

Association
of the region's
leading HVACR
manufacturers

Refrigerants: Update on the transition to low GWP alternatives

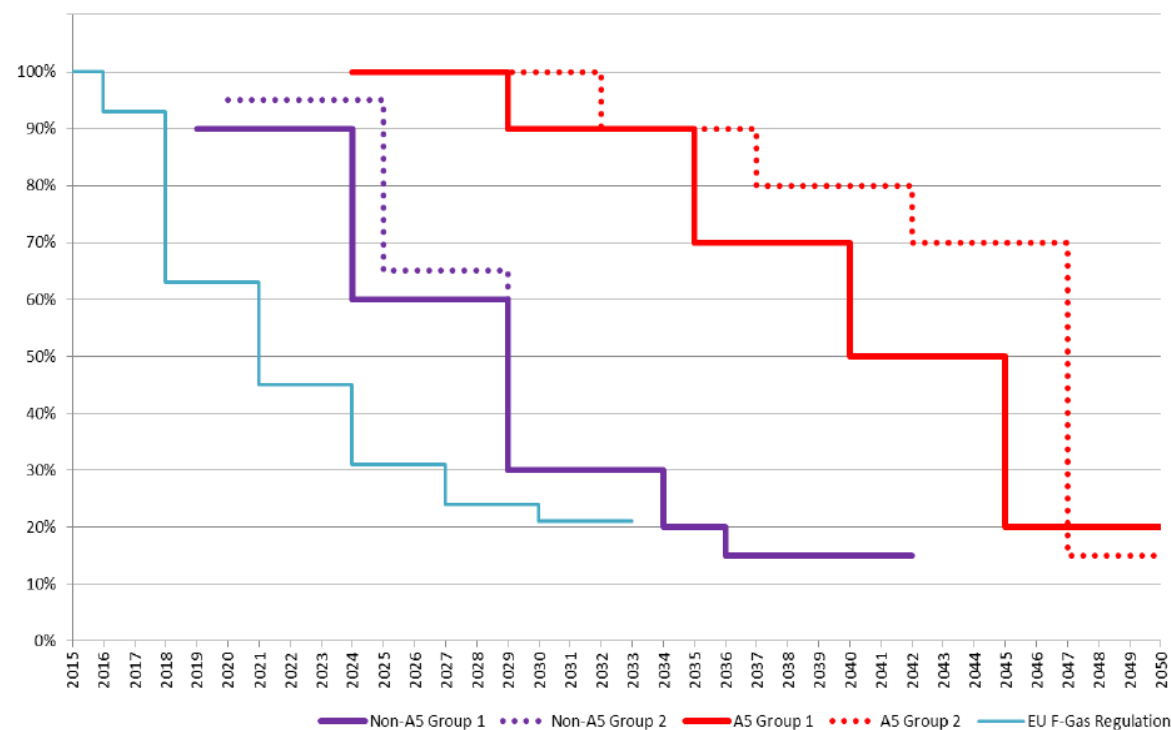
Content

- 📍 Kigali Amendment to the Montreal Protocol
- 📍 EU F-GAS Regulation (2014)
- 📍 EU F-GAS Regulation: Review Proposal
- 📍 Possible low GWP alternatives for the GCC Region

Kigali Amendment

- Step forward to reduce global warming
- Quota Mechanism: Global phase-down of HFCs on CO2e basis
- Energy efficiency gains could significantly increase climate impact
- Non A5 Group (USA and others)
- A5 Group 1 (China and Africa)
- **A5 Group 2 (Middle East)**

Kigali Amendment
 HFC Phase-Down Schedules



2014 EU F-Gas Regulation

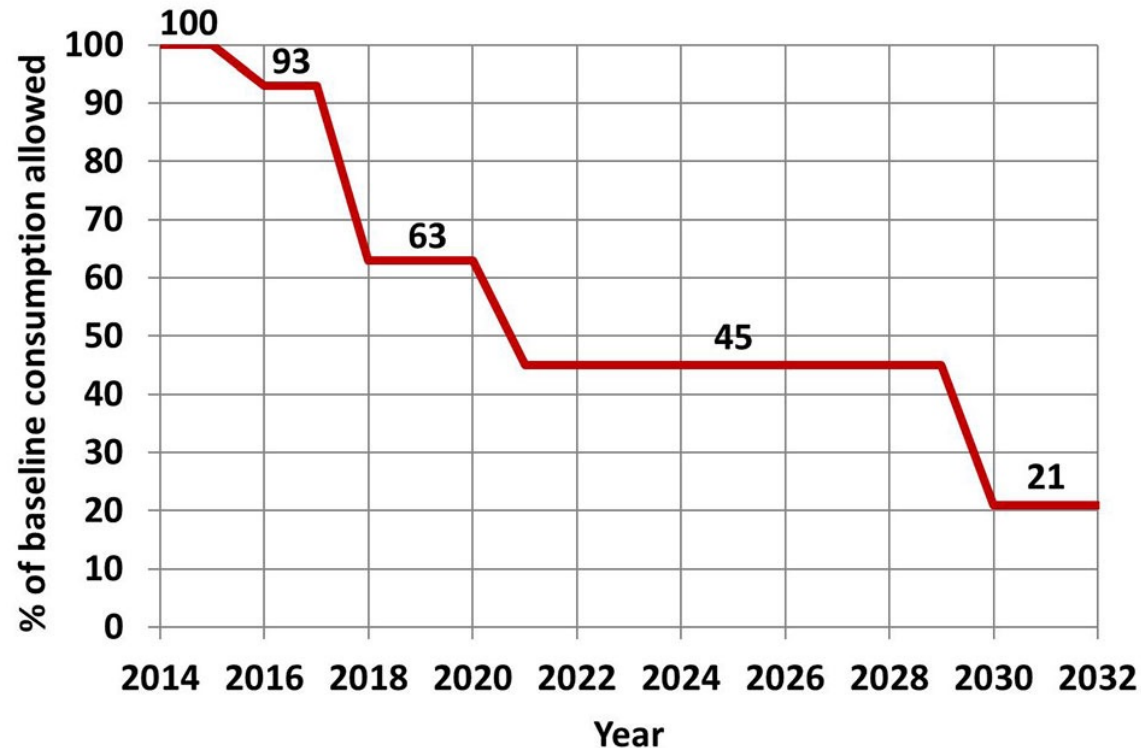
- **Control** F-Gases, including hydrofluorocarbons HFCs
- **Limit the total amount** of most important F-gases sold in the EU from 2015 onwards
- **Ban the use** of F-Gases in many new types of equipment where less harmful alternatives are widely available
- **Prevent emissions** of F-Gases from existing equipment

OBJECTIVES



- 1.
- 2.
- 3.

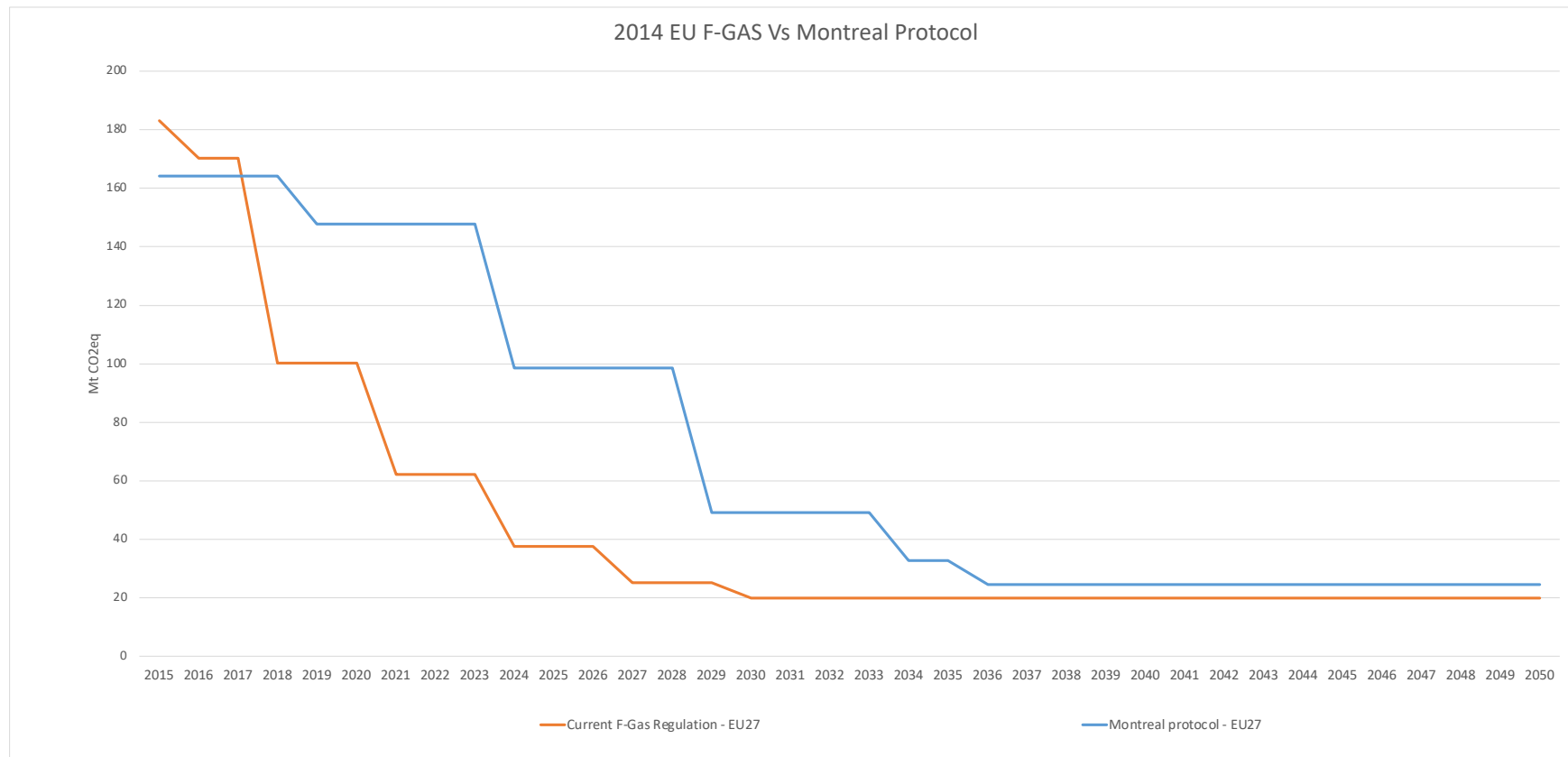
2014 EU F-Gas Regulation - HFC Phase down



The **F-Gas quota** dictates the admissible amounts of HFCs that can be placed on the EU market:

- 93% (2016)
- 63% (2018)
- 45% (2021)
- 21% (2030)

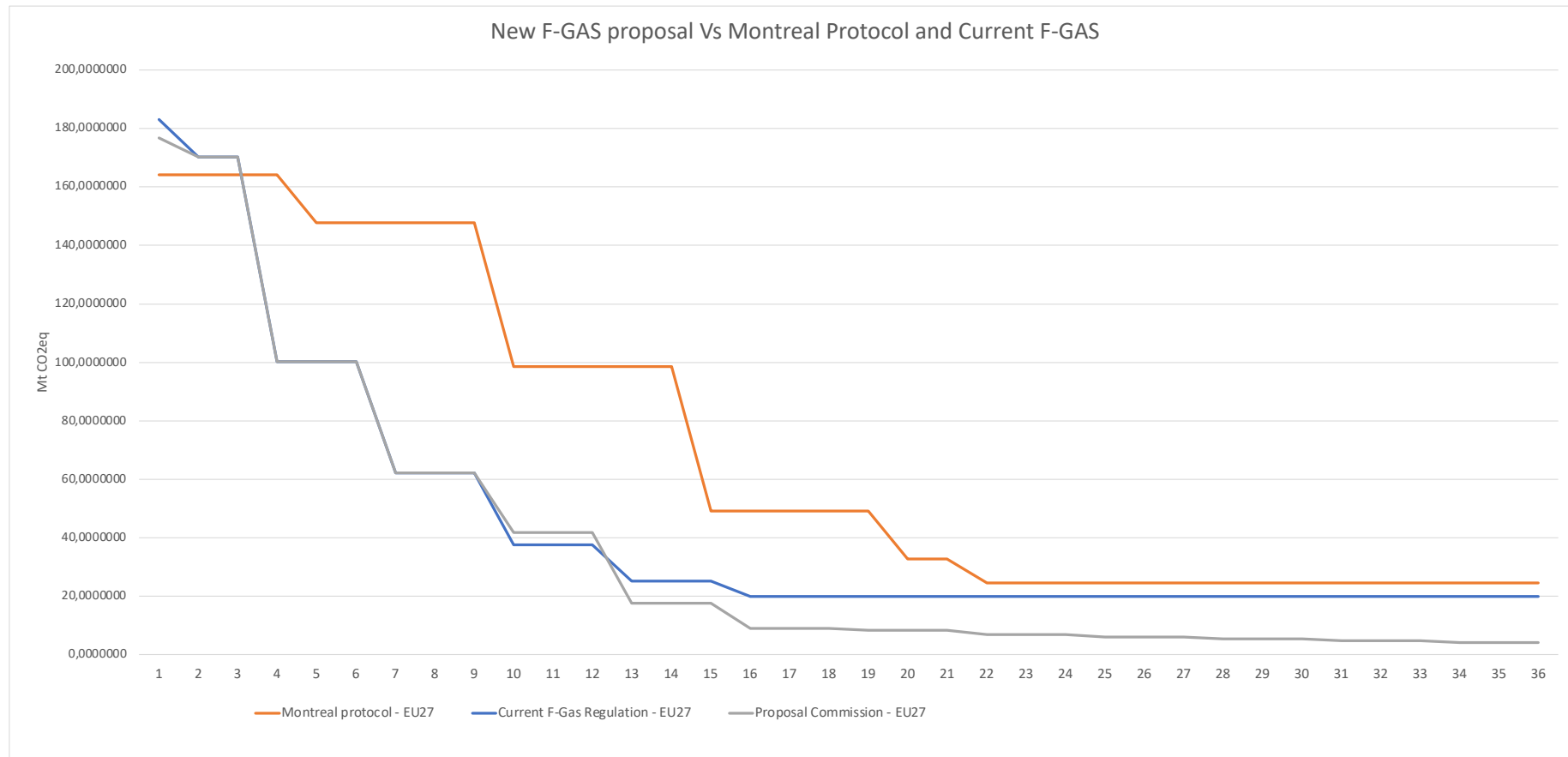
EU F-GAS Vs Montreal Protocol



EU - Ban the use of F-Gases

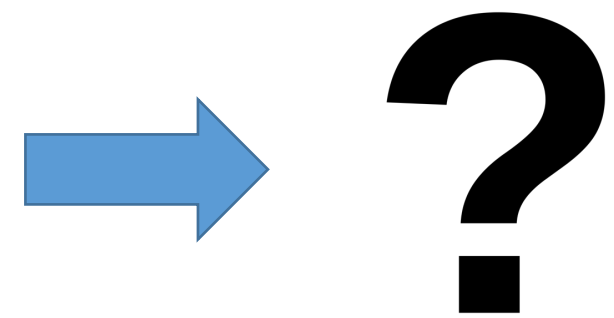
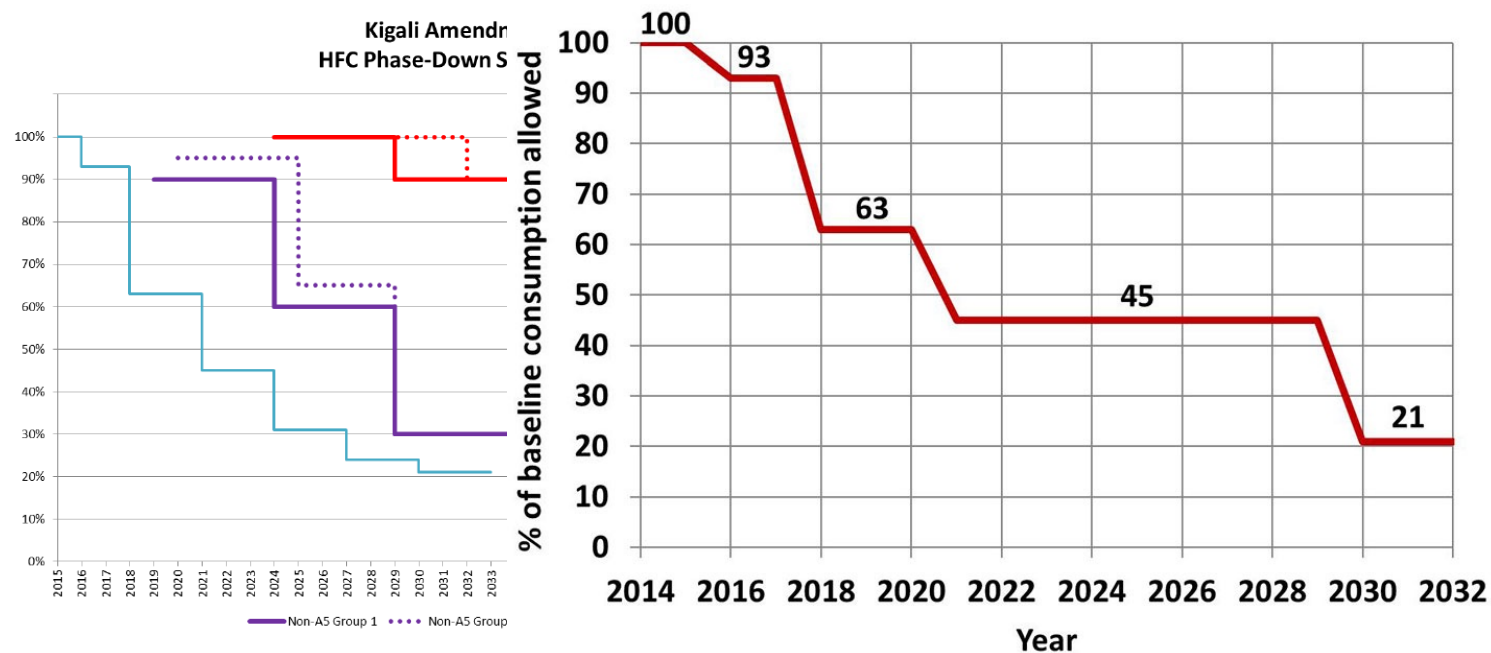
Product	Ban
Domestic refrigerator and freezers	GWP=150; Jan 2015
Refrigerator and freezers for commercial use (hermetically sealed)	GWP=2500; Jan 2020
Refrigerator and freezers for commercial use (hermetically sealed)	GWP=150; Jan 2022
Stationary refrigeration equipment	GWP=2500; Jan 2020
Multipack centralised refrigeration systems for commercial use with a capacity of $\geq 40\text{kW}$	GWP=150; Jan 2022
Movable room air-conditioning appliances	GWP=150; Jan 2020
Single split air-conditioning systems containing $< 3\text{kg}$	GWP=750; Jan 2025

EU Review Proposal Vs Montreal Protocol



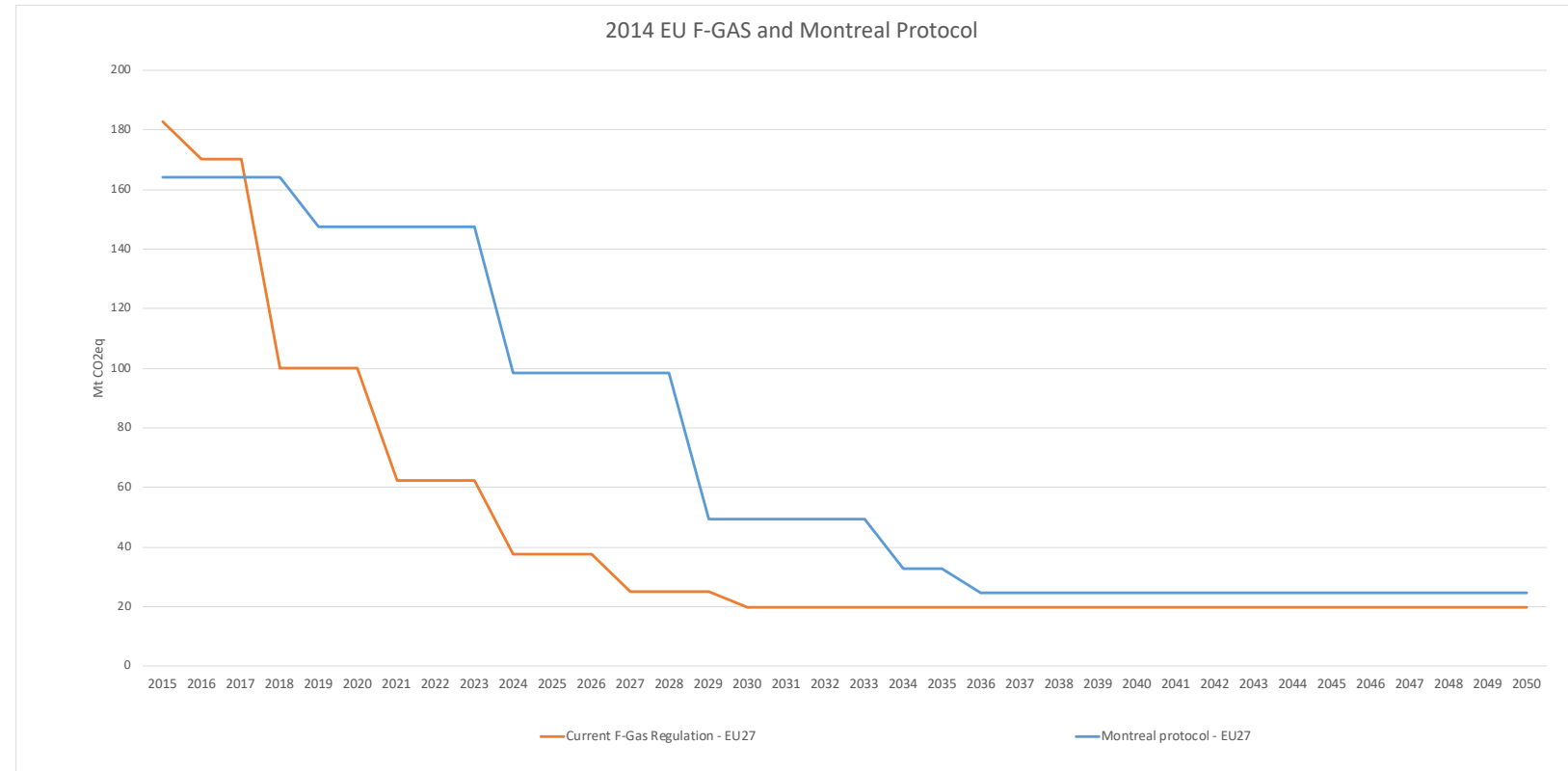
Possible low GWP alternatives for the GCC

Kigali Amendment + 2014 EU F-GAS →



Possible low GWP alternatives for the GCC

The GCC Region might consider aiming at the current EU FGAS approach



Possible low GWP alternatives for the GCC

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Thank You!