



Greenhouse Gas Industrial Reporting and Control Act Bulletin 025

Updated Global Warming Potentials

Greenhouse Gas Industrial Reporting and Control Act (GGIRCA)

Overview

This bulletin provides notification to industrial operators, offset project proponents and verification bodies that have obligations under the GGIRCA and its regulations, that global warming potential (GWP) values have been updated. The GWP values have been updated from the Intergovernmental Panel on Climate Change's (IPCC) Fourth Assessment Report (AR4) to the Fifth Assessment Report (AR5) values for determining tonnes of carbon dioxide equivalent (tCO₂e) as per [Order in Council No. 682](#). This amendment aligns with recommendations from the United Nations Framework Convention on Climate Change (UNFCCC), IPCC and Government of Canada greenhouse gas (GHG) quantification methodologies.

- Emissions reports required under the Greenhouse Gas Emission Reporting Regulation (GGERR) are submitted through the Environment and Climate Change Canada's Single Window Reporting System (SWRS). SWRS will utilize AR5 GWP values to calculate tCO₂e for the 2022 reporting year.
- Offset project proponents must use the updated GWP values in accordance with the applicable offset protocol and the Greenhouse Gas Emission Control Regulation (GGECR).
- Verification bodies should ensure that verification procedures use updated GWP values in accordance with the regulations.

Industrial operators, offset project proponents and verification bodies should ensure that they understand the implications of these changes for their GHG emission reporting, verification and validation requirements. Questions or concerns related to this amendment may be directed to GHGRegulator@gov.bc.ca.

Background

GWPs are a metric used to convert tonnes of different GHG emissions (such as CH₄, N₂O, PFCs, HFCs, etc.) into their tCO₂e. This is based on the gases' relative climate forcing, or their ability to trap heat in the atmosphere over a standardized time period. Carbon dioxide equivalent is defined as "the mass of carbon dioxide that would produce the same global warming impact as a given mass of a greenhouse gas [as] determined by multiplying the mass of the greenhouse gas by the applicable 100-year time horizon global warming potential¹."

GWP factors are periodically updated by the UNFCCC and IPCC based on the latest scientific research.

¹ Greenhouse Gas Emission Reporting Regulation 2022

Legislated Amendments

The table in the Schedule of the Carbon Neutral Government Regulation (CNG Regulation) was amended with updated GWPs. No changes are necessary to the GGERR or applicable offset protocols as they refer to the values set in the CNG Regulation.

The GGERR and applicable offset protocols refer to the GWPs set out in column 4 of the Schedule to the CNG Regulation. The GWPs listed in the Schedule to the CNG Regulation were updated to the AR5 values by Order in Council No. 682 on December 19, 2022. See AR5 GWP values in Table 1 below.

Table 1: AR5 GWP values

| Column 1 Item | Column 2 Specified Gas | Column 3 Chemical Formula | Column 4 Global Warming Potential (100 year time horizon) |
|--------------------------|-----------------------------------|---|--|
| 1 | Carbon dioxide | CO ₂ | 1 |
| 2 | Methane | CH ₄ | 28 |
| 3 | Nitrous oxide | N ₂ O | 265 |
| 4 | HFC-23 | CHF ₃ | 12400 |
| 5 | HFC-32 | CH ₂ F ₂ | 677 |
| 6 | HFC-41 | CH ₃ F | 116 |
| 7 | HFC-43-10mee | C ₅ H ₂ F ₁₀ | 1650 |
| 8 | HFC-125 | C ₂ HF ₅ | 3170 |
| 9 | HFC-134 | C ₂ H ₂ F ₄ (CHF ₂ CHF ₂) | 1120 |
| 10 | HFC-134a | C ₂ H ₂ F ₄ (CH ₂ FCF ₃) | 1300 |
| 11 | HFC-143 | C ₂ H ₃ F ₃ (CHF ₂ CH ₂ F) | 328 |
| 12 | HFC-143a | C ₂ H ₃ F ₃ (CF ₃ CH ₃) | 4800 |
| 13 | HFC-152a | C ₂ H ₄ F ₂ (CH ₃ CHF ₂) | 138 |
| 14 | HFC-227ea | C ₃ HF ₇ | 3350 |
| 15 | HFC-236fa | C ₃ H ₂ F ₆ | 8060 |
| 16 | HFC-245ca | C ₃ H ₃ F ₅ | 716 |
| 17 | Perfluoromethane | CF ₄ | 6630 |
| 18 | Perfluoroethane | C ₂ F ₆ | 11100 |
| 19 | Perfluoropropane | C ₃ F ₈ | 8900 |
| 20 | Perfluorobutane | C ₄ F ₁₀ | 9200 |
| 21 | Perfluorocyclobutane | c-C ₄ F ₈ | 9540 |
| 22 | Perfluoropentane | C ₅ F ₁₂ | 8550 |
| 23 | Perfluorohexane | C ₆ F ₁₄ | 7910 |
| 24 | Sulphur hexafluoride | SF ₆ | 23500 |

Applicability

The new requirements apply to industrial operations and offset project proponents and are effective immediately.

Regulation is Determinative

The above is not legal advice and is provided as an aid in understanding GGIRCA, its' regulations and applicable offset protocols. Industrial operators and offset project proponents are responsible for reviewing the legislation to ensure compliance.