

Non-CO₂ Greenhouse Gases: High-GWP Gases

Source/Sectors: Substitution of ODS/Motor Vehicle Air Conditioners

Technology: Refrigerant recovery/recycling (C.1.1.3.1)

Description of the Technology:

Practicing refrigerant recovery for reuse or destruction can significantly reduce HFCs emissions. Recovery options apply a refrigerant recovery device that transfers refrigerant into a storage container prior to servicing or disposing equipment. After the recovery process, the refrigerant contained in the storage container either is recharged back into the source equipment, cleaned through the use of recycling devices, purified for resale at a reclamation facilities, or disposed safely in an environmentally-safe manner (IEA, 2003; USEPA, 2001).

These practices are already in baseline in many refrigeration systems because of the cost efficiency yielded by the reuse and re-sold processes; however, small equipments such as motor vehicle air conditioning systems (MVACs) has less recoverable charges, thus being less cost effective. Yet, refrigerant recovery/recycling is believed to be the most common option to reduce HFC emissions from MVAC systems (IEA, 2003). Moreover, these technological options are being evaluated by the industry and new information is continuously being developed (CEC, 2005)

Effectiveness: It can reduce total emissions by 95% (USEPA, 2001).

Implementability: Technically applicable in all regions

Reliability: No risk and uncertainty associated with this option is recognized (IEA, 2003).

Maturity: Refrigerant recovery equipment is widely available and used extensively in developed countries. In some countries such as US, EU, and Canada, refrigerant recovery is required by law (USEPA, 2006b).

Environmental Benefits: HFCs emission reduction

Cost Effectiveness:

Technology	Lifetime (yrs)	MP (%)	RE (%)	TA (%)	Capital cost	Annual cost	Benefits
Refrigerant recovery/recycling ¹	10	10	95	10	\$26.19	\$3.40	\$1.69

Note: MP: market penetration; RE: reduction efficiency; TA: technical applicability; costs are in year 2000 US\$/MT_{CO₂-Eq.}
1: CEC (2005) & IEA (2003)

Industry Acceptance Level: This option is widely accepted in developed countries (IEA, 2003).

Limitations: Reduction efficiency is uncertain because it may vary depending on technician technique and equipment type (IEA, 2003).

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