

Frequently Asked Questions about Mobile Air Conditioning Refrigerants and the Waxman-Markey Climate Bill



U.S. EPA Mobile Air Conditioning
Climate Protection Partnership
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Will HFCs and HFOs be phased out under the Waxman-Markey bill?

Answer: No

- The Waxman-Markey (W-M) bill caps and phases down (not out) greenhouse gases.
- The W-M bill includes a separate regulation of certain fluorinated gases –HFCs and the sub-set HFOs—that are stronger greenhouse gases than carbon dioxide.
- The separate cap would reduce the *CO₂-equivalent* of the consumption of this *group* of chemicals to 15% of the baseline by 2033. (Baseline = the annual average *CO₂-equivalent* consumption of HFCs and HCFCs in 2004, 2005, and 2006.)
- The proposal is based on CO₂-equivalent.



What is CO₂-equivalent?

Answer:

CO₂-equivalent =
[amount of chemical] x [chemical's GWP]

- For example: HFC-134a has a global warming potential of 1,430. This means that 1 ton is equivalent to 1,430 tons of CO₂. The CO₂-equivalent of 1 ton of HFO-1234yf is only 4.
- Replacing the current MAC 134a refrigerant charge with the same quantity of HFO-1234yf or R744 would reduce the CO₂-equivalent more than 99%. (The W-M reduction target is 85%).



Will markets be able to select what chemicals they use?

Answer: Yes.

The HFCs, including HFOs, are controlled as part of a 'basket' on a GWP-weighted basis, allowing the market to determine what compounds are used where.



Will W-M impose high costs on 1234yf?

Answer: No.

- Starting January 1, 2012, HFC producers and importers must have consumption allowances or offset credits.
- The carbon costs for HFO-1234yf will be pennies per kilogram.
- W-M will lead to higher HFC-134a costs (EPA estimates additional costs to range from \$3 - \$25 per kilogram, increasing over time).

Allowance Price & Refrigerants – the basic math

\$/metric ton of CO ₂	\$2	\$5	\$20
HFO-1234yf* (1 kg)	\$0.008 (~1 cent)	\$0.02	\$0.08
HFC-134a** (1 kg)	\$2.86	\$7.15	\$28.60

*Assumes HFO-1234yf's 100-year global warming potential (GWP-100) is 4.

**Assumes HFC-134a's GWP-100 is 1,430.

 Could W-M control non-HFC refrigerants, like CO₂ & Hydrocarbons?

Answer: Yes

- W-M gives the EPA administrator authority to control any greenhouse gas with GWP of 1 or greater. Thus, CO₂ (GWP =1) & hydrocarbons (GWP ~5) could potentially be controlled.



Did the HFC section of W-M
Have Industry Support?

Answer: Yes

In a letter to Congressmen Waxman and Markey dated May 19, 2009 the Alliance for Responsible Atmospheric Policy (Alliance), an industry coalition representing producers and users of HFCs, stated its support for the HFC section of the W-M bill. The Alliance was aware of the inclusion of HFOs in the HFC section of W-M from early drafts.



Is There Business Certainty in Control?

Answer: Yes

- Federal control of HFCs and HFOs could discourage state or local regulation, simplifying business
- Price signals provide clarity for business makers. The small carbon cost for low-GWP refrigerants like HFO-1234yf will stand out in contrast to high carbon costs for HFC-134a.
- Inclusion of HFO-1234yf under the HFC section of W-M provides greater certainty that it can be available through the entire period of time covered by W-M (through 2050)



Will CAA 608 & 609 Apply

Answer: Yes

- Clean Air Act provisions apply to all refrigerants
- EPA can take actions to further limit emissions during service and end-of-life
- Industry has proposed improved recovery & recycle, sale of refrigerants only for professional service, and other measures to reduce emissions to lowest practical levels

More Information

- Full text of the Waxman-Markey Climate Bill:
www.govtrack.us/congress/bill.xpd?bill=h111-2454
- EPA's Analysis of the Bill:
www.epa.gov/climatechange/economics/economicanalyses.html
- Mobile Air Conditioning Climate Protection Partnership Contact:
Kristen Taddonio, 1-202-343-9234, Taddonio.Kristen@epa.gov