

POLICY NOTE

THE CLIMATE CHANGE (NITROGEN BALANCE SHEET) (SCOTLAND) REGULATIONS 2022

SSI 2022/87

The above instrument is made in exercise of the power conferred by section 8A(3) of the Climate Change (Scotland) Act 2009 (“the Act”) as amended by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019, and all other powers enabling the Scottish Ministers to do so. The instrument is subject to the affirmative procedure.

The purpose of the instrument is to establish, in law, a Scottish Nitrogen Balance Sheet. The Balance Sheet brings together evidence, from a range of sources, in relation to flows of nitrogen across Scotland’s economy and environment.

Policy Objectives

These Regulations make provision in connection with the Scottish Nitrogen Balance Sheet (SNBS). Section 8A(1) of the Act requires the Scottish Ministers to establish a nitrogen balance sheet. Section 8A(2) of the Act provides the core purpose of the SNBS, this being to record how “nitrogen use efficiency” contributes to achieving Scotland’s national greenhouse gas emissions reduction targets. However, the Scottish Government also expects the evidence base provided by the SNBS to be applicable in supporting a range of other policy applications, including (but not limited to) in relation to air quality, rural economy and transport matters.

Definition and determination of national nitrogen use efficiency

Section 8A(5) of the Act defines the term “nitrogen use efficiency” as meaning the ratio of nitrogen removed from the environment compared to total nitrogen inputs. One of the objectives of the present Regulations is to provide a more detailed and comprehensive method for undertaking a calculation of nitrogen use efficiency. This is achieved as follows:

- Regulation 2 requires the Scottish Ministers to publish the SNBS as being a comprehensive dataset for recording nitrogen flows, covering all major parts of the Scottish environment and economy. A first version of the dataset has been made available alongside the laying of the present Regulations. Regulation 5(1)(a) requires the Scottish Ministers to review the SNBS dataset annually, with updated versions also published following such a review.
- Regulation 3 specifies the calculation method for determining a percentage figure for national nitrogen use efficiency using the SNBS dataset. This calculation builds on the definition of “nitrogen use efficiency” already set out in section 8A(5) of the Act, but provides additional detail to this. In particular, it elaborates upon nitrogen that is “removed from the environment” (in the wording of the Act) as meaning the sum total of nitrogen removed from the Scottish economy and environment as harvested crops, livestock produce and other nitrogen containing products, as reported in the SNBS dataset.

Baseline figure for national nitrogen use efficiency

Regulation 4 sets out the baseline figure for national (i.e. economy-wide) nitrogen use efficiency as being 25%.

The percentage value of the baseline figure should be interpreted in the context of a complex whole-economy set of calculations (arising through application of the calculation method set out in regulation 3 to the initial version of the SNBS dataset published alongside these Regulations). For example, on this basis the possible range of nitrogen use efficiency figures does not run from 0% to 100% as might be intuitively expected, which is due to the biological processes involved in many of the nitrogen flows. Further information on the nature of the whole-economy calculation, and also a series of complementary metrics of nitrogen use efficiency covering key parts of the economy (for example food production), can be found in the non-statutory report that has also been published on the Scottish Government website alongside the laying of this SSI.

The time period associated with the baseline figure represents a combination of the various time periods associated with the underlying data on nitrogen flows in the SNBS (these being the most up-to-date figures on each of these flows as of the time of finalising the initial version of the dataset). Full information of the various underlying data time periods can be found in the published dataset itself, but the single most common time period is 2019 (with almost all data covering the wider range of 2010 to 2020). However, the baseline figure should be understood as not reflecting any single year but as the most up-to-date available overall estimate for the national position as of November 2021.

It should be noted that the inherent uncertainties in the underlying SNBS data (much of which is estimated rather than directly measured) means that this may need to be revised in the future for purely technical reasons, as scientific knowledge improves over time. Such revisions have the potential to affect all historic time periods, thereby affecting the data used in the initial calculation of the baseline figure.

Arrangements for reviewing, updating and reporting on the Scottish Nitrogen Balance Sheet

Regulation 5, as read with the definition of “relevant year” in regulation 1, makes provision for the regular review and updating of the SNBS. In particular, the dataset is to be reviewed and updated annually in each year from 2023 onwards, ending with the year a report is laid before the Scottish Parliament under section 33(1) of the Act for the net-zero emissions target year. The Scottish Ministers are also required, in each relevant year, to lay a report before the Scottish Parliament setting out any new figure of nitrogen use efficiency (and any revisions to previously published estimates). These annual reports are also required to include assessments of progress towards implementing proposals and policies relevant to improving nitrogen use; how nitrogen use efficiency is contributing to progress towards future national greenhouse gas emissions reduction targets; and any wider opportunities to improve nitrogen use in the future.

Background

These Regulations represent the formal establishment, in law, of the SNBS. A range of further documentation on the SNBS, including the key findings from its initial version (with graphical representations of its structure and the calculation of national nitrogen use efficiency) and associated technical information can be found in non-statutory report published on the Scottish Government website alongside the laying of these Regulations. As set out above, the initial version of the full SNBS dataset has also been published at this time.

Whilst the statutory component of the SNBS is national in its scope (i.e. the dataset covers all major relevant sectors of the Scottish economy and parts of the environment and the nitrogen use efficiency figure is derived from this in its totality), certain further calculations of sectoral nitrogen use efficiency are also available (e.g. for food production). Furthermore, data on certain nitrogen flows are also available at regional (e.g. river catchments) scales. This sectoral and sub-national analysis is set out in the accompanying, non-statutory, reports.

To the best understanding of Scottish Government officials, the SNBS is the first national scale nitrogen balance sheet to be established in law and be subject to regular statutory review. Nonetheless, the approach taken in preparing the SNBS has sought to align with international reporting guidelines^{1,2,3} and precedents⁴ where possible.

Consultation

In line with the requirements of section 8A(4) of the Act, the Scottish Ministers have consulted with such persons as they consider appropriate when preparing the draft regulations to establish the SNBS.

In particular, a full public consultation was undertaken from 1 December 2020 to 14 January 2021, with an analysis paper (including list of respondents)⁵ and initial response published 8 March 2021. The approach set out in the current Regulations is consistent with the key proposals set out in that consultation.

The public consultation formed part of a wider programme of engagement with key stakeholders, including NGOs, industry bodies and academics, which began in August 2020.

Whilst there is no specific role set out in the Act for the UK Climate Change Committee in relation to the SNBS (who are designated in the Act as the advisory body on other climate change matters), Scottish Government officials have made the Committee secretariat aware of the project at key stages

¹ ECE Guidance document on national nitrogen budgets (2013) and draft annexes http://www.clrtap-tfrn.org/sites/clrtap-tfrn.org/files/documents/EPNB_new/ECE_EB.AIR_119_ENG.pdf

² Draft Annexes to the ECE Guidance document on national nitrogen budgets http://www.clrtap-tfrn.org/sites/clrtap-tfrn.org/files/documents/EPNB_new/EPNB_annex_20210302_public.pdf

³ OECD paper (2013): Economy-wide nitrogen balances and indicators – concepts and methodology. [https://one.oecd.org/document/ENV/EPOC/WPEI\(2012\)4/REV1/en/pdf](https://one.oecd.org/document/ENV/EPOC/WPEI(2012)4/REV1/en/pdf)

⁴ Reactive nitrogen flows in Germany 2010-2014 (2020) https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/texte_2020_65_reactive_nitrogen_flows_in_germany_2010-2014.pdf

⁵ <https://www.gov.scot/publications/establishing-scottish-nitrogen-balance-sheet-analysis-responses-public-consultation>

Impact Assessments

Pre-screening (or screening) processes have been undertaken for a range of impact assessments, including Strategic Environmental Assessment (SEA) and Equalities Impact Assessment (EQIA), Island Communities Impact (ICIA), Child Rights and Wellbeing (CRWIA), the Fairer Scotland Duty and Data Protection (DPIA). All of these processes concluded that no further assessment is required, on the basis that the SNBS represents a purely administrative undertaking, through the compilation of largely existing environmental and economic datasets and scientific information on nitrogen, leading to the publication / reporting of a new set of national (and in some cases regional) scale evidence. The SNBS is not setting priorities, allocating any resources or commissioning any services, nor requesting input from businesses or citizens. As such, the establishment of the SNBS will not itself have any direct or indirect effects on businesses, equality, child rights, the island communities etc.

Financial Effects

The Minister for Environment and Land Reform confirms that no Business and Regulatory Impact Assessment (BRIA) is necessary as the instrument has no financial effects on the Scottish Government, local government or on business.

Scottish Government
Energy and Climate Change Directorate

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