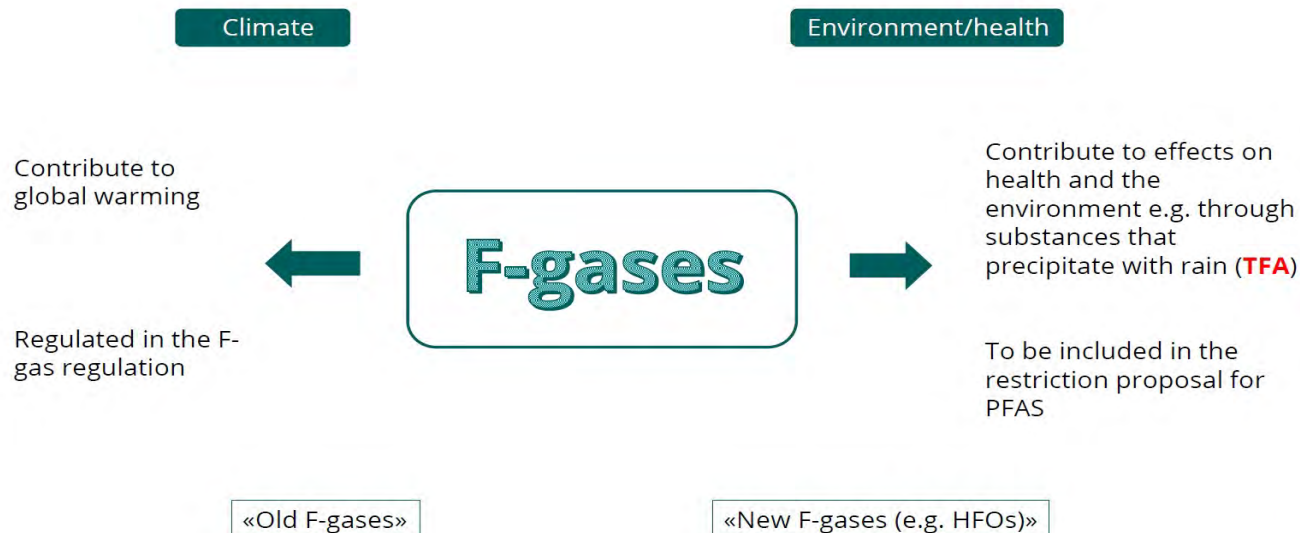




**PFAS under REACH  
@ *ASERCOM* event**

# Presentation by Dr. Audun, PFAS expert from the Norwegian Environment Agency (30.03.2022)



<https://www.environmentagency.no/news/2022/the-universal-pfas-restriction-proposal-and-f-gases/>

# Level of TFA found in the surface and groundwater in Denmark and in China

## TFA in the environment

### Denmark 2021:

- TFA detected in 219 of 247 groundwater samples from all over the country
- TFA also found in drinking water sources

### China, Beijing, 2002 – 2012:

- 17-fold increase in TFA in urban surface water
- TFA in tap water increased from «not detected» to 155 ng/L

### EU, 2021:

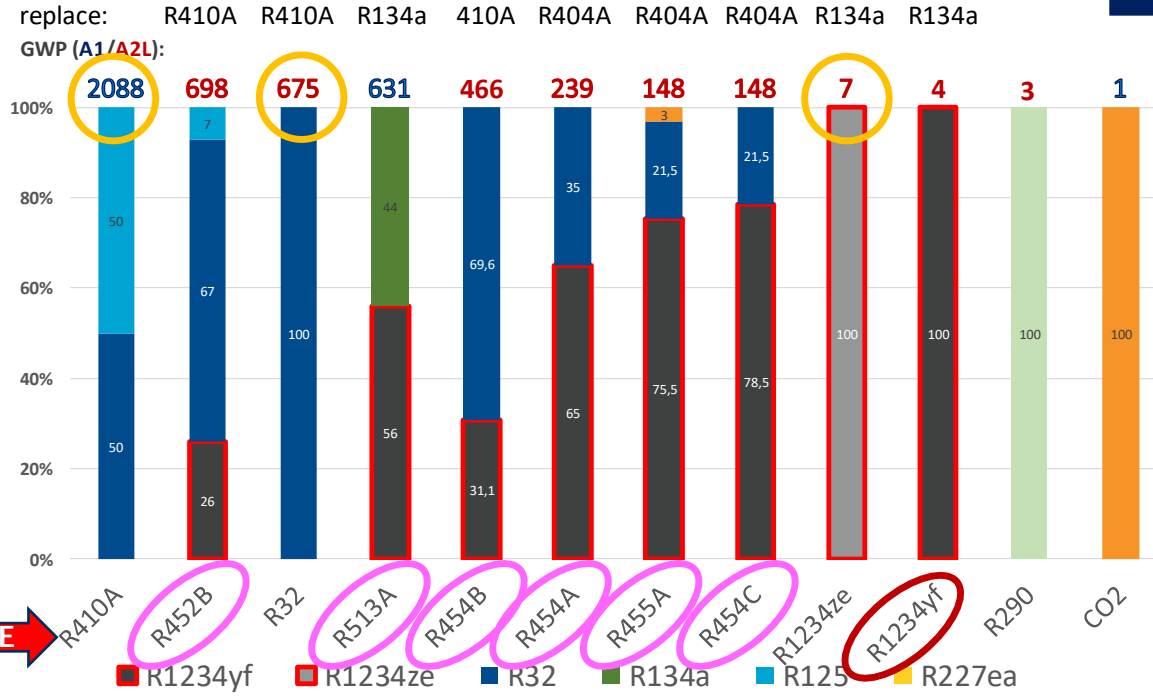
- Transition from HFC-134a to HFO-1234yf in aircondition in cars
- May lead to 250-fold increase in TFA-concentrations in Europe (!)

- ***Pre-cautionary principle applies***
- ***EU PFAS restriction proposal will not incorporate ‘essential use’ concept due to the timing. The process to cover PFAS under REACH will finish before the concept of essential use will be defined.***



# How is the refrigerant landscape impacted → A2Ls for phase down!

## Refrigerant Options, sorted by GWP



REACH covers refrigerants with a TFA yield (from atmospheric decomposition)

R1234yf → 100%

(HFO shares in red borders)



SQUEEZE

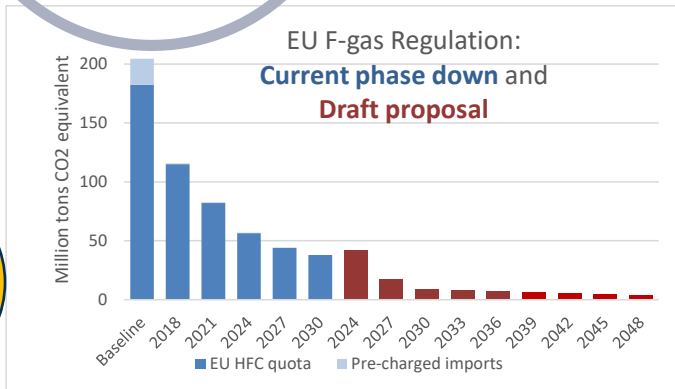
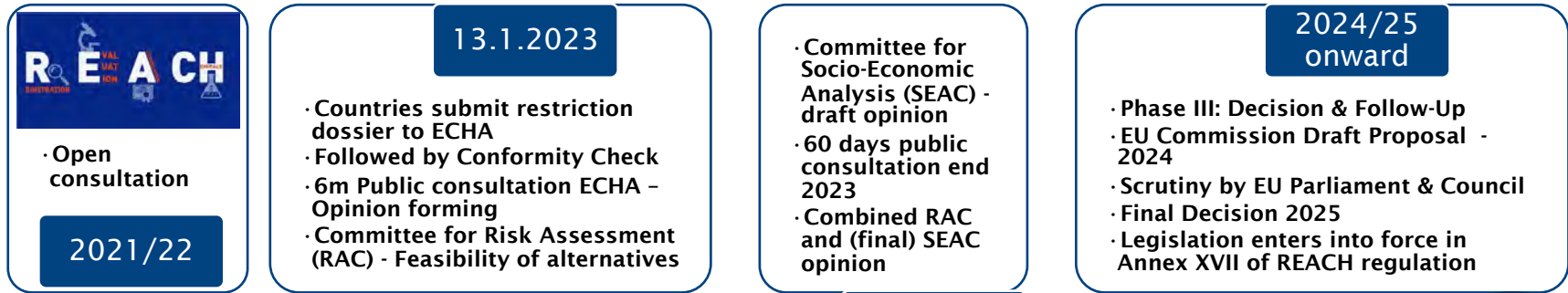


- F-Gas Regulation calls for lower GWP - HFO / blends.
- Secondary atmospheric decomposition effects on GWP values?
- R32 → COF2 - Carbonylfluorid
- R1234ze → CF3CHO - Trifluoroacetaldehyd → up to 10% R23 (GWP 12.690)
- (All GWP: AR4 report)

GWP of common refrigerants: R404A: 3922 R410A: 2088 R407C: 1774 R134a: 1430 R32: 675

# Timeline until legal certainty

## F-Gas and REACH



2023

In 2023: Expected Adoption of revised F-Gas Regulation – proposed phase-down is a factual phase-out

