

# Joint-Statement on GWP\* and Livestock Methane

The livestock industry is increasingly lobbying for governments to adopt GWP\* as a metric for reporting the Global Warming Potential (GWP) of greenhouse gas (GHG) emissions. This is extremely concerning: if governments adopt GWP\* - also being pushed by the livestock industry under alternative names such as “no added warming” – then this could completely derail efforts to address livestock emissions in national and international climate regulations.

We, the undersigned, strongly advise against the adoption of GWP\* as a climate metric at country or company-level – either for GHG reporting, or as a guide for climate mitigation policies. We instead recommend maintaining the use of GWP100 (or GWP20) for measuring the atmospheric heating caused by greenhouse gases aggregated at the country and company level, alongside increased reporting of individual greenhouse gases to reduce reliance on equivalence metrics in general. We also recommend maintaining the use of GWP100 (or GWP20) as a guide to climate mitigation policies.

There is a high risk that adoption of GWP\* at country or company level would:

- 1) Allow livestock companies to greenwash their production systems or products as “climate neutral” or “climate negative” whilst continuing to cause large amounts of emissions
- 2) Unjustly reward historically high methane emitters (at country and company level, usually those in the Global North) whilst heavily penalising countries in the Global South for comparatively low methane emissions
- 3) Seriously undermine international efforts to reduce global greenhouse gas emissions in line with the Paris Agreement target of 1.5°C:
  - a) Severely damage international efforts to restrict global methane emissions from the livestock sector, and
  - b) Significantly compromise efforts to reduce global CO<sub>2</sub> and N<sub>2</sub>O emissions in other sectors by allowing potential for minor methane reductions to be used as offsets for other emissions

An effective climate metric should answer the question “If I emit this ton of substance X, how much more or less warming do I cause compared to a world in which I had not emitted anything?”.<sup>1</sup> A successful climate metric needs to measure the *total* global warming contribution of a greenhouse gas – including the ongoing warming impact of methane which is being replaced in the atmosphere. GWP\* fails on both these counts. It narrowly measures *changes* in global warming contribution, rather than *total ongoing* GWP impacts. This means that the use of GWP\* at country or company level can distort GHG emissions reporting and incentivise perverse climate change mitigation policies:

- GWP\* is open to significant abuse, because depending on the choice of baseline year, the same volume of methane emissions can be described as causing warming, no warming or even cooling.<sup>2</sup>
- Under GWP\*, when the warming impact of a country or company’s methane emissions is ongoing but does not change, it can be declared “climate neutral” – when in fact, the warming impact of the methane being actively replaced in the atmosphere is considerable and doing continued harm.
- Under GWP\*, even minor reductions in methane can be rewarded as having a net-cooling impact, and used to offset other CO<sub>2</sub> or N<sub>2</sub>O emissions – when in fact, their warming impact has only declined compared to their historical impact, and they are still having a significant ongoing warming impact.

- Under GWP\*, countries least responsible for climate change can be disproportionately punished for any growth in methane emissions, whilst historically large emitters of methane are allowed to continue polluting with minimal reductions.<sup>3</sup>

To illustrate these perverse effects: Under GWP\*, the US beef and dairy industry could claim “climate neutrality”, whilst actually continuing to emit all its current CO<sub>2</sub> and N<sub>2</sub>O emissions and 68-82% of its current methane emissions by 2050.<sup>4</sup> Under GWP\*, New Zealand could declare itself climate neutral whilst actually still emitting 76% of its current methane *and* continuing current CO<sub>2</sub> and N<sub>2</sub>O emissions from all other sectors by 2050.<sup>5</sup> Using GWP\* would allow a free pass or actively reward a large multinational livestock corporation like JBS, which is estimated to cause as many greenhouse gas emissions as Spain,<sup>6</sup> whilst heavily punishing small-scale livestock farmers in the Global South if they increase their methane emissions from a low baseline – for instance, by expanding the size of their cattle herd.

Defences of GWP\* often misleadingly argue that biogenic (non-fossil) methane is part of a natural cycle, and therefore has a significantly lower impact than methane from fossil fuels. However, the IPCC AR6 report categorically shows that biogenic methane has only about 3% less warming impact than fossil methane over a 20-year period, and 9% less than over a 100-year period<sup>7</sup> – an almost identical effect. The livestock sector accounts for an estimated 31% of global methane emissions,<sup>8</sup> and increases in livestock numbers led to an estimated 332% increase in methane emissions from ruminant livestock between 1890 and 2014<sup>9</sup>. The IPCC estimates that methane has contributed an estimated 0.5°C of global warming since 1850-1900<sup>10</sup>. Reductions in methane would rapidly reduce global warming in the short-term – and thus, could be crucial to avoid breaching the Paris Agreement target of 1.5°C and to avoid reaching climate tipping points such as melting of permafrost<sup>11</sup>.

Moreover, GWP100 is embedded in the Paris Climate Agreement, countries’ Nationally Determined Contributions and numerous other mechanisms such as emissions trading schemes; it would be impractical and politically damaging to renegotiate these using GWP\*, wasting valuable time and undermining efforts to reach the Paris Agreement target of 1.5°C.<sup>12</sup>

While GWP\* is a useful model for narrowly measuring the *change* in warming impact of methane emissions over time at global level, it is totally inappropriate as a metric for measuring progress on climate impact by businesses and countries,<sup>13</sup> or for measuring the total ongoing warming impact of greenhouse gas emissions globally.

Scientists have raised the alarm that significant reductions in methane are required – by at least 33% by 2030<sup>14</sup> and 47–60% by 2050<sup>15</sup> – to meet the Paris Agreement. Therefore, a “no added warming” approach of merely stabilizing the impact of major methane emitters is insufficient, particularly in a context where likely overshoot of 1.5 degrees global warming makes temperature reduction necessary.<sup>16</sup> The Paris Agreement calls for governments to implement policies which reflect their “highest possible ambition” – a “no added warming approach” is directly contrary to this, diminishing ambition.

In conclusion, the risks of GWP\* significantly outweigh the benefits, and we strongly advise against its adoption at country or company level – either as the primary measure of methane emissions, or alongside existing metrics such as GWP100. This would open the door to the significant risks above, enabling countries and companies to misuse GWP\* to lower their climate ambitions and greenwash progress. We urge governments, businesses and regulators globally to do everything within their power to ensure that methane is substantially reduced, particularly by 2030, to keep 1.5°C alive – and not to give the livestock industry a free pass through GWP\*.

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## References

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<sup>1</sup> Malte Meinshausen and Zebedee Nicholls, 'GWP\* is a Model, Not a Metric', *Environmental Research Letters* 17, no. 4 (March 2022): 041002, <https://doi.org/10.1088/1748-9326/ac5930>.

<sup>2</sup> Ibid.

<sup>3</sup> Joeri Rogelj and Carl-Friedrich Schleussner, 'Unintentional Unfairness When Applying New Greenhouse Gas Emissions Metrics at Country Level', *Environmental Research Letters* 14, no. 11 (November 2019): 114039, <https://doi.org/10.1088/1748-9326/ab4928>.

<sup>4</sup> Ibid., 11–14.

<sup>5</sup> Michelle Cain, 'New Zealand's Farmers Have a Chance to Be Climate Leaders', Climate Home News, 15 May 2019, <https://www.climatechangenews.com/2019/05/15/new-zealands-farmers-chance-climate-leaders/>.

<sup>6</sup> IATP and Changing Markets Foundation, 'Emissions Impossible: Methane Edition' (The Institute for Agriculture and Trade Policy (IATP) and the Changing Markets Foundation, 15 November 2022), <https://www.iatp.org/emissions-impossible-methane-edition> Annex 2; Hannah Ritchie, Max Roser, and Pablo Rosado, 'CO<sub>2</sub> and Greenhouse Gas Emissions', *Our World in Data*, 11 May 2020, <https://ourworldindata.org/greenhouse-gas-emissions>.

<sup>7</sup> IPCC, *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, 1st ed. (Cambridge, United Kingdom and New York, USA: Cambridge University Press, 2021), <https://doi.org/10.1017/9781009157896>.

<sup>8</sup> Ilissa B. Ocko et al., "Acting Rapidly to Deploy Readily Available Methane Mitigation Measures by Sector Can Immediately Slow Global Warming," *Environmental Research Letters* 16, no. 5 (May 2021): 054042, <https://doi.org/10.1088/1748-9326/abf9c8>.

<sup>9</sup> Shree R. S. Dangal et al., "Methane Emission from Global Livestock Sector during 1890-2014: Magnitude, Trends and Spatiotemporal Patterns," *Global Change Biology* 23, no. 10 (October 2017): 4147–61, <https://doi.org/10.1111/gcb.13709>.

<sup>10</sup> IPCC, 7.

<sup>11</sup> Richard E. Fewster et al., "Imminent Loss of Climate Space for Permafrost Peatlands in Europe and Western Siberia," *Nature Climate Change* 12, no. 4 (April 2022): 373–79, <https://doi.org/10.1038/s41558-022-01296-7>.

<sup>12</sup> Meinshausen and Nicholls, 'GWP\* is a Model, Not a Metric'.

<sup>13</sup> Ibid.

<sup>14</sup> IPCC, "The Evidence Is Clear: The Time for Action Is Now. We Can Halve Emissions by 2030," IPCC, April 4, 2022, <https://www.ipcc.ch/2022/04/04/ipcc-ar6-wgiii-pressrelease/>.

<sup>15</sup> Joeri Rogelj and Robin D. Lamboll, "Substantial Reductions in Non-CO<sub>2</sub> Greenhouse Gas Emissions Reductions Implied by IPCC Estimates of the Remaining Carbon Budget," *Communications Earth & Environment* 5, no. 1 (January 12, 2024): 1–5, <https://doi.org/10.1038/s43247-023-01168-8>.

<sup>16</sup> Caspar L. Donnison and Donal Murphy-Bokern, 'Are Climate Neutrality Claims in the Livestock Sector Too Good to Be True?', *Environmental Research Letters* 19, no. 1 (December 2023): 011001, <https://doi.org/10.1088/1748-9326/ad0f75>.