



UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION



**SUSTAINABLE DEVELOPMENT GOAL 9**  
INDUSTRY, INNOVATION AND INFRASTRUCTURE

# Kigali Amendment Analysis

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Presented by:

Ole Nielsen, Chief Montreal Protocol Division, UNIDO





# Outline

- Kigali Amendment facts;
- Challenges and opportunities.



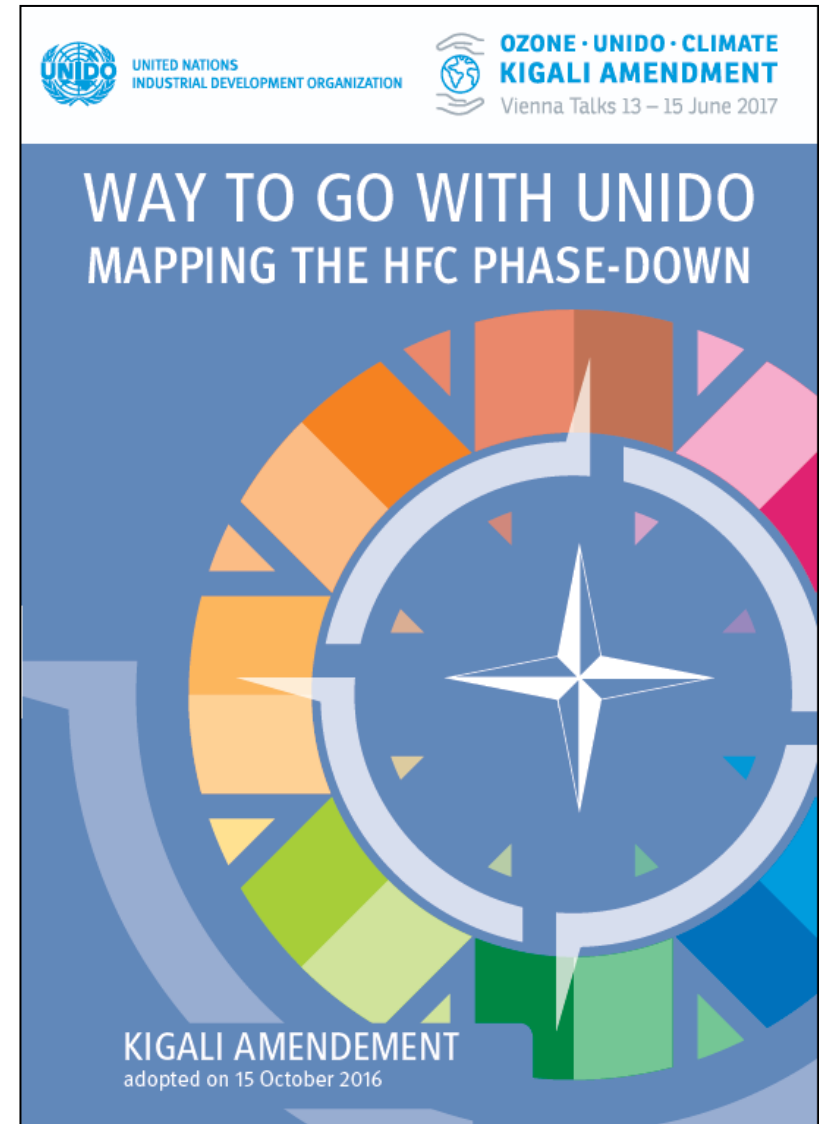


## 28th MOP in Kigali





# Kigali Amendment





# Kigali Amendment facts

## 3 major decisions:

- HFC phase-down (XXVIII/1&2)
- Energy efficiency (XXVIII/3); and
- Safety standards (XXVIII/4)



# HFC Phase-down

- Annex F substances

| Substance <sup>†</sup> | 100-year GWP <sup>**</sup> | Safety Class |
|------------------------|----------------------------|--------------|
| HFC-134a               | 1,430                      | A1           |
| HFC-245fa              | 1,030                      | B1           |
| HFC-365mfc             | 794                        | –            |
| HFC-227ea              | 3,220                      | A1           |
| HFC-236fa              | 9,810                      | A1           |
| HFC-43-10mee           | 1,640                      | –            |
| HFC-32                 | 675                        | A2L          |
| HFC-125                | 3,500                      | A1           |
| HFC-143a               | 4,470                      | A2L          |
| HFC-152a               | 124                        | A2           |
| HFC-23 <sup>***</sup>  | 14,800                     | A1           |

| HFC Blend <sup>(a,b)</sup> | 100-year GWP <sup>(c)</sup> | Safety Class |
|----------------------------|-----------------------------|--------------|
| R-404A                     | 3,922                       | A1           |
| R-407A                     | 2,107                       | A1           |
| R-407C                     | 1,774                       | A1           |
| R-407F                     | 1,825                       | A1           |
| R-410A                     | 2,088                       | A1           |
| R-507A                     | 3,985                       | A1           |

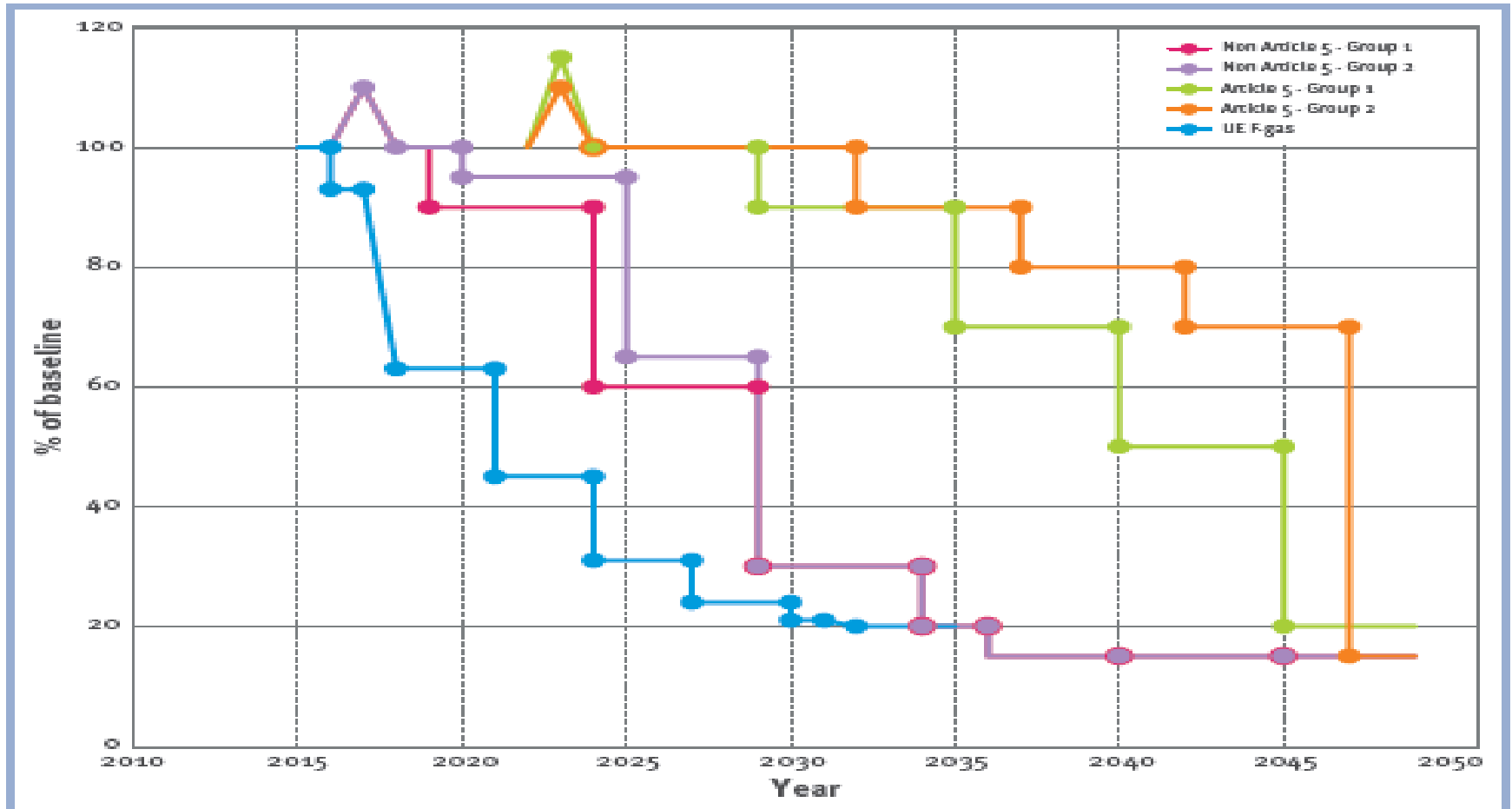


# HFC Phase-down

- Non-A5: Two schedules
- A5: Two schedules
- Special exemption for HAT countries in A/C subsector (multi-split, ducted split and rooftop):

**HAT High ambient temperature countries:** with peak monthly average temperature above 35°C for an average of at least two months per year over ten consecutive years, for sub-sectors where suitable alternatives do not exist (Algeria, Bahrain, Benin, Burkina Faso, Central African Republic, Chad, Côte d'Ivoire, Djibouti, Egypt, Eritrea, Gambia, Ghana, Guinea, Guinea-Bissau, Islamic Republic of Iran, Iraq, Jordan, Kuwait, Libya, Mali, Mauritania, Niger, Nigeria, Oman, Pakistan, Qatar, Saudi Arabia, Senegal, Sudan, Syrian Arab Republic, Togo, Tunisia, Turkmenistan and United Arab Emirates).

# HFC Phase-down





# HFC Phase-down

- **Baseline**

## Baseline formula for all country groups

### Non-A5 Parties

Average HFC consumption for 2011-2013 +  
15% of HCFC baseline

### Non-A5 Parties Special Group\*

Average HFC consumption for 2011-2013 +  
25% HCFC component of baseline

### A5 Parties Group 1

Average HFC consumption (or production)  
for 2020-2022 + 65% of HCFC baseline

### A5 Parties Group 2

Average HFC consumption (or production)  
for 2024-2026 + 65% of HCFC baseline



# HFC Phase-down

- Phase-down calculated in CO<sub>2</sub> equivalents
- Enters into force in 2019 or 3 months after 20 countries have ratified
- Trade ban in 2033 with non-parties
- Country flexibility in selection of phase-down strategy

# HFC Phase-down

- Next steps:
  - ExCom to develop guidelines for HFC phase-down;
  - Enabling activities (voluntary MLF contribution);
    - Fast track – early start countries;
  - Funding guidelines for HFC phase-down;
    - Eligible incremental costs;
  - Incremental costs for preserving or enhancing energy efficiency.
- Make sure you have influence !!!
- Coordinate well with your country representatives !!!



# Energy Efficiency

- Direct vs indirect emission
- Maintaining or improving energy efficiency is key for success of Kigali Amendment
- TEAP review of energy efficiency opportunities;
- Countries to submit info on innovations that could improve energy efficiency;
- TEAP to report on energy efficiency at 29<sup>th</sup> MOP in Montreal.





## Safety standards

- Low- or no-GWP alternatives are either flammable, toxic or with excess pressure;
- Safety standards haven't been revised for long time;
- Standardization process is time consuming (slow) and to some extent driven by industry;
  
- TEAP to establish standards task force;
- TEAP report at 39<sup>th</sup> OEWG and Ozone Sec to arrange workshop;
- Countries urged to be more engaged through national standardization bodies;
- Regular consultations between Ozone Sec and standardization bodies.

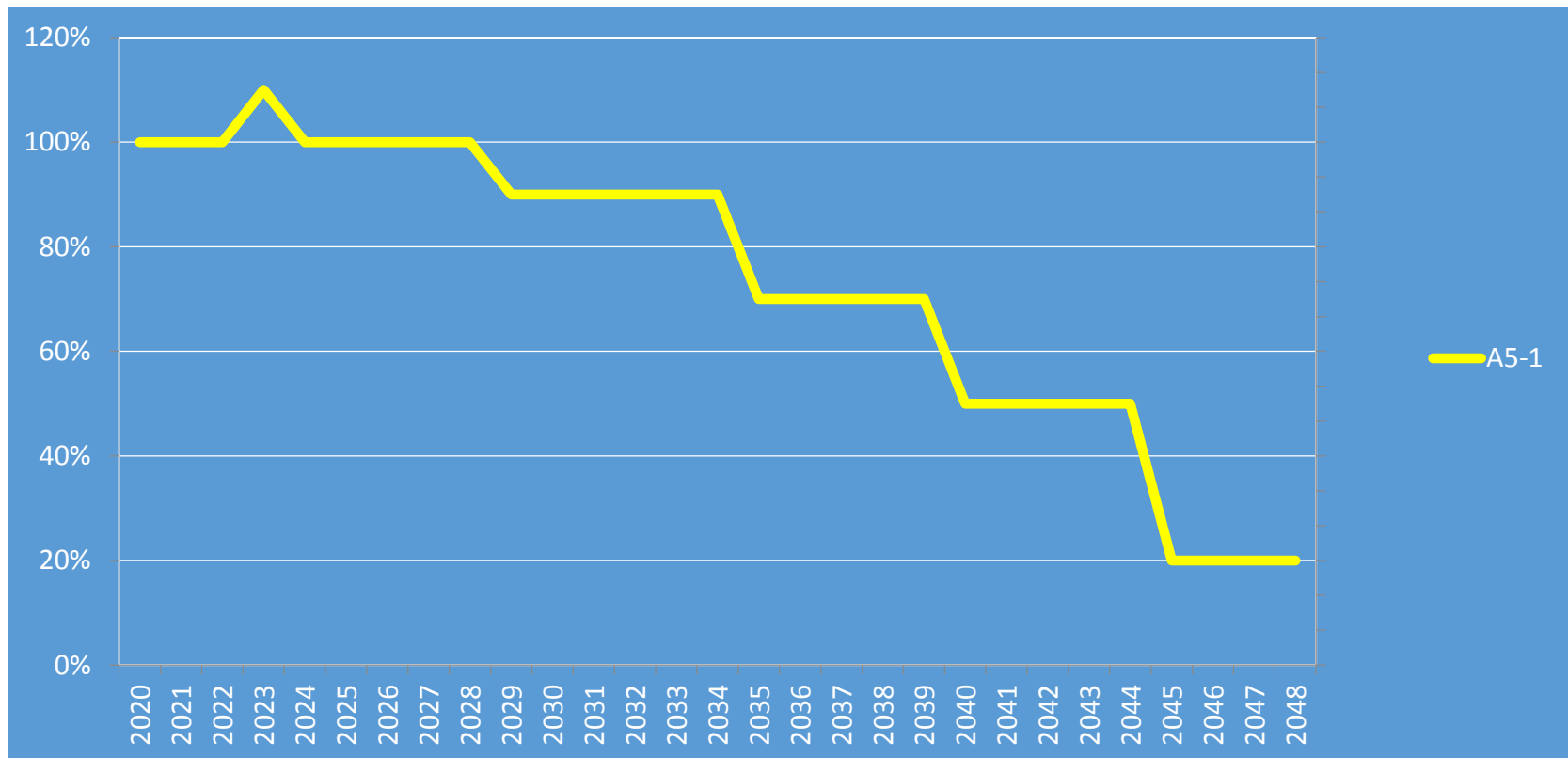


# Challenges / opportunities

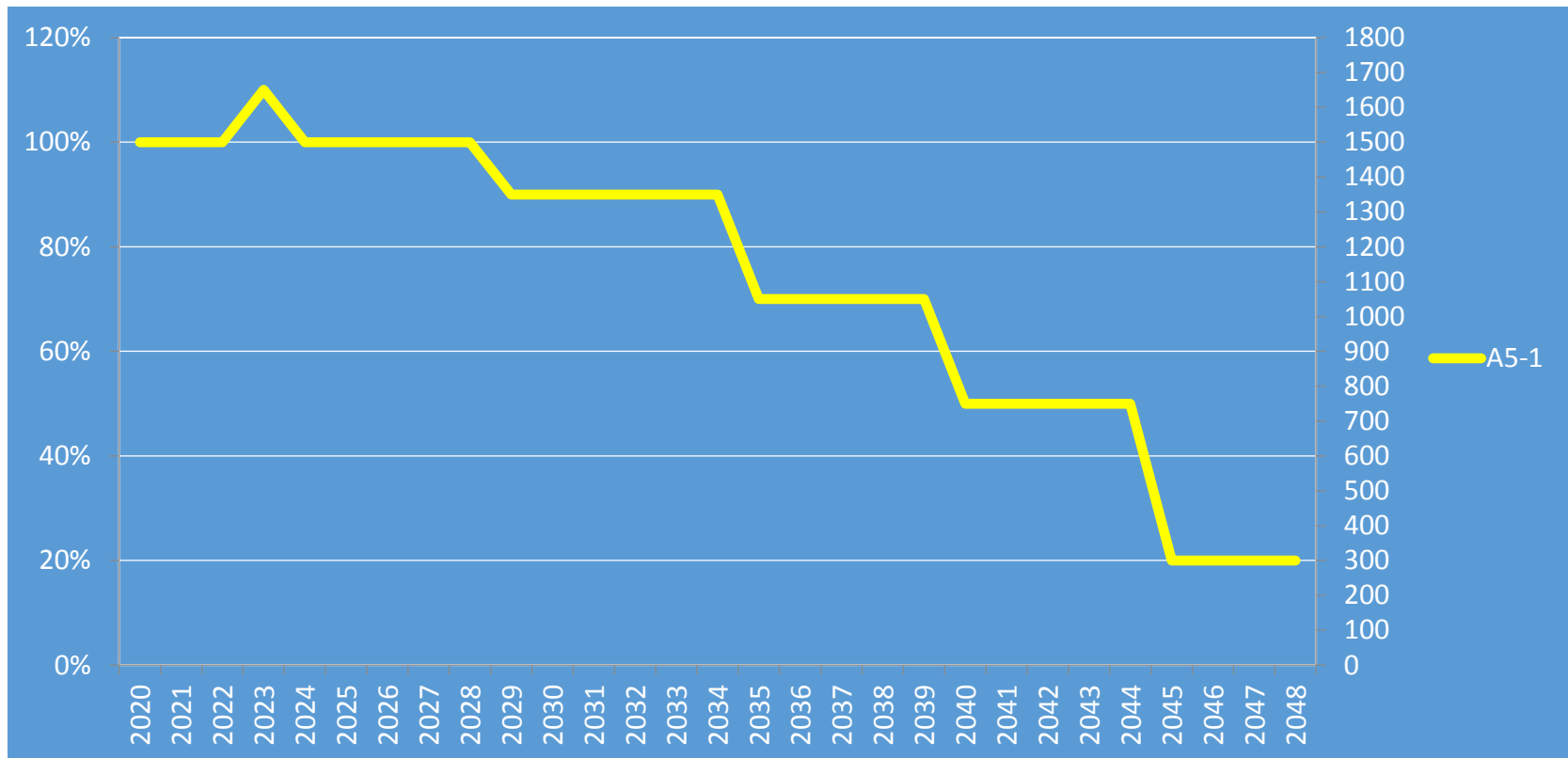
- Most important – Kigali Amendment gives regulatory certainty !!!
- Industry will find solutions
- New US administration?
  - Statement last week from Stephen Yurek, president of AHRI on Kigali Amendment: “The main challenge for industry will be to persuade republicans that this treaty is in our industry’s best interest – that we are supportive and fully prepared to carry out its provisions.”



# HFC phase-down schedule: A5-1



# HFC phase-down schedule: A5-1







*Thank you for your attention*

*Ole Reinholdt Nielsen*

*Chief; Montreal Protocol Division  
UNIDO – Department of Environment  
[O.Nielsen@unido.org](mailto:O.Nielsen@unido.org)*

