



# **Stratospheric Ozone Protection under the Clean Air Act Amendments of 1990**

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## London Amendments to Montreal Protocol

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- June 1990
- 93 countries represented
- Phase-out CFCs and halons
- Phase-out carbon tetrachloride, methyl chloroform
- Restrict HCFCs
- Establish Multilateral Fund



# Montreal Protocol - London Meeting, June 1990

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## CFC phaseout

- 1995 50% reduction of CFCs
- 1997 85% reduction of CFCs
- 2000 Phase-out of all fully halogenated CFCs and halons

Pressure from US and others for 1997 phaseout



# **The Montreal Protocol and Halons**

*Amended*  
**As Revised June 29, 1990, London, England**

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- **Freeze halon production at 1986 levels by 1992**
- **50% reduction in production by 1995**
- **Phase-out of halon production by 2000**
- **Essential uses to be determined by Parties in 1992**



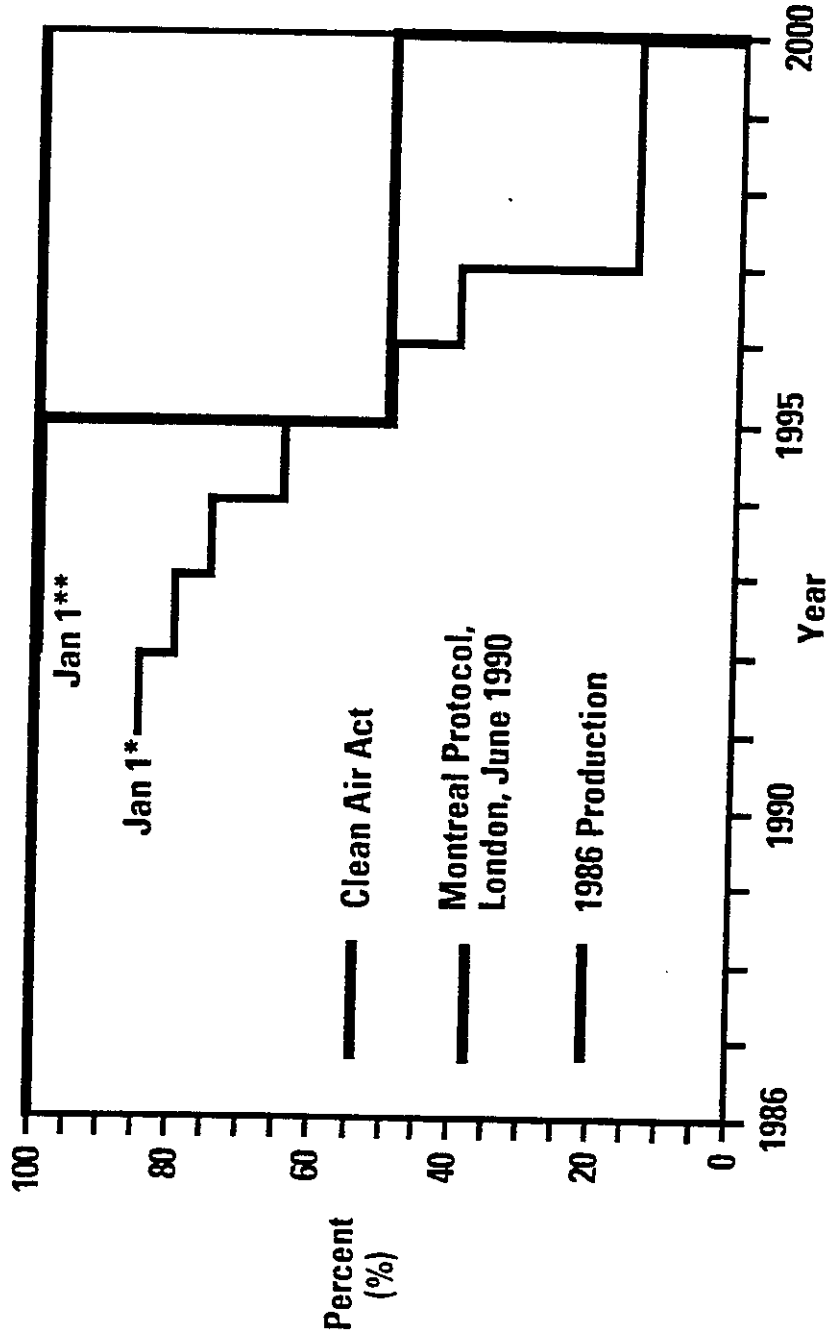
# Title VI of the Clean Air Act

The Montreal Protocol  
And the Halon Production Phase-Out

<u>Date</u>	<u>Montreal Protocol: % of 1986 Levels</u>	<u>Title VI: % of 1986 Levels</u>
1991	100	35
1992	100	35
1993	100	35
1994	100	35
1995	100	35
1996	50	65
1997	50	50
1998	50	40
1999	50	15
2000	0	15
		0



# U.S. Halon Phaseout Under the Clean Air Act -Faster Than the Montreal Protocol-



\* Halon reduction goals under the CAA commence on January 1 of each target year specified above starting 1 January 1991.  
 \* Halon reduction goals under the MP commence on January 1 of each target year specified above starting 1 January 1992.



# Halons

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		<u>ODD</u>
Halon-1211	$\text{CF}_2\text{ClBr}$	3.0
Halon-1301	$\text{CF}_3\text{Br}$	10.0
Halon-2402	$\text{C}_2\text{F}_4\text{Br}_2$	6.0



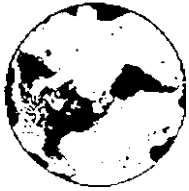
## Halon Tax Formula (per pound)

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**Annual CFC tax x Halon ODP x Halon %**

<b>Halon % =</b>	<b><u>1991</u></b>	<b><u>1992</u></b>	<b><u>1993</u></b>
<b>Halon-1211</b>	<b>6.0</b>	<b>5.0</b>	<b>3.3</b>
<b>Halon-1301</b>	<b>1.8</b>	<b>1.5</b>	<b>1.0</b>
<b>Halon-2402</b>	<b>3.0</b>	<b>2.5</b>	<b>1.6</b>





# Halon Tax

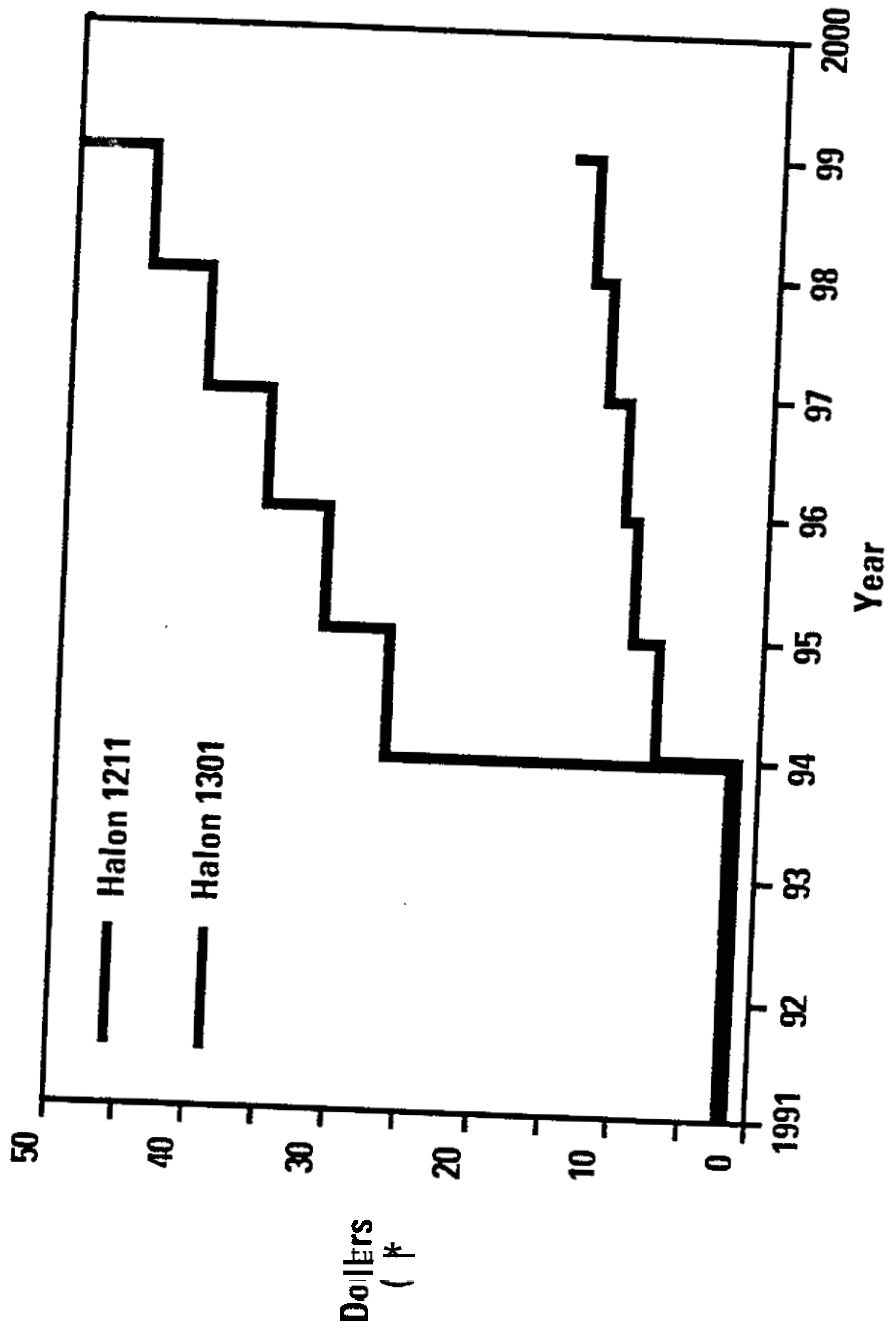
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- Not as aggressive as tax on CFCs
- Approximately 25¢ per pound

	<u>1991</u>	<u>1992</u>	<u>1993</u>
Halon-1211	\$ .2466	\$ .2505	\$ .2623
Halon-1301	\$ .2466	\$ .2505	\$ .2650
Halon-2402	\$ .2466	\$ .2505	\$ .2544



# Halon Excise Tax



# 1990 Clean Air Act Amendments



## Major Sections

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- Phaseout of ozone depleting chemicals
- National Recycling Program (emission reduction program)
- Recycling in mobile air conditioning
- Ban of nonessential consumer products
  - Labeling
  - Safe alternatives
- Federal procurement



# Phaseout of Ozone Depleting Chemicals

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**Regulatory Date:** 9 months after enactment

**Effective Date:** January 1, 1991

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## **Approach:**

- Publish list of Class I and Class II substances with ODPs, GWPs, etc.
- Build on current regulations for Class I phaseout
- Revise trading rules and establish petition process

## **Issues:**

- January 1, 1991 effective date for first production difficult to get out regulations
- ODPs and GWPs for substances that have not yet been commercially produced
- Define appropriate offset for trades



# Mobil Air Conditioning Recycling

**Regulatory Date:**

1 year implementation

**Effective Date:**

January 1, 1992

**Approach:**

- Investigate certification programs for equipment and technicians
- Meet with trade groups to discuss implementation issues
- Develop compliance program

**Issues:**

- How can existing equipment be "grandfathered"?
- Role of state/local programs
- Compliance monitoring by Headquarters/state program certification
- Outreach
- Periodic recertification of equipment?



# **National Recycling Program (Emission Reduction Program)**

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**Regulatory Date:**

**January 1, 1992**

**Effective Date:**

**July 1, 1992**

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**Approach:**

- Perform analysis to identify possible options within each end-use sector for LAEL standards
- Review/develop purity standards for recycled refrigerant by use
- Meet with environment/trade/industry/state groups to examine control options

**Issues:**

- LAEL based on equipment specs or substitutes -- specific phaseout plans
- Industrial process refrigeration
- Disposal



# Labeling

**Regulatory Date:**

**18 months after enactment**

**Effective Date:**

**30 months after enactment**

**Approach :**

- Evaluate relative risks of substitutes to define where safe substitutes exist
- Develop initial list of products to be labeled and proposed criteria
- Meet with environment/trade/state groups
- Develop label characteristics

**Issues:**

- Relative safety and varying trade-offs of possible substitutes
- Positive labeling and gradations of concern
- Conflict with other labeling requirements





# Statutory Requirements

## Section 612: Safe Alternatives Policy

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- Requires EPA to issue rules by November 15, 1992 which make it unlawful to replace any Class I (CFCs, halon, methyl chloroform, and carbon tetrachloride) or Class II (the HCFCs) with a substitute that may present adverse effects to human health and the environment where EPA has identified an alternative (available or potentially available) which reduces the overall risk to human health and the environment.



# **Statutory Requirements**

## **Sec 10612: Safe Alternatives Policy**

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- **Requires EPA to publish lists of prohibited substitutes by use sector and, for those prohibited substitutes, a list of corresponding safe alternatives.**



# Statutory Requirements

## Section 612: Safe Alternatives Policy

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- Establishes the right to petition EPA to add or delete from the lists of prohibited substitutes and the corresponding safe alternatives
- Requires any person who produces a chemical substitute for a Class I substance to notify EPA 90 days before any new or existing chemical is introduced into commerce as a significant new use of that chemical and to provide EPA with unpublished health and safety studies on the substitute.



## Other Provisions

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- Identification of Federal research programs on substitutes
- Examination of Federal Procurement practices to promote use of safe substitutes
- Promotion of safe substitutes through technology transfer
- Maintenance of a public clearinghouse of safe substitutes



## Next Steps

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- **Several guiding principles will help direct EPA's efforts to implement the Safe Alternative Policy (Section 612) of the Clean Air Act Amendments of 1990:**
  - **Evaluate the risk of using the substitute chemicals in the context of the risks they are replacing**
  - **Minimize uncertainty to the regulated community**
  - **Provide information to help guide market decisions**
  - **Encourage pollution prevention (e.g., non-chemical alternatives)**

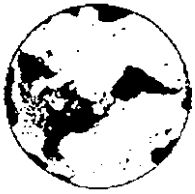


## Next Steps

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### Don'ts

- Don't want to certify any substitute as "safe"
- Don't want to intercede except where an unacceptable substitute has been proposed
- Don't want to restrict substitutes that are acceptable but may be marginally worse on some criteria



# **Development of Significant New Alternatives Program**

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- **Several key issues that EPA will need to consider include:**
  - **extent to which economic factors can be considered**
  - **definition of a "substitute"**
  - **determination of what level constitutes a "significant new alternative"**
  - **who should be submitting notices to the Agency**
  - **other?**
- **Proposed rule is expected in the late Fall 1991; final rule by November 15, 1992**



# **General Approach to Safe Alternatives Program**

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- **There are three key activities:**
  - **Development of environmental risk characterizations by use sector**
  - **Establishment of the Safe Alternatives Program -- referred to as the Significant New Alternatives Program (SNAP)**
  - **Initiation of a process to develop occupational exposure limits for some substitute chemicals**





# Overall Risk Characterization Approach

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- Key Risk Elements
  - Ozone depletion potential -- ODP -- (modeled)
  - Global warming impact potential -- GWP -- (modeled)
  - Toxicity, both human health and ecological (measured and modeled)
  - Occupational, consumer, and ambient environmental exposure (modeled and measured)
  - Energy savings impact (modeled)
  - Flammability (modeled)



## **Environmental Risk Characterization**

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- **This activity consists of developing sector-specific risk assessments (e.g., refrigeration, foam blowing, solvent use, fire suppression, etc.) to evaluate alternative substitutes**
- **This work will build on models and analysis developed for past EPA regulations (CFCs, the Phaseout), the UNEP assessments, and other available work**



# Environmental Risk Characterization

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- Essential to standardize the analysis of each impact to the extent it practicable
- The risk characterizations will be completed in the next 6 months to a year and will be summarized in documents that will array the health and environmental impacts by substitute and use sector



## **Environmental Risk Characterization**

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- **The results of risk characterizations will be used to determine risk-management strategies for each sector and substitute in several stages**



# Environmental Risk Characterization

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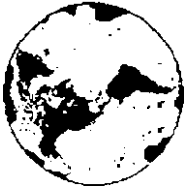
- **Step 1: Review risk characterizations within and outside EPA. Involve important players in decision making**
- **Step 2: Determine if any alternatives should be listed as unacceptable substitutes by use categories**
- **Step 3: Determine where listing should be conditioned by use restrictions or quantity limits placed pending availability of more data**
- **Step 4: "Grandfather" list of reviewed chemicals in Federal Register Notice (i.e., any substitute/use not on list must be submitted through SNAP)**



# Environmental Risk Characterization

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- **The risk characterization will provide analytical framework for making future listing decisions under SNAP**



## **Development of the Significant New Alternatives Program (SNAP)**

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- The SNAP will require notification 90 days prior to the introduction of an existing or new chemical as a significant new alternative
- The information submitted under the SNAP and the analytical framework developed in the risk characterization will be used to make the listing decisions on prohibited substitutes
- There will be joint OTS/OAR review where overlap exists with PMN submissions

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