February 23, 2021

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Halon Recycling Corporation (HRC)

The Halon Recycling Corporation (HRC) appreciates the opportunity to provide comments on the Compliance Offset Protocol Task Force draft final recommendations (2/8/21). HRC is a voluntary, non-profit trade association formed by concerned halon users and the fire protection industry to support the goals of the Montreal Protocol on Substances That Deplete the Ozone Layer. HRC acts as a facilitating organization for the recycling of halons and represents the interests of halon recyclers and users on environmental and regulatory issues. HRC has been involved in the management of existing halon resources for almost 25 years through its work with EPA, UNEP, HTOC, FAA, ICAO and others.

As outlined in our September 18 submission, HRC supports the recommendation contained in the draft report to not add halons to the ODS offset protocol at this time. We agree with the Task Force's conclusion that the issue requires further evaluation.

We wanted to make the Task Force aware of a recent development related to this issue. On January 26 the European Commission held a stakeholder meeting to discuss possible amendments to the ODS regulations (EC) No 1005/2009. One of the policy options being considered is to prohibit the destruction of halons, except in cases of where reclamation is not possible due to contamination. Attached is the slide presentation from the meeting (see slides 28-29).

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Impact Assessment for Amending Regulation (EC) No 1005/2009 On Substances That Deplete The Ozone Layer - Virtual Stakeholder Workshop

Virtual stakeholder workshop, 26 January 2021

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Welcome and introduction

Chair:

Bente Tranholm Schwarz, DG CLIMA European Commission

TEAM DG CLIMA:

Arno Kaschl, Xenia Messariti, Ingrid Ciabatti and Ivo Dosev

Housekeeping

- **Mute** unless you have the floor
- Put your **camera on only** when you speak
- If you want the floor **write HAND** and your name/org **in the chat to everyone**. Please don't use the hand function
- You can also **ask your question directly in the chat**

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Objectives for today

- Another opportunity for relevant stakeholders to contribute to the impact assessment
- Build on and update information collection as part of stakeholder engagement activities
- Gather stakeholder opinion on the proposed policy options, in particular:
  - Gathering of any further quantitative evidence and/or input concerning the feasibility and expected impacts of the policy options presented

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Agenda

- Welcome & introduction *(EC DG CLIMA)*
- Overview of the study supporting the impact assessment *(Natalia Anderson, Ricardo)*
- Problem definition and objectives of revisions of the ODS Regulation *(Felix Heydel, Oeko-Recherche)*
  - 11:00 Q&A and short break
- Overview of the shortlisted policy options *(Felix Heydel, Oeko-Recherche)*
- Plenary discussion: policy options
  - 12:30 – 13:30 Lunch Break
- Impact assessment: Approach taken and description of the baseline *(John Hekman, Ricardo)*
- Impact assessment: Draft findings *(John Hekman, Ricardo)*
  - 14:30 – short break
- Plenary discussion: draft findings of the study supporting the impact assessment
- Summary of the feedback provided on the day (*Natalia Anderson, Ricardo*)
- Closing remarks and explanation of next steps (*EC DG CLIMA*)
  - 15:45 Close

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Overview of the study supporting the impact assessment

Natalia Anderson, Ricardo
Stakeholder workshop, 26 January 2021

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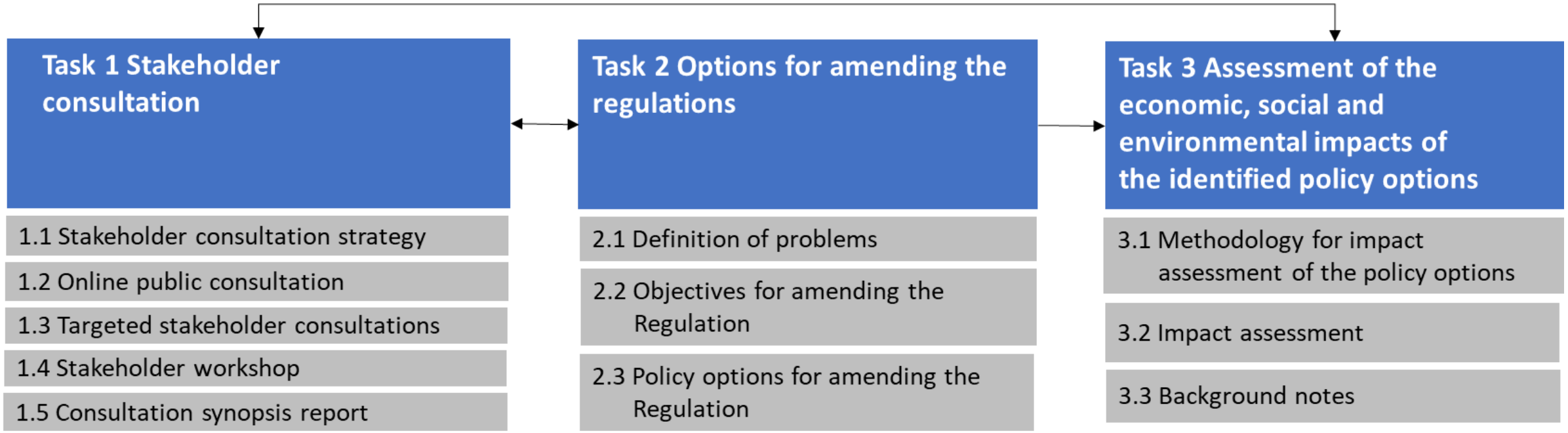
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Study aims

- **Develop and analyse a range of policy options** to enhance the ODS Regulation's effectiveness, efficiency and coherence
- Conduct a **consultation** on the possible amendment of the ODS Regulation
- **Support** the European Commission in developing **the impact assessment** staff working document:
  - policy and regulatory context
  - problem definition
  - why the EU should act
  - objectives, available policy options, impacts of the policy options
  - how the options compare
  - preferred option/s and how actual impacts could be monitored and evaluated

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Study framework



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Task 1 Stakeholder consultation

- **Objectives**:
  - Provide an opportunity to relevant stakeholders to contribute to the impact assessment
  - Build on and update information collected as part of the stakeholder engagement activities undertaken for the evaluation of the ODS Regulation
  - Gather quantitative data and/or qualitative input concerning the expected impacts of the policy options considered

- **Consultation activities**:
  - Open Public Consultation: ran between July 2020 and November 2020 (34 respondents).
  - Interviews with expert stakeholders (i.e. Member State authorities and industry) to cover specific topics.
  - **Today's workshop:** another opportunity for stakeholders to contribute additional information in support of the impact assessment

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Task 1 Targeted stakeholder consultation: summary

- **Targeted stakeholder consultation:**
  - 82 stakeholders were contacted.
  - 34 interviews were carried out.
  - 6 stakeholders provided a written response.
  - Consultation with relevant departments within the European Commission

- **Gathered information on impacts:**
  - Quantitative information was available to stakeholders on a subset of 5 policy options (A4, B1, B2, B6, B7 in the background paper).
  - Respondents cited the economic impacts of measures that would increase ambition, yet some gaps remain.
  - You are invited to consider what evidence you or your organisation can add on the environmental and economic impact of policy options, with priority on policy options under objective A.

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Task 2 Problem definition, objectives and options for amending the regulation

- Definition of **problems**:
  - Built on the Evaluation findings to establish the drivers and consequences for the problems identified
- Current **objectives** of the Regulation remain unchanged, as follows:
  - Ensure that the EU is compliant with the agreements that the international community has put in place to protect the ozone layer: first and foremost the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer
  - Have a high level of ambition for protecting the ozone layer and fighting climate change. The EU wants to be more ambitious and comprehensive than the core Montreal Protocol requirements in areas where this is technically and economically feasible.
- **Policy options** for amending the regulation: development on the long-list of options to mitigate the drivers of problems and screening

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Task 2 Screening of policy options

- **Development of initial long list of policy options**
  - To achieve the revised objectives and address the drivers of the problems
- **Screening analysis**
  - Qualitative criteria to identify the most promising and feasible options on the long list and to limit the detailed examination of impacts only to the most promising and feasible options → to create the short list for IA
  - Where one criterion was not fulfilled, the policy option was screened out
    - If sensible, alternative options have been developed in order to still address the underlying driver.
- **Information used**
  - Evaluation, views gathered through the targeted stakeholder consultation and expert judgement.
- **Validation of screening**
  - Screening has been validated with key stakeholders.



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Task 3 Assessment of environmental, economic and social impacts of shortlisted options

Impact type	Most relevant impact indicators	Assessment method
Environmental impacts	ODS emissions, GHG-equivalent emissions, any GHG emissions of substitutes	Quantitative
Economic impacts	Costs to business (including SMEs), costs to Member States, costs to EC	Quantitative
Social impacts	Employment, consumer prices, R&D/Innovation	Qualitative, quantitative if possible

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Task 3 Developing recommendations

- Map the positive and negative impacts
- Compare the options with Multicriteria Analysis:
  - Balance between economic, environmental and social impacts;
  - Effectiveness, efficiency and coherence in terms of specific objectives;
  - Trade-offs and synergies (e.g. between different stakeholder groups);
  - Proportionality

Key: Impacts expected				
Strongly negative	Weakly negative	No or negligible impact	Weakly positive	Strongly positive

	Policy option 1	Policy option 2	Policy option 3	Overall impact compared to baseline
Economic impacts				
Cost to business	x Additional investment cost of €0.5m and annual operating costs of €0.05m	O Negligible costs	x Additional investment cost of €0.2m and annual operating costs of €0.05m	x Additional investment cost of €0.2.1bn and annual operating costs of €0.05m
Impact on R&D and innovation of EU ODS using/consuming industry.	O Negligible impact expected	O Negligible impact expected	Expected to stimulate some R&D activity	O Expected to stimulate some R&D activity

Current status and next steps

Work completed to date:

- Task 1: This workshop, including feedback received after today, concludes stakeholder consultation activities
- Task 2: Completed – problems and objectives identified, policy options defined and short-list developed
- Task 3: Work in progress – model set up, assessment performed for some but not all options and impacts; existing data gaps

Next steps:

- Integrate additional evidence from stakeholders and the outputs of the workshop, to finalise analysis of policy options for DG Climate Action

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Problem definition and objectives of the revision of the ODS Regulation

Felix Heydel, Oeko-Recherche

Stakeholder workshop, 26 January 2021

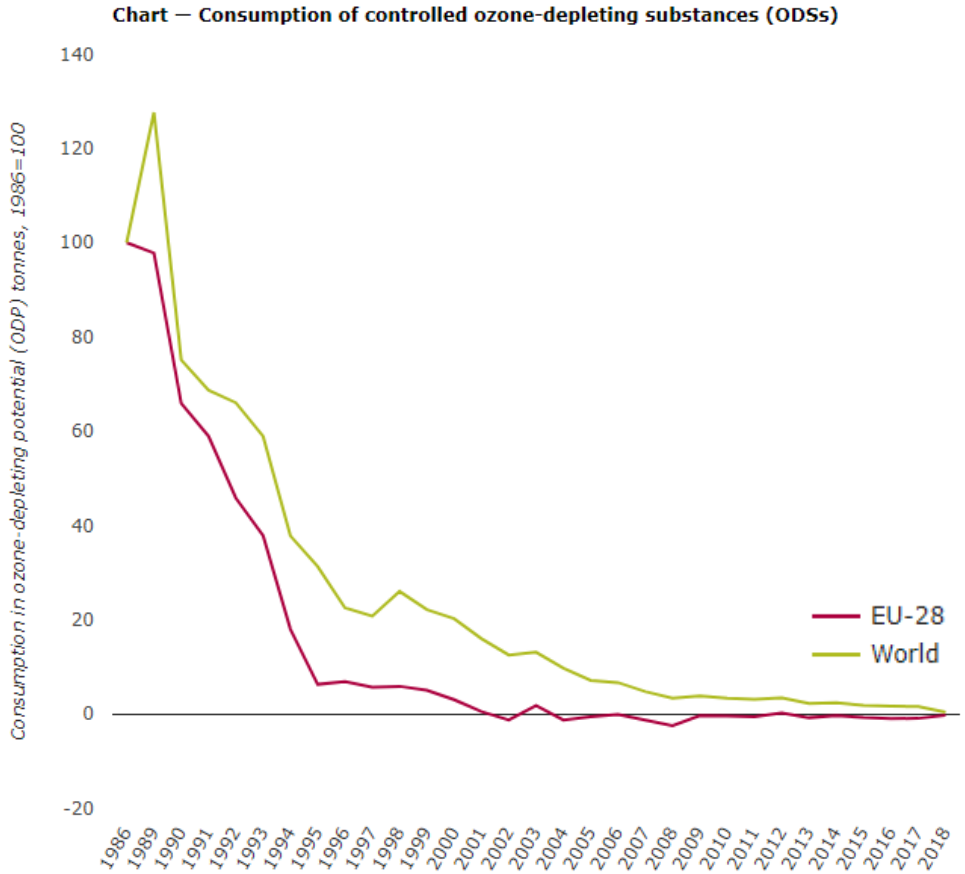
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Overview: Problem definition and their drivers

Why does the EU need to take action on its existing Ozone Regulation?

- The EU successfully reduced most of the use of ODS and resulting **emissions**.
  - There are a few remaining sources of ODS emissions that could still be addressed.
- The Regulation has effectively ensured major ozone layer and climate **benefits**.
  - While not creating excessive administrative costs for undertakings in the period 2010-2017, existing efficiency losses can and should be addressed.
- The **monitoring** system in place is mostly adequate.
  - Some room for improvement of monitoring remains.
- The Regulation is generally **coherent**.
  - Some gaps, contradictions and discrepancies in the legal text should be addressed.



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Use and emissions of ODS

- Remaining emission sources from **exempted uses**:
  - Feedstock use continues in large quantities and some emissions occur.
  - Low levels of process agent emissions persist.
  - Halon emissions where alternatives exist that potentially could be avoided.
  - Insufficient recycling and reclamation of halons.
- Remaining sources from **banks** containing ODS:
  - Continuation of emissions from foam banks: recovery & destruction currently not done except for RAC
  - No minimum requirements for technical RAC personnel
- Emissions from **new ODS (only monitoring)** and ODS **not yet regulated** under the Regulation
  - Used in considerable quantities and/or emissive uses and therefore may lead to some emissions.



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Efficiency of the Ozone Regulation

- **ODS licensing system**
  - Varying degrees of border control enforcement by Member States.
  - Costs for economic operators, customs and the EC related to the current two-step system.
  - Lack of control on some customs procedures, which could be relevant for illegal trade.



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- **Labelling requirements**
  - Covers general aspects, insufficient to determine potential environmental impacts at substance level.
- **Registration requirements for laboratory and analytical users and distributers**
  - Covers very small quantities of controlled ODS, costs appear disproportionate to benefits going forward.
- **Quota allocation system**
  - Quotas are non-restrictive, costs appear disproportionate to benefits going forward.
- **Halon phase out**
  - Certain halon prohibitions are challenging for industryand may necessitate systematic derogations.

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Monitoring

- Reporting requirements on new ODS (Annex II) are **not aligned** with Annex I reporting requirements.
- **Emissions from production or destruction** are not covered under the reporting requirements.
- **ODS emission** data resulting from old or existing products and equipment, including banks, is currently not collected.
- Reductions of ODS emissions and contribution to the EU's overall reduction of **GHG emissions** is not collected by the Ozone Regulation.
- Some ODS are **not monitored**, such as chloroform (TCM), dichloromethane (DCM), 1,2-dichloroethene, dibromomethane, PERC/PCE, 2-bromo-3,3,3-trifluoropropene (2-BTP) and unsaturated HCFCs/HCFOs.

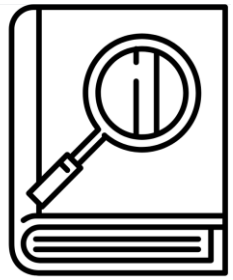


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Coherence

- **Internal coherence**
  - Procedures for adjusting the Regulation and adopting derogation requests are outdated.
- **Alignment with F-gas Regulation**
  - Only few EU Member States have extended responsibility schemes to the ODS producers.
  - Unlike F-gas Regulation, no proof of destruction of by-produced HFC-23 is specified
- **Coherence with customs legislation**
  - CN codes are not relevant as part of the Regulation
  - Discrepancies with custom rules (e.g. 45 days rule)
  - EU Customs Single Window: Certificates exchange (IT tool: “EU CSW-CERTEX”) needs to exchange data that is relevant for border control of ODS (such as net mass & ID)
- **Coherence with the Montreal Protocol**
  - Regulation lacks coherence with the Montreal Protocol regarding process agent uses, analytical and laboratory uses and destruction technologies
  - Regulation needs flexibility to adjust to Montreal protocol decisions
  - Various clarifications and streamlining of the legal text



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Objectives of the review of the Ozone Regulation

Definition of objectives

- In light of the problems described, **the EU should take action** and provide solutions in order to achieve the overall policy objectives in a more efficient, coherent and clear manner.
- Four **objectives** have been designed, which include **policy options**

Objective A

- **Achieve a higher level of emission reductions**

Objective B

- **Improve the efficiency of the Ozone Regulation while preserving effective prevention of illegal activities**

Objective C

- **Ensure more comprehensive monitoring**

Objective D

- **Improve coherence of the Ozone Regulation**

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Questions and answers

- Do you see other areas where the Ozone Regulation could be improved or problems that should be addressed in order to make it more:
  - effective,
  - efficient,
  - coherent, or to
  - ensure comprehensive monitoring?

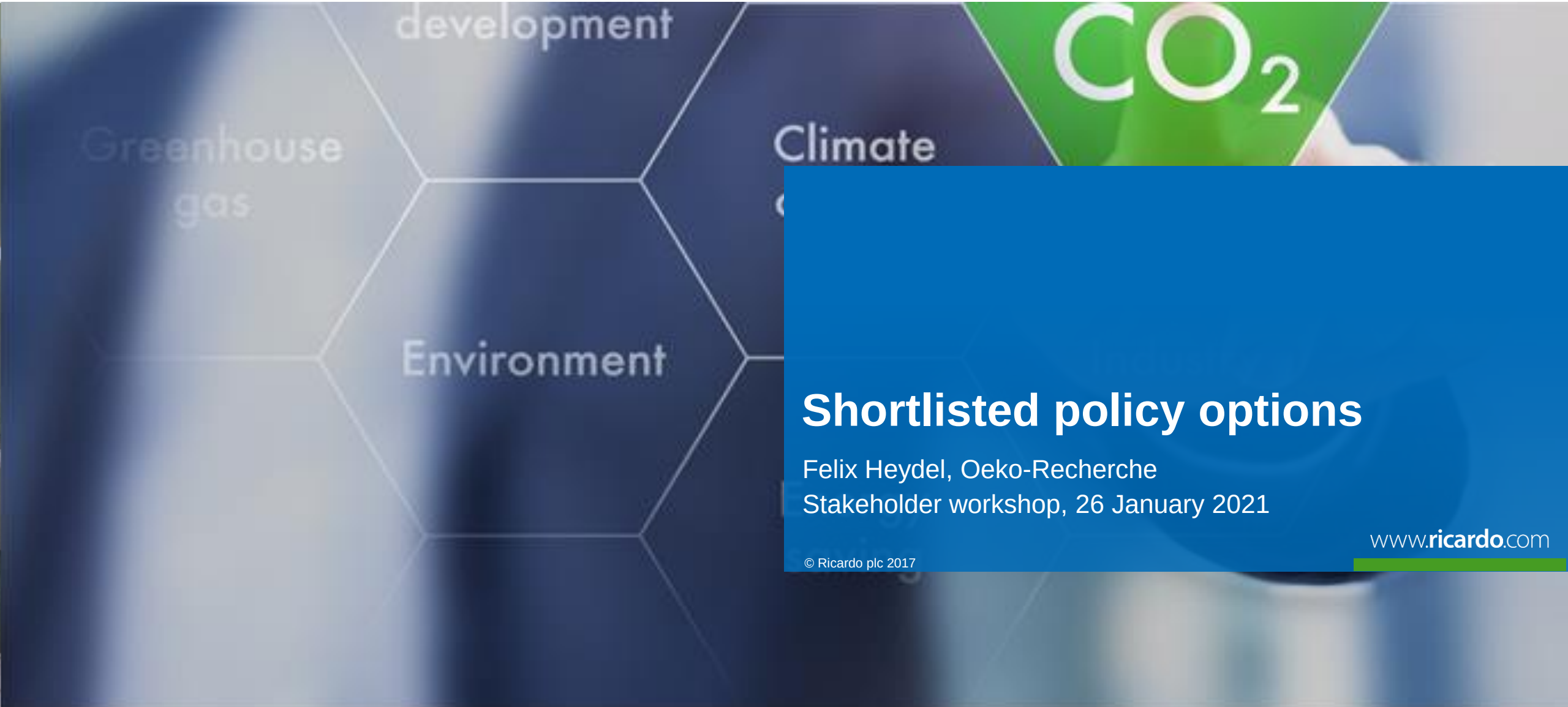


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Shortlisted policy options

Felix Heydel, Oeko-Recherche
Stakeholder workshop, 26 January 2021

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Objectives of the review of the Ozone Regulation

Definition of objectives

- In light of the problems described, **the EU should take action** and provide solutions in order to achieve the overall policy objectives in a more efficient, coherent and clear manner.
- Four **objectives** have been designed, which include **policy options**

Objective A

- **Achieve a higher level of emission reductions**

Objective B

- **Improve the efficiency of the Ozone Regulation while preserving effective prevention of illegal activities**

Objective C

- **Ensure more comprehensive monitoring**

Objective D

- **Improve coherence of the Ozone Regulation**

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Development of policy options & screening analysis

- **Development of initial long list of policy options**
  - To achieve the objectives and address the drivers of the problems
- **Screening analysis using qualitative criteria:**
  - To identify the most promising and feasible options on the long list
  - To limit the detailed examination of impacts only to the most promising and feasible options
  - → To create the short list for the impact assessment
- **Deletion of policy options**
  - Where one criterion was not fulfilled, the policy option was screened out
  - If sensible, alternative options have been developed in order to still address the underlying driver.
- **Information used**
  - Evaluation, views gathered to date through the targeted stakeholder consultation and expert judgement.
- **Validation of screening**
  - Screening has been validated with key stakeholders.



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Qualitative screening criteria

Technical feasibility

- Options must be technologically and technically feasible to implement, monitor and enforce.

Legal feasibility

- Policy options must - inter alia - respect any obligation arising from the EU Treaties and legal obligations incorporated in existing primary or secondary EU legislation may rule out certain options.

Enforcement feasibility

- The ability to enforce policy options in practice is of crucial importance to the Impact Assessment and a primary concern for stakeholders.

Effectiveness and efficiency

- Options should not have a worse cost-benefit balance than some alternatives

General feasibility

- Options should garner the necessary support for legislative adoption

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Long list of policy options

Objective A:
Achieve a higher level of emission reductions

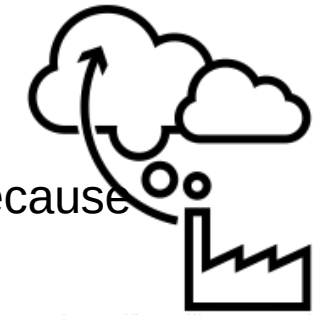
- 10 policy options have been screened-out
- 5 policy options have been retained *for further analysis*

Objective A: Achieve a higher level of emission reductions
I. Limit exempted uses further in line with technological progress
Feedstock uses
Impose strict maximum limit for feedstock uses and placing on the market of controlled ODS for feedstock uses
Introduce a “negative list” for feedstock uses
Introduce control of emissions resulting from feedstock uses and other major chemical processes where controlled ODS are emitted
Process agent uses
Introduce a prohibition date for process agents
Laboratory and analytical uses
Impose *strict* maximum limit
Include new prohibitions
Critical uses of halons
Review halon end dates
Prohibit destruction of halons
Require permit for destruction
Permit the use of mixtures containing HCFCs as an alternative to halons
II. Include more prescriptive emission prevention rules related to production processes and controlled ODS products and equipment
Require mandatory recovery and destruction of foam banks where feasible
Align qualification requirements with F-gas Regulation
III. Increase the level of emission reductions for some ‘new ODS’ (Annex II)
Move (some) substances from Annex II Part B to Part A
Include ODS not yet covered under the Ozone Regulation directly in Annex II Part A
Prohibiting the use of (some) substances from Annex II Part B in RACHP

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Objective A: Achieve a higher level of emission reductions

Options that have been retained for further analysis:



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Limit exempted uses further in line with technological progress

- A1) **Introduce a "negative list"** for chemical production processes that should be prohibited because alternatives do exist, specifically prohibit the feedstock use of:
  - CTC to produce tetrachloroethene/tetrachloroethylene (CAS: 127-18-4)
  - HCFC-22 to produce tetrafluoroethylene (CAS: 116-14-3)
- A2) **Review halon prohibition end dates** for equipment containing or relying on halons
  - Potentially move end dates forward from 2035 to 2030:
    - For the protection of engine compartments on military ground vehicles, and
    - For the protection of normally unoccupied engine spaces on military surface ships
- A3) **Prohibit destruction of halons**
  - Except for cases where specific criteria e.g. defined level of contamination, so that reclamation is not possible, are met.

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Objective A: Achieve a higher level of emission reductions

Options that have been retained for further analysis:



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Include more prescriptive emission prevention rules related to production processes and controlled ODS products and equipment

- A4) Require mandatory recovery and destruction of foam banks when feasible, e.g. steel faced panels, laminated boards, spray foam.

Increase the level of emission reductions for some 'new ODS' (Annex II)

- A5) Prohibiting the use of (some) substances from Annex II Part B in RACHP, in particular Annex II substances intended for use in RACHP equipment

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Long list of policy options

Objective B:
Improve the efficiency of the Ozone Regulation
while preserving effective prevention of illegal activities

- 5 policy options have been screened-out
- 8 policy options have been retained *for further analysis*

Objective B: Improve the efficiency of the Ozone Regulation
I. Modernise the ODS licensing system
Add requirements for customs to close licenses
Add requirements for customs to liaise with competent authorities
Require trader licenses for bulk substances
Require trader licenses for all products & equipment
Include all customs procedures
Control other special customs procedures
Add labelling requirements
Establish a barcode system
II. Simplify or abolish the registration process for laboratories
Simplify registration for laboratories
Abolish registration for laboratories
III. Simplify or abolish the quota allocation process
Simplify quota allocation
Abolish quota allocation
IV. Delay the cut-off date for critical uses of halons
Delay the cut-off date for the protection of normally unoccupied cargo compartments until 2024

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Objective B: Improve the efficiency of the Ozone Regulation

Options that have been retained for further analysis:

Modernise the ODS licensing system

- B1) Require trader licenses for bulk substances (when SW available)
  - for a period of time (annual, multi-annual), differentiated by use type
- B2) Require trader licenses for all products & equipment (when SW available)
  - for a period of time (annual, multi-annual), differentiated by use type
- B3) Include all customs procedures
- B4) Controlling other special customs procedures
- B5) Add labelling requirements
  - Require stating name, ODP and GWP of the substance for better Single Window controls.



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Objective B: Improve the efficiency of the Ozone Regulation

Options that have been retained for further analysis:

Abolish the registration process for laboratories

- B6) Abolish registration for laboratories with 5 year requirement to hold data

Abolish the annual quota allocation process

- B7) Abolish quota allocation

Delay the cut-off date for critical uses of halons

- B8) Delay the cut-off date for the protection of normally unoccupied cargo compartments until 2024



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Long list of policy options

Objective C:
Ensure more comprehensive monitoring

- 5 policy options have been screened-out
- 5 policy options have been retained *for further analysis*

Objective C: Ensure more comprehensive monitoring
I. Develop the reporting requirements further as relevant
Align reporting requirements for Annex II substances to those for Annex I
Require reporting on emissions from producers and destruction facilities
Require emissions data collection by Member States (including leakage from foam banks)
Add GWP to Annex I and II
Add minimum reporting limits for laboratory and analytical uses
Require registration for ODS suppliers, users and destruction facilities, with a ban on selling to the entity that is not registered and mandatory record keeping on names of purchaser, quantities supplied to the purchaser and reason of the purchase
Require reporting on sales and purchases for all undertakings that are obliged to report
II. Include new ODS to be monitored
Add chloroform (TCM), dichloromethane (DCM), 1,2-dichloroethene (R1130(E)), dibromomethane, perchloroethylene (PCE) and 2-bromo-3,3,3-trifluoropropene (2-BTP) to Annex II Part B
Add unsaturated HCFCs to Annex II B
Add ‘catch all’ to Annex I and II. Require additional reporting of substances not currently explicitly included in Annex I or II, but which are found to apply to certain criteria, e.g. have an ODP or use (expressed in ODP-tonnes) above a specified threshold.

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Objective C: Ensure more comprehensive monitoring

Options that have been retained for further analysis:



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Develop the reporting requirements further as relevant

- C1) Align reporting requirements for Annex II substances to those for Annex I substances
- C2) Require reporting on emissions at substance level for the production and destruction of ODS
- C3) Add global warming potential (GWP) values to Annex I and II
- C4) Require reporting on sales and purchases for all undertakings that are obliged to report
  - Specifically, require this not only for importers and exporters, but also for producers, destruction facilities and feedstock and process agent users

Include new ODS to be monitored

- C5) Add chloroform (TCM), dichloromethane (DCM), 1,2-dichloroethene (R1130(E)), dibromomethane, perchloroethylene (PCE) and 2-bromo-3,3,3-trifluoropropene (2-BTP) to Annex II Part B
  - Require additional reporting of these substances

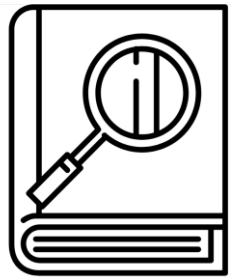
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Objective D: Improve the coherence of the Ozone Regulation

In Objective D, all 18 policy options retained for further analysis

Internal coherence: Alignment with Regulation on the Commission's implementing powers

- D1) Replace references to Decision 1999/468/EC with Regulation (EU) No 182/2011.



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Align provisions with other policies (1/2)

Alignment with the F-gas Regulation

- D2) Prohibit the placing on the market of controlled and new ODS unless producers or importers provide evidence that trifluoromethane (HFC-23) produced as a by-product during the manufacturing process, including during the manufacturing of feedstocks for their production, has been destroyed or recovered for subsequent use, in line with best available techniques.

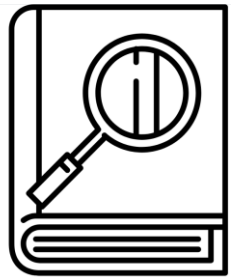
Alignment with customs Regulation

- D3) Remove Annex IV (CN codes)
- D4) Adjust 45 days rule to customs law or remove
- D5) Net mass in customs declaration: In the context of Single Window quantitative management, make obligatory for economic operators to encode the net mass of ODS (including ODS in products and equipment) in their customs declaration.

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Objective D: Improve the coherence of the Ozone Regulation

Align provisions with other policies (2/2)



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Alignment and maintenance of coherence with the Montreal Protocol

- D6) Update Annex VII on destruction technologies with Montreal Protocol Decision XXX/6
- D7) Adjust process agent use and emission limits: Change use limit to 921 metric tonnes and emission limits to 15 metric tonnes taking into account Montreal Protocol Decision XXXI/6
- Add flexibility to adjust to future Montreal Protocol rules

Alignment with EASA rules

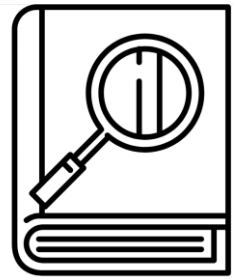
- D8) Alignment with Regulation (EU) 2015/640 (Part 26) amended by Commission Implementing Regulation (EU) 2019/133, on additional airworthiness specifications for a given type of operations:
  - Mirror prohibitions for large aeroplanes and large helicopters to use halons (“forward fit dates”):
    - in lavatories from 18 May 2019 and,
    - in handheld fire extinguishers from 18 February 2020

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Objective D: Improve the coherence of the Ozone Regulation

Clarify and streamline legal text

- D9) Clarify definition of destruction in relation to feedstock.
- D10) Add definition of non-refillable container.
- D11) For non-refillable containers, prohibit transport
- D12) Amend incorrect reference in article 15(2)(k) to Article 11(5) where it should be Article 11(8)
- D13) Clarify the wording of Article 5(3) and make clear that both servicing of equipment with controlled substances and any other use of controlled substances, except for the uses exempted in other articles, are prohibited.
- D14) Article 12(3): Reference to Directive 91/414/EEC should be replaced by reference to new Regulation (EU) No 528/2012 and Regulation (EC) No 1107/2009.
- D15) Clarify obligations of ship owners and operators.
- D16) Adjust Article 23(1) so that it includes the specific obligation to limit controlled and new ODS emissions during production, transport and storage and prohibits venting.
- D17) Delete obsolete provisions and streamline the text.
- D18) Have flexibility to adjust to MP decisions, e.g. on uses of HCFCs as substitutes to halons



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Plenary discussion on the policy options

- Do you have any comments on the presented **policy options**?



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Impact assessment

John Hekman, Ricardo

Stakeholder workshop, 26 January 2021

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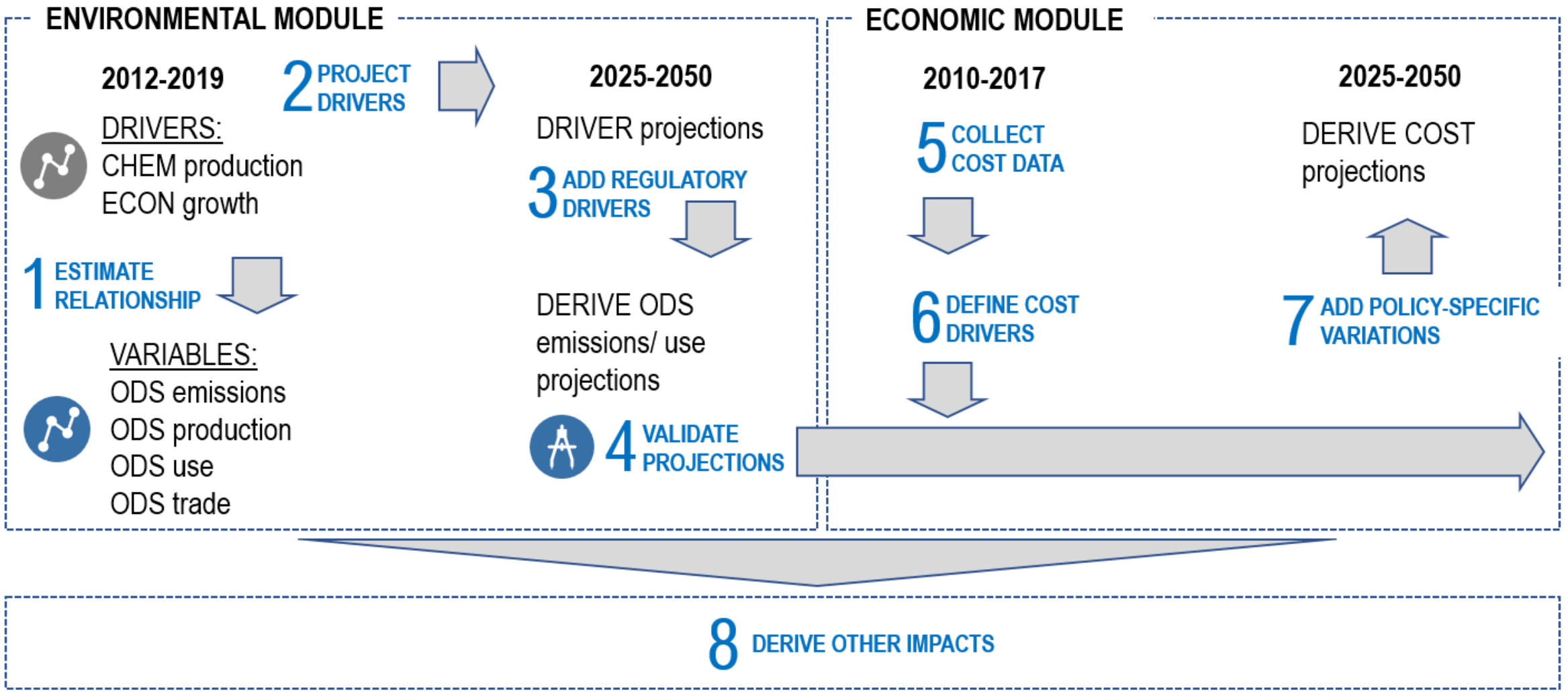
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Agenda

- Welcome & Keynote
- Introduction to the impact assessment and workshop objectives *(EC DG CLIMA)*
- Overview of the study supporting the impact assessment *(Natalia Anderson, Ricardo)*
- Problem definition and objectives of the revisions of the ODS Regulation *(Felix Heydel, Oeko-Recherche)*
  - 11:00 Q&A and short break
- Overview of the shortlisted policy options *(Felix Heydel, Oeko-Recherche)*
- Plenary discussion: policy options
  - 12:30 – 13:30 Lunch Break
- **Impact assessment: Approach taken and description of the baseline** *(John Hekman, Ricardo)*
- **Impact assessment: Draft findings** *(John Hekman, Ricardo)*
  - 14:30 – short break
- Plenary discussion: draft findings of the study supporting the impact assessment
- Summary of the feedback provided on the day (Ricardo)
- Closing remarks and explanation of next steps (*EC DG CLIMA*)
  - 15:45 Close

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Approach to the impact assessment



Impact assessment – Description of the baseline

- Forecasting up until 2050
- Variables that need to be forecasted:
  - Remaining use and emissions of controlled substances

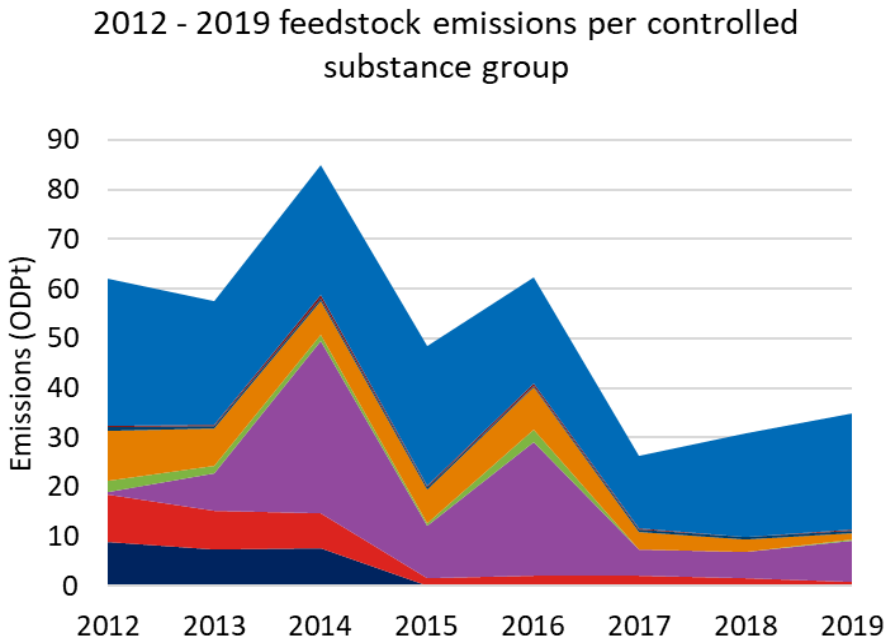
Table 3 – 3: Excerpt of table on emission factors from remaining uses of ODS

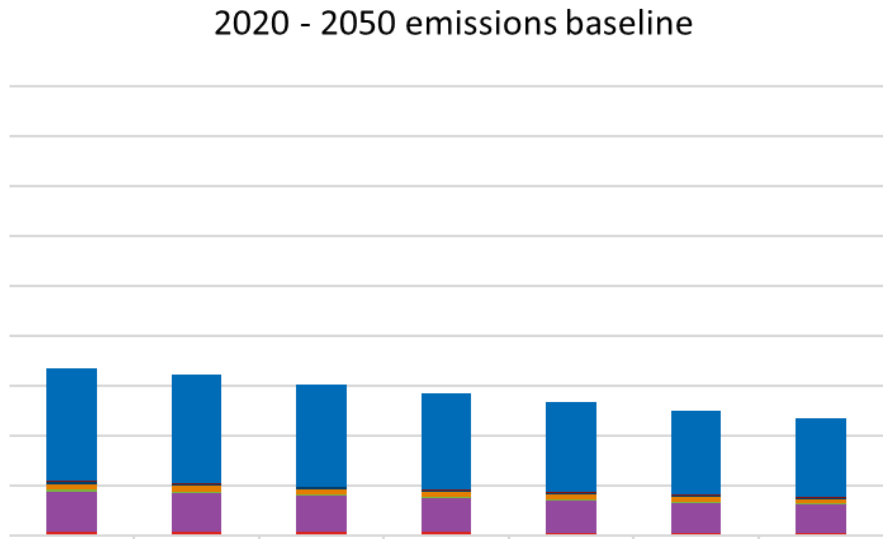
Flow	ODP source	2019 Emissions (ODPt)	Emission factor trends for 2012 – 2019 (annual or stock ODPt)
Raw material	Production of controlled substances (2015 – 2019)	10*	0.118%  0.010%
	Production of Annex II substances	*Not reported*	
Use	Feedstock – controlled substances[1]	35	0.12%  0.09%
	Feedstock – Annex II	18	*Not reported, but assumed to be similar to as the EF for feedstock use of controlled substances*
	Process agents	4	1.68%  1.29%
	Laboratory use	-	*Not available, but likely negligible as total quantities are very small*
Banks	Foam Banks	6753**	*Data not available on a yearly basis*
	Critical halon applications	32	Constant < 0.5%

*estimate derived from < 10% of production, **Model estimate

- Other information used for forecasting:
  - Known policy or economic developments + Remaining annual estimated emissions from ODS banks

Baseline - Feedstocks



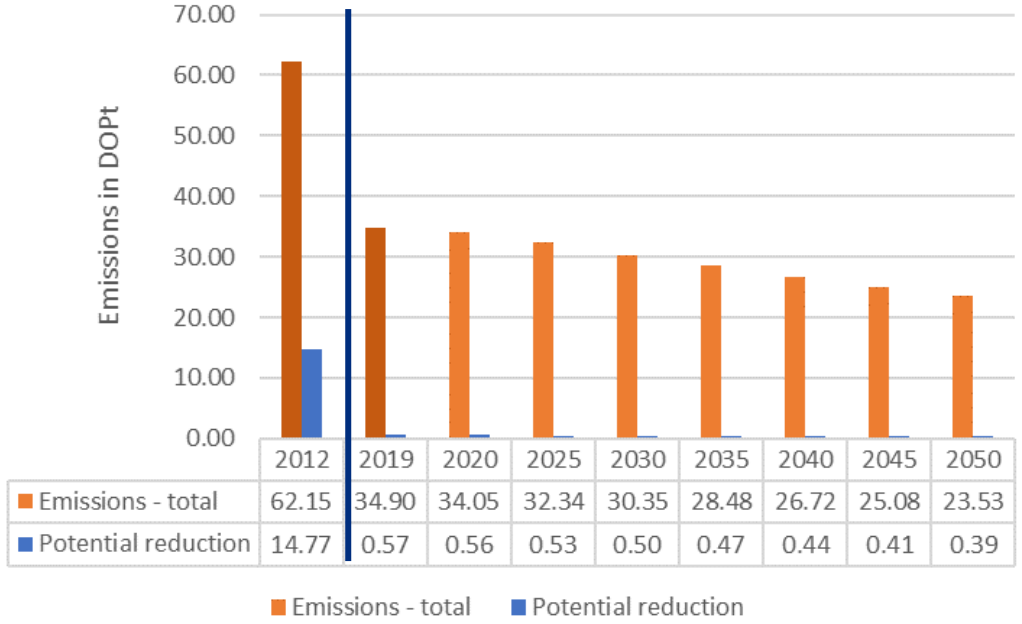


	2020	2025	2030	2035	2040	2045	2050
CFC	22.62	21.80	20.46	19.20	18.01	16.90	15.86
BCM	0.15	0.14	0.13	0.13	0.12	0.11	0.10
TCA	0.39	0.38	0.35	0.33	0.31	0.29	0.27
CTC	1.21	1.17	1.10	1.03	0.97	0.91	0.85
MB	0.29	0.28	0.27	0.25	0.23	0.22	0.21
Halon	8.07	7.77	7.29	6.85	6.42	6.03	5.66
HBFC	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HCFC	0.68	0.65	0.61	0.58	0.54	0.51	0.48
other	0.15	0.14	0.13	0.13	0.12	0.11	0.10
Total feedstock emissions	34.05	32.34	30.35	28.48	26.72	25.08	23.53

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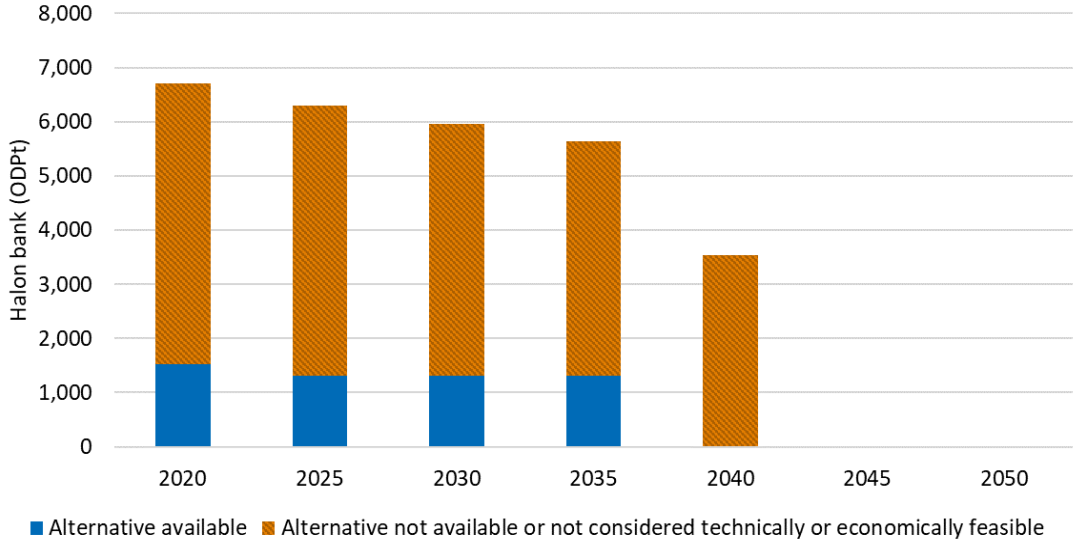
Environmental impact baseline: summary of variables included in the impact assessment

Baseline *emissions* from feedstock use (Data: EEA)

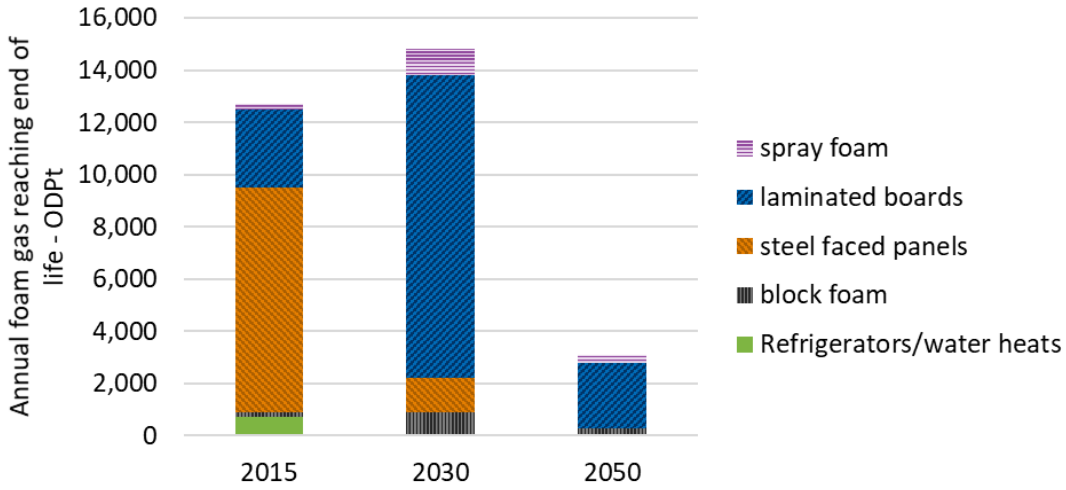


	2012	2019	2020	2025	2030	2035	2040	2045	2050
Emissions - total	62.15	34.90	34.05	32.34	30.35	28.48	26.72	25.08	23.53
Potential reduction	14.77	0.57	0.56	0.53	0.50	0.47	0.44	0.41	0.39

Halon *contained in* banks and potential reduction (Data: Evaluation)



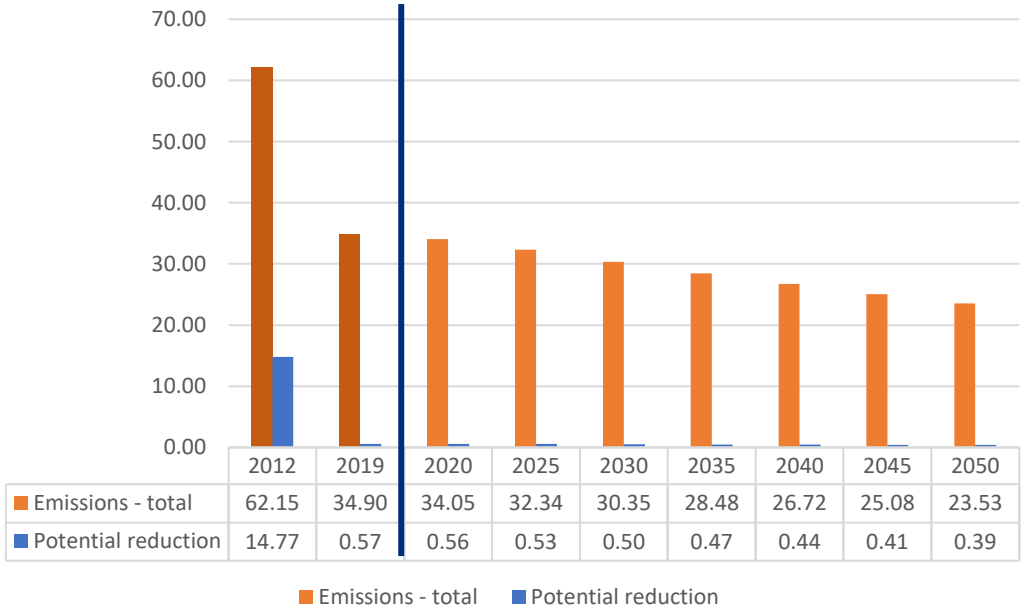
ODS *yearly expected potential from* foam banks by product (Data: SKM (2012))



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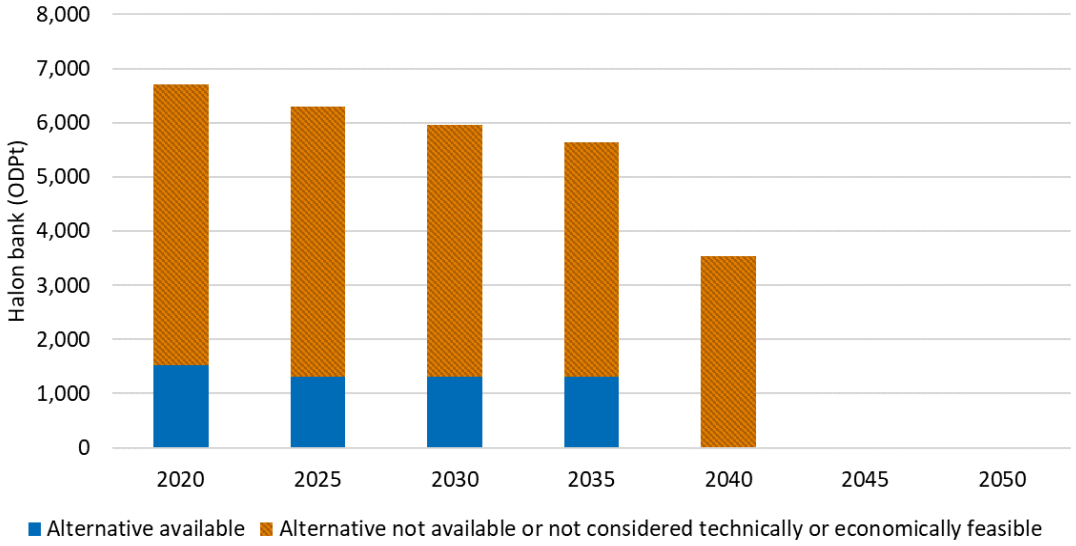
Environmental baseline

Baseline *emissions* from feedstock use



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Halon *contained in* banks and potential reduction (Data: Evaluation)



- Feedstock emissions:
  - **Decreasing trend** in the baseline due to a steady **reduction in ODP and reduction in EF** of the substances used (where substances with a higher ODP are used less). **Overall feedstock use in metric tonnes stays the same**.

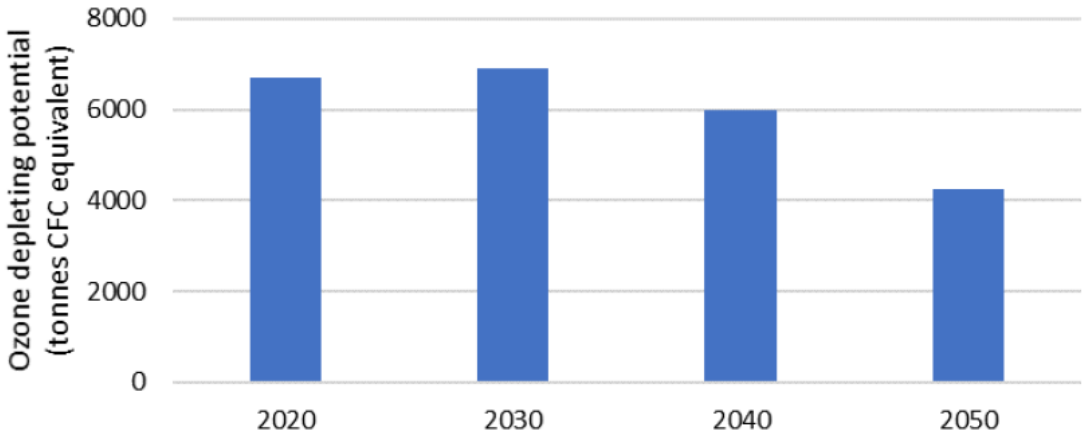
- Halon stock:
  - Annual emissions from use around 30 – 50 ODPt
  - **Decreasing trend** in the baseline whereby halon emissions are expected to approach **zero by 2040** when all end dates are reached. The majority of critical uses still have end dates up until 2035.
    - ***Does this baseline trend align with your knowledge on the replacement timeline of critical halon uses?***

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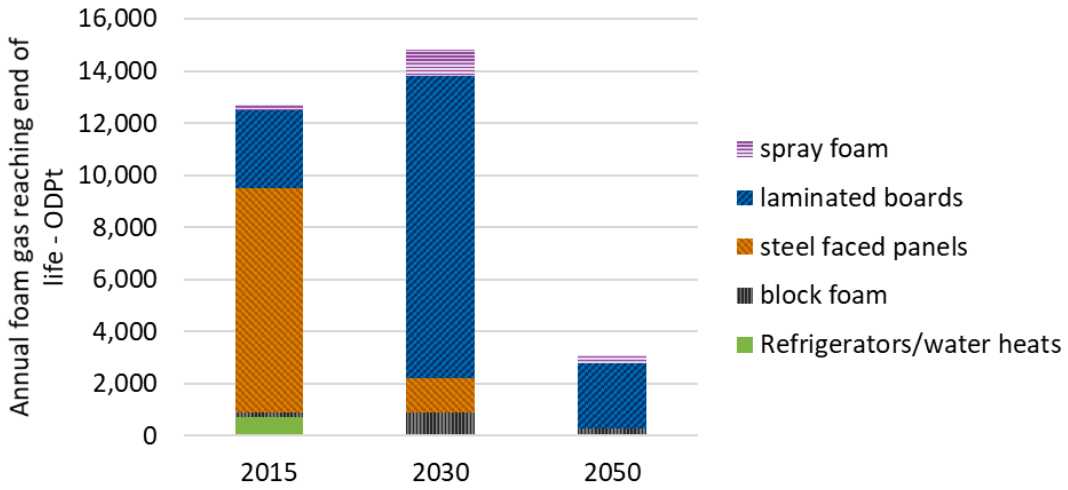
Environmental baseline

- Foam bank emissions
  - Targeted bank for reduction is steel faced panels, a large number of which are expected to decommission between 2015 and 2030.
  - Potential **emissions from the bank peaks after 2030**, due to a large amount of ODS being contained in building materials that have a long lifetime and reach end-of-life in that timeframe
    - ***Do you have further quantitative information on the cost of recovery and reclamation, for all types of foams, demolition processes, and recycling technologies?***

Foam bank total forecast emissions (Data: SKM (2012))



ODS *yearly expected potential from* foam banks by product (Data: SKM (2012))



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Draft findings of the study supporting the impact assessment

- The table below provides an overview of the quantitatively estimated, or known direction of impacts

Policy option		Environment	Economic impacts			Indirect economic/ social
			Business	Member States	European Commission/EEA	
A1	Feedstock negative list	+/-	[Possibly significant cost]	+2,000 EUR/year	+10,000 EUR/year	[Employment, Prices, R&D]
A2	Halons end dates	+		[Likely a cost, small]	+ 5 person-days/year	
A3	Halons destruction	+/-	[Likely a cost, unknown size]	~ +30,000 EUR/year		
A4	Foam bank recovery	+++	€ 115 - 300 per kg ODS	[Possibly a significant cost]		[Employment, Prices, R&D]
A5	Annex II RACHP	+	[Likely a cost, small/medium]			[R&D]
B1	Trader licences: bulk		-54,000 - 86,000 EUR/ year	- 50 person-days/year	- 250 person-days/year	
B2	Trader licences: equip		[Likely benefit, small]			
B3	Customs procedures	+	[Likely benefit, small]	[Likely benefit, small]		
B4	Customs control	+	[Likely benefit, small]	[Likely benefit, small]		
B5	ODS labels					
B6	Abolish lab register		-64,000 EUR/ year		- 75 person-days/year	
B7	Abolish quota		-11,000 EUR/ year		- 37 person-days/year	
C1	Annex II reporting		+5,500 EUR/ year			
C2	Report production emis		+40,000 EUR/ year			
C3	Add GWP to Annex					
C4	Report intra-EU sales		+13,000 EUR/ year		+ 5 person-days/year	
C5	New Annex II substances		[Likely a cost, small]			
D	Coherence					

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Impact assessment, Objective A: Higher level of emission reductions
Policy option A1: Feedstock negative list – Environmental Impacts

Policy option		Environment
A1	Feedstock negative list	+/-

Ozone depleting potential:

- ODP Emissions of processes for TFE and PERC: **0.56 ODPt**
- 38% of total ODS used as feedstock in mt, but only 1.6% of total emissions
  - Low reported emission factors of < 0.1%, may be underestimated

Global warming potential:

- Both feedstocks for selected processes (HCFC-22 and CTC) have a high GWP (1760 and 1730 resp.)
- Reducing these emissions may result in a reduction of 9,638 t CO2-equivalent
  - Alternative processes may have higher energy consumption + lower efficiency = higher GHG emissions.

Positive environmental impacts on ODP and GWP is uncertain, especially if negative listing leads to relocation outside EU with lower emission controls, and/or alternative processes cause higher energy consumption.

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Impact assessment, objective A: Higher level of emission reductions
Policy option A1: Feedstock negative list – Economic impacts

Impacts for business

- Possibly significant cost for business concerned

Policy option		Economic impacts		
		Business	Member States	European Commission/EEA
A1	Feedstock negative list	[Possibly significant cost]	+2,000 EUR/year	+10,000 EUR/year

Uncertainty depends on business response and cost of alternatives

Impacts for Member States

- Some costs due to enforcement of the negative list. Only for *those* Member States where facilities exist that use negative listed feedstock processes.

Impacts for the European Commission

- Costs made for maintenance of the negative list, for regular technical reviewing of substances used for feedstock processes and their alternatives

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Impact assessment, objective A: Higher level of emission reductions
Policy options A2 and A3: Halon measures

- **Environmental Impacts**
  - *A2: Review some prohibition dates for equipment relying on halons*

    1300 ODPt of potential for reduction from stored halons.

    ODS emission reduction potential is lower, as only a small % of halons (< 0.5%) are used and emitted each year.

Policy option		Environment
A2	Halons end dates	+
A3	Halons destruction	+/-

  - *A3: Prohibit destruction of halons*
    - May save emissions if more recovery and reclamation prevents use of virgin halons
    - Could also increase emissions if the requirements lead to illegal venting of halons

Economic Impacts

A2: Cost to Member States, in the earlier years to upgrade Military equipment. Cost to EC to process likely derogations

Policy option		Economic impacts		
		Business	Member States	European Commission/EEA
A2	Halons end dates		[Likely a cost, small]	+ 5 person-days/year
A3	Halons destruction	[Likely a cost, unknown size]	~ +30,000 EUR/year	

A3: Cost to business unknown at this time, requires further research. Cost to Member States due to enforcement cost

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Impact assessment, objective A: Higher level of emission reductions
Policy options A4: Foam bank recovery

- **Environmental Impacts**
  - Potentially large environmental impacts**, > 1000 ODPt per year could be saved** until 2040. On GHG impacts, in the range of **> 140 kt CO2e per year could be saved**

Policy option		Environment	Economic impacts		
			Business	Member States	European Commission/EEA
A4	Foam bank recovery	+++	€ 115 - 300 per kg ODS	[Possibly a significant cost]	

- **Economic impacts**
  - Known cost to reclaim ODS from demolition, per kg, from 2012 reporting **up to € 150 for steel-faced panels**, **up to € 300 for other materials**. Do you have updated information on these costs?
    - These costs are likely borne by building owners
  - Significant cost to Member States for control and enforcement, due to large amount of diffuse sources

Cost category	*Steel faced panels*	
	2009 cost ($ per kg ODS)	**2020 update on EU relevant situation**
Segregation/Collection	75 - 90	*Outstanding following interviews still to be carried out with EU recyclers*
Transport (raw material)	5 – 10	
Recovery Processing	30 – 40	
Transport (gas)	0.01 – 0.06	
Gas destruction	5 - 7	
Total	115 - 147	

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Impact assessment, objective A: Higher level of emission reductions
Policy option A5: Annex II RACHP ban – Environmental Impacts

- New blends developed to replace high-GWP HFCs, may contain (low-ODP) ODS. Their use is low in the present, possible take-up in the future, so environmental impact of measure is not forecast

Policy option		Environment
A5	Annex II RACHP	+

Policy option		Economic impacts		
		Business	Member States	European Commission/EEA
A5	Annex II RACHP	[Likely a cost, small/medium]		

- **Economic impact**
  - Likely cost for **business who have invested in these new blends.**
  - It is expected there are already alternatives in the pipeline who would not use any ODS and be impacted by this measure, so likely low impact for users who are looking for HFC alternatives.

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Impact assessment, objective B: Improve the efficiency of the Ozone Regulation
Policy option B1 – B2 (Trader licences), B3 – B4 (customs)

- *B1 / B2: Trader licences for bulk substances / equipment once the Single Window Environment is mandatory in all Member States*

Environmental impacts:

- More elaborate control likely to reduce illegal imports and thus emissions

Policy option		Economic impacts		
		Business	Member States	European Commission/EEA
B1	Trader licences: bulk	-54,000 - 86,000 EUR/ year	- 50 person-days/year	- 250 person-days/year
B2	Trader licences: equip	[Likely benefit, small]		
B3	Customs procedures	[Likely benefit, small]	[Likely benefit, small]	
B4	Customs control	[Likely benefit, small]	[Likely benefit, small]	

Economic impacts:

- Costs to business
  - **Reduction in costs** due to a reduction in licencing requirements by a factor of 10 under the Single Window, abolishing of the laboratory register, and the abolishing of quota
- Costs to Member States:
  - **Savings are expected at customs** due to reduction in trader licencing requirements, at better control with the Single Window
- Costs to EC/EEA
  - **Savings** expected due to **reduction in licencing requirements under the Single Window**
  - **Savings** expected from **abolishing of laboratory register and quota system**

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Impact assessment, objective B: Improve the efficiency of the Ozone Regulation Policy option B5 (labels) and B6 – B7 (abolish lab register and quota)

Environmental impacts

- No environmental gains expected

Economic impacts

Policy option		Economic impacts		
		Business	Member States	European Commission/EEA
B5	ODS labels			
B6	Abolish lab register	-64,000 EUR/ year		- 75 person-days/year
B7	Abolish quota	-11,000 EUR/ year		- 37 person-days/year

No costs expected from ODS labels

- Costs to business
  - **Reduction in costs** due to a reduction in administrative costs by abolishing of the laboratory register. Specific relevance to SME laboratories

- Costs to EC/EEA
  - **Savings** expected due to **reduction in licencing requirements under the Single Window**
  - **Savings** expected from **abolishing of laboratory register and quota system**

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Impact assessment, objective C: Ensure comprehensive monitoring
Policy options C1 – C5, reporting measures and Regulation data collection

- **Economic impacts**
  - Costs to business
    - Increased reporting costs to align with Annex I, in particular for reporting of emissions by producers and destruction facilities.
    - These facilities may also not have the appropriate means to do emissions monitoring, which could increase their costs further to install this equipment (no data available at this time to quantify this).

Policy option		Economic impacts		
		Business	Member States	European Commission/EEA
C1	Annex II reporting	+5,500 EUR/ year		
C2	Report production emis	+40,000 EUR/ year		
C3	Add GWP to Annex			
C4	Report intra-EU sales	+13,000 EUR/ year		+ 5 person-days/year
C5	New Annex II substances	[Likely a cost, small]		

- Costs to EC/EEA
  - Increased reporting costs to setup and maintain system to track intra-EU sales (unless done at MS level)

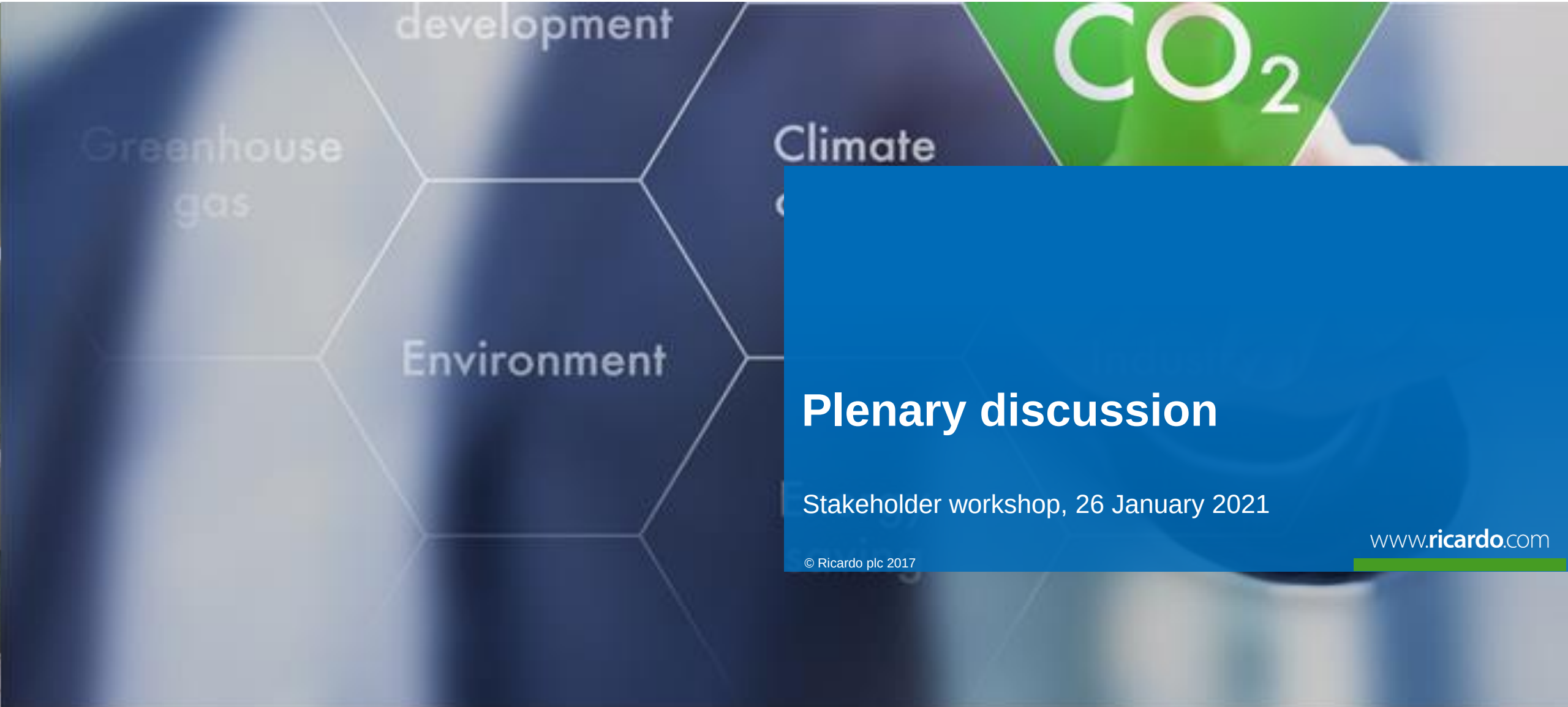
- No significant costs expected from options considered in relation to objective D (coherence)

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Plenary discussion

Stakeholder workshop, 26 January 2021

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Impact assessment – Questions for discussion

Objective A: Increasing level of ambition – industrial emissions

Option A1: negative list for certain substances

1. Do you have further evidence and information on the economic and environmental impact of applying a negative list to certain feedstock substances?

Options A2 and A3: bring forward halon end dates (A2), and prohibit destruction of halons (A3)

2. What are the costs to Member State military departments for moving forward end dates of halon use for fire protection in military ships, military vehicles and aircraft, by 5 years from 2035 to 2030. And of 2035 to 2025?
3. What are the costs that owners of halon materials would bear if destruction is prohibited. What are the current economic barriers you experience for reclaiming halons instead of destroying them?

Option A4: Mandatory recovery of ODS from certain foam banks

4. Do you have information on the costs of reclamation and recycling of ODS in insulation materials, in particular the additional cost faced to demolish a building while ensuring a high rate of recycling of the ODS gases stored in the panel materials, such as steel-faced panels and laminated boards compared to overall demolition costs.

Option A5: Ban on using ODS in new RACHP blends

5. Do you have information on the costs of potentially not allowing the marketing of new low-GWP gas blends that contain (low-ODP) ODS for RACHP equipment. Are there specialist use-cases which are relying on future gas blends which contain some new ODS, that cannot be fulfilled with other alternative blends without ODS?

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Impact assessment – Questions for discussion

Objective B: Improving efficiency

- **B1, B2 (moving towards trader licences, under the single Window)**
- **B3, B4 (changes to regulations for customs controls and customs procedures)**
- **B5, ODS and GWP labels on substance containers**
- **B6, abolish ODS lab registry and B7, quota registration process**

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Impact assessment – Questions for discussion

Objective C: Ensure comprehensive monitoring

- **Develop the reporting requirements further as relevant**:
  C1, Align reporting requirements for Annex II substances to those for Annex I substances,

  C2, Require reporting on emissions at substance level for the production and destruction of ODS

  C3: Add global warming potential values to Annex I and II

  C4, Require reporting on sales and purchases for all undertakings obliged to report

Do you have further information or comments on the costs of additional reporting measures introduced by policy options under Objective C, including the reporting of sales and purchases of controlled ODS to/from undertakings within the EU, and on the reporting of the additional substances suggested for Annex II in Table 3-3

Include new ODS to be monitored:

C5: Add new substances (TCM, DCM, R1130€, dibromomethane, PCE and 2-BTP) to Annex II, Part B

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Impact assessment – Questions for discussion

- **Objective D: Improve the coherence of the Ozone Regulation**
  - Internal coherence
  - Alignment with F-gas regulation
  - Alignment with customs regulation
  - Alignment and maintenance of coherence with the Montreal Protocol
  - Alignment with EASA rules
  - Clarify and streamline legal text

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Any other questions



Summary of feedback provided

Closing remarks

