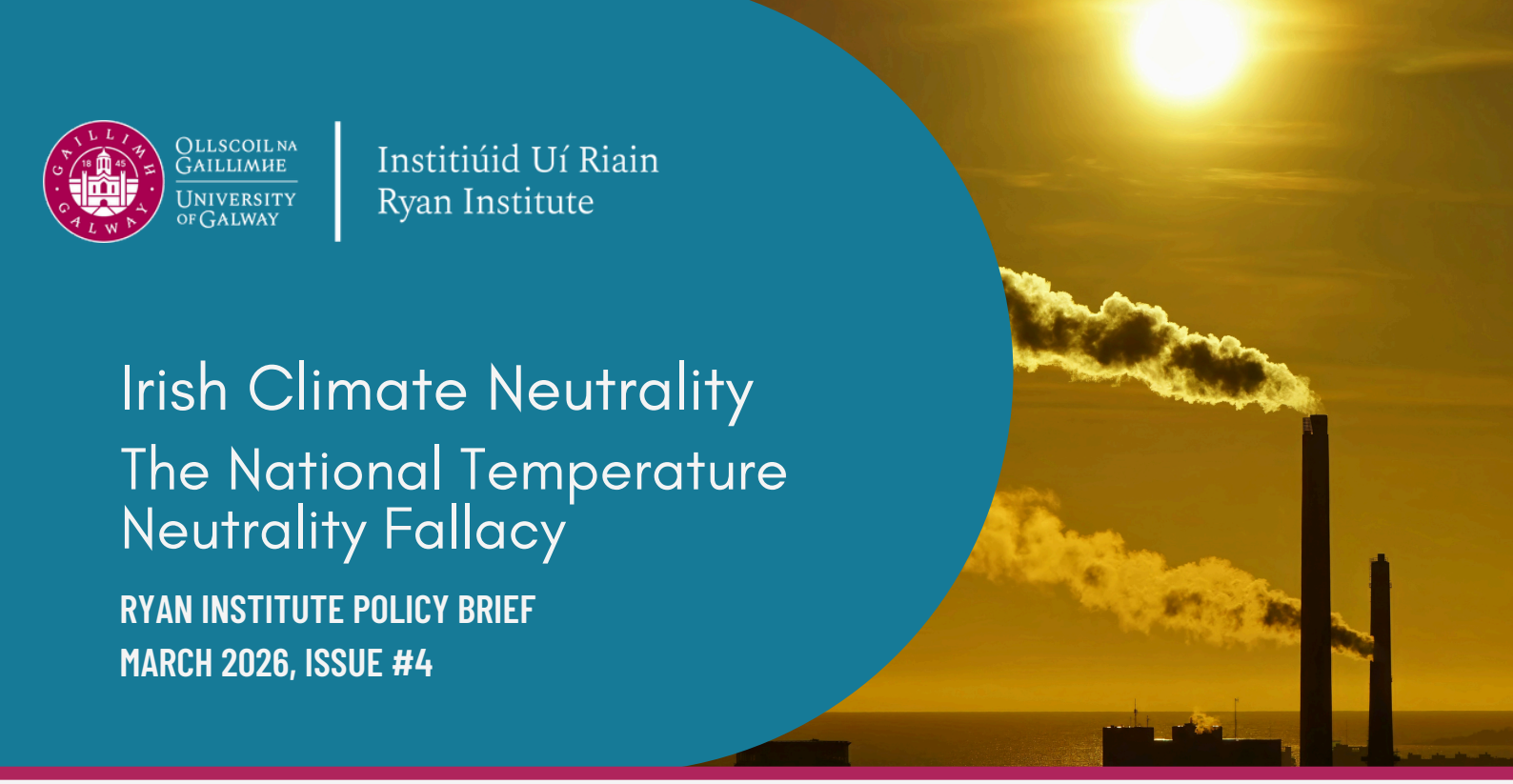
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# Irish Climate Neutrality
# The National Temperature Neutrality Fallacy

**RYAN INSTITUTE POLICY BRIEF**
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## SUMMARY FOR POLICYMAKERS

**Temperature neutrality defines a country's ambition in terms of stabilising their contribution to global temperature change.**

**However, its sufficiency is conditional on the delivery of the full global mitigation effort assumed in international 1.5°C mitigation pathways.**

**If widely adopted, temperature-neutral targets do not aggregate to the mitigation effort required to achieve 1.5°C. The framework can function only under limited adoption.**

**A split-gas approach offers a practical and internationally compatible alternative to temperature neutrality, allowing for absolute emission reduction targets for long-lived gases, and short-lived gases like methane.**

## OUR RESEARCH

### IRELAND'S CLIMATE NEUTRALITY CHALLENGE

Ireland has a legal commitment to achieve climate neutrality. How climate neutrality is defined in the Irish context will shape national climate ambition, land use strategy, and Ireland's contribution to global mitigation.

In recent policy discussions, climate neutrality has been interpreted through the lens of temperature neutrality, or "no additional warming".

This policy brief explains why using a national temperature neutrality approach to define climate neutrality for Ireland carries substantial risk.

### WHAT DOES "TEMPERATURE NEUTRALITY" MEAN?

National temperature neutrality reframes "climate neutrality" as stabilising a country's contribution to global temperature change. Rather than committing to a fixed emissions reduction, national targets are defined relative to an assumed global mitigation pathway.

This pathway rerepresents a modelled global emissions trajectory consistent with a given temperature goal, for example limiting temperature increases to 1.5°C.

The concept of national "temperature neutrality" draws on the distinct behaviour of methane, a short-lived greenhouse gas (GHG). Unlike $CO_2$, which accumulates in the atmosphere and persists for centuries, causing additional warming until net emissions reach zero, methane has a much shorter atmospheric lifetime. Stabilising methane emissions can therefore stabilise its contribution to warming.

Under the concept of national temperature neutrality, methane-producing sectors can be considered "climate neutral" if they avoid adding further warming, even if emissions remain above zero. Advocates of this interpretation argue that climate policy should therefore focus on stabilising temperature contributions across gases. In practice, this typically requires significantly smaller reductions in overall GHG emissions, and can substitute active $CO_2$ removal with modest methane reductions in the short-term.

For countries such as Ireland, where methane constitutes a significant share of national emissions, this distinction carries significant policy relevance.

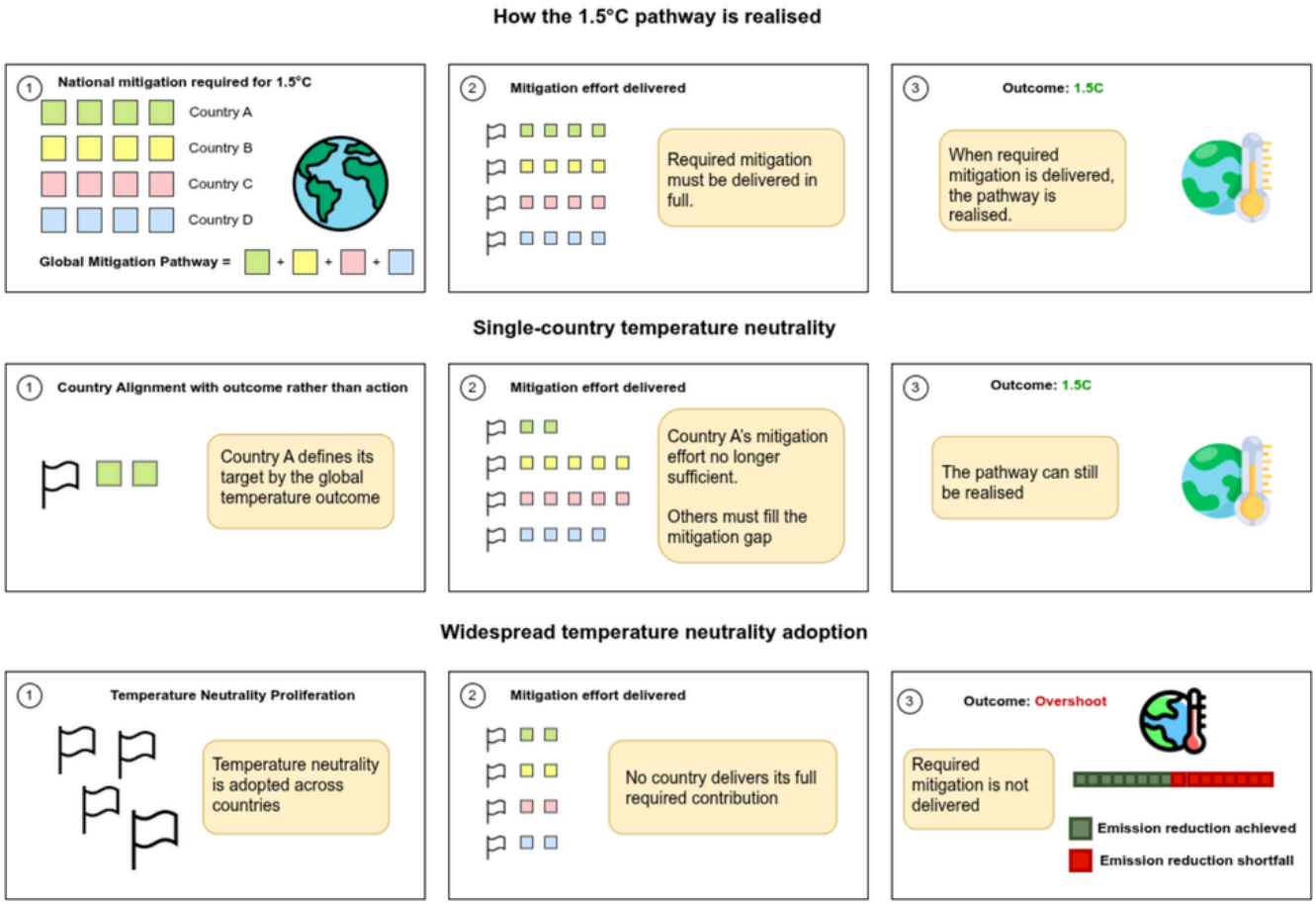



*Figure 1: Temperature neutrality defines national targets relative to an assumed global pathway. While a single country adopting this approach may not prevent the pathway from being realised, widespread adoption means required mitigation is no longer delivered in full. The framework therefore cannot scale globally without undermining the pathway on which it depends.*

## COLLECTIVE IMPLICATIONS OF TEMPERATURE NEUTRALITY

Temperature neutrality target setting has important structural implications. Defining national targets relative to an assumed global mitigation pathway, rather than independently specified national contributions, means that a country's contribution is conditional rather than fixed. Its adequacy depends on mitigation action in other countries.

If a single country defines its target relative to a global temperature outcome rather than specifying how it will contribute a fair share of effort to achieve that outcome, the actions of other countries could still deliver the desired global climate outcome.

However, if all (or many) countries align to national temperature neutrality targets, the collective mitigation effort will fall far short of the desired global climate outcome (see Figure 1). Climate neutrality target setting can only work for a few isolated countries, and therefore cannot scale globally without undermining the specific global mitigation pathway against which it must be calibrated.

## INTERNATIONAL AND INSTITUTIONAL CONTEXT

The Paris Agreement commits signatories, including Ireland and the European Union (EU), to limit global warming to well below 2°C and pursue efforts toward 1.5°C. This objective is operationalised through nationally determined contributions (NDCs), which are assessed collectively against global mitigation pathways.

Within the EU, this commitment is implemented through the European Climate Law, which sets a legally binding target of net-zero GHG emissions by 2050, alongside interim 2030 targets requiring absolute emission reductions from Member States. National targets and compliance assessments are expressed within established GWP100 accounting conventions under UNFCCC reporting frameworks.

These shared accounting rules allow national contributions to be compared, aggregated, and assessed against agreed global mitigation objectives using a common metric. Transparency and comparability are central to the functioning of the system.

Temperature neutrality is not currently embedded within these reporting frameworks. Adopting a bespoke temperature-based interpretation would require reinterpretation of existing accounting conventions and reduce transparency in how national contributions aggregate to global mitigation pathways.

Any durable national framework must therefore operate within, or be clearly reconcilable with, established international accounting structures in order to maintain credibility and acceptance among international partners.

## A SPLIT-GAS ALTERNATIVE

A split-gas approach offers a practical alternative to temperature neutrality that is compatible with existing international GWP100-based accounting and target setting.

Rather than defining ambition in terms of stabilising temperature outcomes, it sets explicit emissions targets for different GHGs within the existing accounting framework.

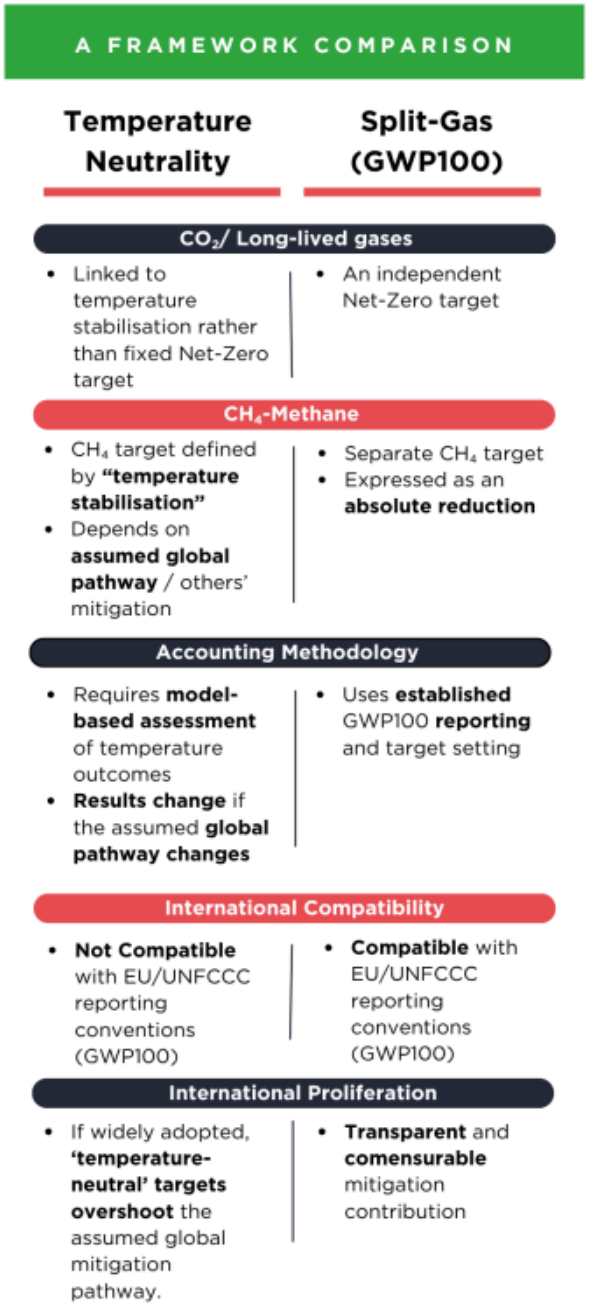
Under a split-gas framework, long-lived GHGs such as $CO_2$ are subject to a independent net-zero target, reflecting their cumulative impact on warming. Methane, recognising its short atmospheric lifetime, is assigned a separate and explicit reduction target. National contributions are defined in absolute terms and can be directly aggregated within EU and UNFCCC accounting systems.

This preserves transparency and comparability, and doesn't allow methane reductions to substitute for net-zero across the long-lived GHGs in the short-term.

However, a split-gas target for Ireland would still require explicit justification for the level of ambition applied to methane mitigation, and the share of the global methane budget that Ireland would be left with. These issues inevitably involve value judgements that may be contentious - yet are inescapable when moving away from a GWP100 net-zero approach.

Formulating an internationally robust yet achievable climate target for Ireland and its large agrifood sector is urgent, and requires proper and transparent consideration of the aforementioned issues. Temperature neutrality hides big value judgements behind complex model framing.

This may be politically convenient in the short-term, but risks painful adjustment if and when the underpinning value judgements are challenged by trading partners and EU regulators.




"Figure 2 : Comparison of national temperature neutrality and a split-gas (GWP100-based) frameworks."

**Full Paper:**

National temperature neutrality, agricultural methane and climate policy: reinforcing inequality in the global food system.

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