment with the least life-cycle global warming impact,
- to establish energy-efficiency standards for refrigerating equipment,
- to regulate tightness of refrigerating circuits and to ensure compliance with regulations,
- to train refrigeration technicians and users in new technology and to promote awareness of the need to contain, recover, recycle or destroy refrigerants,
- to step up research and development on replacement refrigerants and technology,
- to set up emission-monitoring mechanisms,
- to take advantage of the Kyoto-Protocol context to boost technology transfer and to train as many technicians as possible in developing countries, providing an opportunity to set up reliable cold chains.

In all these fields, the IIR reaffirms its determination to play a valuable leadership and advisory role.