Legal Brief: The Climate Change Act 2008 and Nitrogen Triflouride (NF3)

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Introduction

In relation to stress-testing aspects of the Climate Change Act 2008 (CCA) on grounds that have not arisen in litigation to date or to our knowledge been considered in principle, Muinzer has written as follows:

> Like the CCA, the CC(S)A [i.e., the Climate Change (Scotland) Act 2009, hereafter CC(S)A] incorporates carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride within the meaning of 'greenhouse gas'; however, the Scottish have also added the additional greenhouse gas 'nitrogen trifluoride' to this cohort, doing so in 2015 by issuing [the…] Climate Change (Additional Greenhouse Gas) (Scotland) Order 2015. This Order amended the part of the CC(S)A that defines the pertinent gases.[1]

Muinzer has further stated that:

> Since 2015, nitrogen trifluoride has been incorporated into UNFCCC greenhouse gas guidelines, and so it can be argued that the CCA is in effect lagging behind in not updating its targeted greenhouse gas cohort to formally incorporate this additional gas.[2]

In this brief we develop this argument beyond the observations above. The issue, then, is to consider whether the Secretary of State, who bears the pertinent duty under the legislation, has erred in not expanding the definition of targeted greenhouse gases under the CCA to include the greenhouse gas (GHG) nitrogen triflouride (NF3). Doing so would bring NF3 within the cohort of gases governed by the CCA.

In relation to the statement above from Muinzer's book (published late 2018) remaining accurate, at the time of writing (September 2020) we find no evidence that the CCA now includes NF3, meaning that to our knowledge the Secretary of State has not yet made an order to include it, which he is able to do pursuant to s.24(1)(g) of the

1 Muinzer, Thomas L. *Climate and Energy Governance for the UK Low Carbon Transition: The Climate Change Act 2008*. Palgrave, 2018, p.115.
2 Muinzer, ibid., p.115.

CCA (see below). As noted, this sits at odds with the CC(S)A (at s.10(1)(g); see below).

Under the CCA, targeted greenhouse gases form the basis of, *inter alia*: the UK's carbon account[3]; the UK's carbon targets.[4] Thus, the meaning of targeted greenhouse gases is highly significant, because it defines the scope of the gases being governed by the Act.

NF3 and the Meaning of "Greenhouse Gas" under the CCA

As noted above, Muinzer has emphasised in print that "Like the CCA, the CC(S)A incorporates carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride within the meaning of 'greenhouse gas'[5]".

CCA, s.92(1) defines "greenhouse gas":

> **Meaning of "greenhouse gas"**
>
> (1) In this Act "greenhouse gas" means any of the following—
>
> (a) carbon dioxide (CO_2),
>
> (b) methane (CH_4),
>
> (c) nitrous oxide (N_2O),
>
> (d) hydrofluorocarbons (HFCs),
>
> (e) perfluorocarbons (PFCs),
>
> (f) sulphur hexafluoride (SF_6).

CCA, s.92(2)-(4) state that:

> (2) The Secretary of State may by order amend the definition of "greenhouse gas" in subsection (1) to add to the gases listed in that definition.
>
> (3) That power may only be exercised if it appears to the Secretary of State that an agreement or arrangement at European or international level recognises that the gas to be added contributes to climate change.

[3] "the 'net UK carbon account' for a period means the amount of net UK emissions of targeted greenhouse gases for the period"; CCA, s.27(1).
[4] "It is the duty of the Secretary of State to ensure that the net UK carbon account for the year 2050 is at least 100% lower than the 1990 baseline", where the 1990 baseline "means the aggregate amount of net UK emissions of carbon dioxide for that year, and net UK emissions of each of the other targeted greenhouse gases for the year that is the base year for that gas." CCA, ss.1-2.
[5] CC(S)A, s.10(1)(a)-(f).

(4) An order under this section is subject to negative resolution procedure.

While s.92 deals with the meaning of "greenhouse gas", s.24 deals with "Targeted greenhouse gases". Here, at CCA, s.24(2), the same GHG composition forms the basis of the definition:

Targeted greenhouse gases

(1) In this Part a "targeted greenhouse gas" means—

(a) carbon dioxide,

(b) methane,

(c) nitrous oxide,

(d) hydrofluorocarbons,

(e) perfluorocarbons,

(f) sulphur hexafluoride, and

(g) any other greenhouse gas designated as a targeted greenhouse gas by order made by the Secretary of State.

The Secretary of State has not exercised his authority under s.24(1)(g) to issue an order expanding the range of gases listed here, such that the 6 gases stated above constitute the full body of "Targeted greenhouse gases" under the CCA.[6]

By contrast, the CC(S)A had originally mirrored the gases covered by the CCA, but it now includes NF3 after amendment in 2015 by the Scottish Parliament (via the Climate Change (Additional Greenhouse Gas) (Scotland) Order 2015).[7] The CC(S)A was passed by Scotland's devolved Scottish Parliament and extends to Scotland only, whereas the CCA is a UK-wide Act of UK Parliament, applying a national economy-wide 'Net Zero' GHG emissions obligation for 2050 (CCA, s.1(1)).

CC(S)A, s.10 states:

Greenhouse gases

(1) In this Act, a "greenhouse gas" means—

[6] In relation to the order expanding the range enabled at s.24(1)(g), s.24(2) asserts that "The order may make such consequential amendments of the provisions of this Act as appear to the Secretary of State to be necessary or expedient." CCA, s.24(3)-(7) require the Secretary of State to consult with the devolved administrations and take advice from the Committee on Climate Change but vest the authority to take the actual decision in the Secretary of State. However, it is also stated that "An order under this section is subject to affirmative resolution procedure" (s.24(7)), meaning that UK Parliament must approve the decision.

[7] CC(S)A s.10(1)(g). This new addition is given a baseline year of 1995; CC(S)A s.11(2)(f).

> (a) carbon dioxide;
>
> (b) methane;
>
> (c) nitrous oxide;
>
> (d) hydrofluorocarbons;
>
> (e) perfluorocarbons;
>
> (f) sulphur hexafluoride.
>
> (g) nitrogen trifluoride.

The facility to amend the meaning of "greenhouse gas" by order under the Scottish legislation is stated as follows (note that the CCA places primary duties on the Secretary of State, whereas the Scottish legislation places the duties on the Scottish Ministers, i.e., the Scottish Government).

CC(S)A, s.10(2):

> (2) The Scottish Ministers may, if they consider it appropriate to do so, by order, modify subsection (1) so as to—
>
> (a) add a gas;
>
> (b) modify the description of a gas.

The circumstances under which this power may be exercised are stated at CC(S)A, s.10(3)-(6):

> (3) The power in subsection (2)(a) may be exercised only if it appears to the Scottish Ministers that an agreement or arrangement at European or international level recognises that the gas to be added contributes to climate change.
>
> (4) The Scottish Ministers must, before laying a draft of a statutory instrument containing an order under subsection (2) before the Scottish Parliament, request advice from the relevant body.
>
> (5) If the order makes provision different from that recommended by the relevant body, the Scottish Ministers must publish a statement setting out the reasons why.
>
> (6) A statement under subsection (5) may be published in such manner as the Scottish Ministers consider appropriate.

Thus, prior to altering Scotland's targeted gases by order in 2015, the Ministers were required to "request advice from the relevant body" (ibid, s.10(4)). The "relevant body" refers to the Committee on Climate Change (CCC), per CC(S)A, s.5(7). The advice was given by the CCC in a letter of December 2014 to Aileen McLeod MSP, which concludes:

our assessment is:

- Nitrogen Trifluoride should be included in the list of targeted greenhouse gases under the Climate Change (Scotland) Act 2009

- 1995 is an appropriate base year for NF3.[8]

Thus, in addition to the CCA now sitting at odds with the CC(S)A, there is no obvious reason why if the CCC recommends that the gas is to be added to the CC(S)A it ought not to be added to the CCA.[9]

Note also that Wales has less extensive devolved powers than Scotland, is constitutionally part of the jurisdiction of England and Wales, and does not have a devolved Climate Change Act of its own; however, Wales does have some devolved climate provisions in place, and the National Assembly for Wales also followed the CC(S)A/CCC course by incorporating NF3 into its legislation in 2016: see Environment (Wales) Act 2016, s.37(1)(g).

International Agreements

As noted above, the CCA's basket of targeted GHGs, from which NF3 is presently excluded, is subject to emissions reduction targets under the terms of the CCA. Developing this point, it is notable that the UK has both domestic *and* international GHG emissions reductions targets. These require scrutiny.

The UK received an international target for reducing GHG emissions under the terms of the Kyoto Protocol's first compliance period,[10] and since that time the Doha Amendment has established a subsequent Kyoto compliance period,[11] and the Paris Agreement has been ratified.[12] During the first Kyoto commitment period (2008-12) the basket of GHGs referred to in the Protocol included 6 gases; these are the same gases as those listed at s.24 of the CCA. The second Kyoto commitment period

[8] Committee on Climate Change, letter to Aileen McLeod MSP (Minister for Environment, Climate Change and Land Reform), 5 December 2014.
[9] It is also notable that the CCC is a national advisory and reporting body established by the CCA itself (CCA, Part 2 and Schedule 1). It advises and reports to UK Government in addition to the devolved administrations. In our view, it would be unusual if its advice on objective matters that are commonly and strategically shared across multiple instruments (here, the CC(S)A and the CCA), and which have taken an identical scientifically-informed approach to GHG definitions since their creation, should be considered inapplicable to the national UK regime simply because the Scottish devolved administration requested the pertinent advice rather than UK Government.
[10] Kyoto Protocol to the United Nations Framework Convention on Climate Change, 1997.
[11] Kyoto Protocol (Amendment) Decision 1/CMP.8.
[12] Paris Agreement adopted December 2015, in force November 2016.

(2013-2020) began on 1 January 2013, is ongoing at the time of writing, and NF3 is now included in the list of Kyoto GHGs for this period.[13]

The UK's GHG inventory is required to comply with reporting guidelines published by the IPCC. The guidelines were revised for 2013 to add new sources and new gases. New sources include nitrous oxide use in anaesthesia and emissions from UK composting. NF3 was included for the first time in 2013, albeit that it is only emitted in small amounts in the UK.[14] The UK has been complying with its reporting requirements pursuant to the IPPC guidelines, and its Greenhouse Gas Emissions Figures for the year from and including 2013 include reports on NF3; *however the UK did not add this GHG to the targeted gases listed at s.24 of the CCA.*

Domestic Law: The CCA

The CCA has been outlined above. The law here asserts that the UK has domestic targets for reducing GHGs, with the CCA establishing a long-term legally-binding framework to reduce GHG emissions, committing the UK to reducing emissions by at least 100 percent below 1990 baselines by 2050 (i.e., 'Net Zero'), with an interim target to reduce GHG emissions by at least 34 percent compared to the 1990 baseline by 2020 (CCA, s.5(1)(a)). UK GHG emissions under the CCA are measured differently to the way in which UK emissions data is used to assess compliance against the Kyoto Protocol regime, dealing with UK GHG emissions under carbon budget coverage (i.e., pertaining to the UK only, excluding Crown Dependencies and NF3 emissions). This remains the case at the time of writing.

EU Effort Sharing Decision

The UK has an annual GHG emissions cap under the EU Effort Sharing Decision (ESD).[15] 2013 was the first year to which EU ESD targets applied. The ESD was agreed as part of the 2008 EU Climate and Energy package and came into force from January 2013.[16] It sets out targets for EU Member States to either reduce or limit emissions by 2020 from a 2005 baseline by a certain percentage. The requirements apply to the non-traded sector, i.e. activities not included in the EU Emissions Trading System, *but excluding* Land Use, Land Use Change and Forestry (LULUCF) *and NF3 emissions*. The UK target requires an emissions reduction of 16 percent from 2005 levels, to be achieved through a declining target for emissions for each year

[13] UNFCCC Decision 23/CP.19.
[14] *2013 UK Greenhouse Gas Emissions, Final Figures*, DECC, February 2015.
[15] Decision No 406/2009/EC.
[16] The 20-20-20 package included the Renewable Energy Directive 2009 (2009/28/EC), the EU ETS Amending Directive 2009 (2009/29/EC), the Fuel Quality Directive 2009 (2009/30/EC), the Carbon Capture and Storage Directive 2009 (2009/31/EC) and the Effort Sharing Decision 2009 (406/2009/EC).

from 2013-2020. This is reported annually through a GHG inventory submission to the European Commission (EC). In March 2013, the EC published Member State targets consistent with the scope of the EU ETS during the second trading period, from 2008 to 2012. In October 2013, the EC published adjustments (under Article 10 of the ESD), to account for the change in the scope of the EU ETS between the second trading period and the third trading period (from 2013 to 2020). The final values were therefore calculated on the basis of these two EC decisions. It is significant to note that the ESD emissions are calculated by taking *total GHG emissions without LULUCF and NF3* and deducting the total verified emissions under the EU ETS from stationary installations and domestic aviation. This means that *the CCA is compliant with the ESD in targeting 6 gases, which do not include NF3*.

Conclusions so Far

It could be argued that the UK has been doing what it needed to do to meet its International and European commitments. The ESD does not include NF3, which may be an acceptable reason for the UK not to include it in the CCA as a target gas, in spite of the international requirement to report on it pursuant to the IPPC, which the UK *is* doing. That said, one must recognise that the CCC still recommended in 2014 that it be listed in the CC(S)A as a GHG because:

> The IPCC Fourth Assessment Report (AR4) estimates that NF3 has a 100 year global warming potential of 17,200, and NF3 is in the list of Kyoto greenhouse gases for the second Kyoto commitment period, beginning 1 January 2013. It is appropriate, therefore, that Scotland's contribution to meeting the global climate objective should include limiting domestic NF3 emissions.[17]

Does the Paris Agreement Change Matters?

In 2018, the IPCC published the *Special Report on Global Warming of 1.5°C*,[18] which was prepared at the request of the UNFCCC when it adopted the Paris Agreement in 2015. The report was produced as a key scientific input into COP 24 in Katowice in December 2018, by reviewing the progress of the Paris Agreement pathway in tackling climate change. The report highlighted the following matters:

- Limiting global warming to 1.5 degrees Celsius (°C) will require rapid and far-reaching transitions in land, energy, industry, buildings, transport, and cities.

[17] CCC, letter to Aileen McLeod MSP (Minister for Environment, Climate Change and Land Reform), 5 December 2014.
[18] IPCC, *Special Report on Global Warming of 1.5°C* (2018).

- Global net human-caused emissions of CO2 would need to fall by about 45% from 2010 levels by 2030, reaching net zero around 2050. This means that any remaining emissions would need to be balanced by removing CO2 from the air.
- Substantial climate change impacts could be avoided by limiting global warming to 1.5°C, compared to 2°C or more.[19]

These issues interact with developments at the EU level of governance, which require consideration.

Effort Sharing Regulation 2021-2030

In June 2018, the *Effort Sharing Regulation 2021 to 2030* was published in the EU's Official Journal.[20] It came into force on 9 July 2018, 20 days after publication in the Official Journal. The Effort Sharing Regulation 2021-2030 (ESR) is intended to assist the EU in meeting its commitments under the Paris Agreement by setting binding annual GHG emission targets for Member States for the period 2021 to 2030, specifically for the sectors of the economy not regulated under the EU ETS, including buildings, agriculture, waste management, and transport. Such non-EU ETS sectors accounted for almost 60% of total EU emissions in 2014. Taken together, the individual EU Member States' targets under the ESR amount to an overall EU reduction of 30% in non-EU ETS sectors. The UK has a target of 37% reductions from 2005 levels.[21] (At this stage, it is unclear how the UK's target will be affected by Brexit, or how Brexit will affect other Member States' targets or the overall target.)

In imposing binding annual GHG emission targets for Member States for 2021–2030 for the sectors of the economy not regulated under the EU ETS, the ESR also for the first time includes "Nitrogen trifluoride" in the definition of "greenhouse gases" at Article 3(1).[22] As of July 2018 the basket of gases under the EU level ESD/ESR regime became 7; *however*, *the UK did not change its national regime*.

Conclusion

The fact that the CCC advised the Scottish Parliament to include NF3 in the CC(S)A in 2014 was compelling enough reason for the Secretary of State to amend the CCA in order to add it to the Act's list of gases. That said, the UK was complying with all

[19] See further *ibid*.
[20] Regulation EU 2018/842.
[21] Regulation EU 2018/842, Art 4(1) and Annex I.
[22] "For the purposes of this Regulation, the following definitions apply: 'Greenhouse gas emissions' means emissions in terms of tonnes of CO_2 equivalent of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF_3) and sulphur hexafluoride (SF_6) determined pursuant to Regulation (EU) No 525/2013 and falling within the scope of this Regulation"; Regulation EU 2018/842, Art.3(1).

of its international reporting obligations, and more importantly the ESD. However, now that the ESR has specifically added NF3 to the list of GHGs effective since July 2018, and due to the fact that the UK must comply with the new ESR GHG emission targets from 2021-2030, the Secretary of State should absolutely add NF3 to its list of targeted gases at s.24(1) of the CCA. The reason the Secretary of State has not done so already may well be linked to the fact that the ESR refers to the period 2021-2030 and Brexit (a live issue at the time of writing) might mean the UK will not be bound by the ESR. Nevertheless, it should also be borne in mind that Brexit did not have any overt bearing on the CCC's advice to Scotland as it did not recommend that the Scottish include the gas due to EU commitments, but rather due to the international commitments, which the UK will remain subject to after Brexit. Asides from the legal points raised here, it is also notable that an amendment to the target gases makes procedural sense: although it is not listed currently as a GHG in the CCA, the UK does report on the levels of NF3: see further e.g., "Projected emissions of Non-CO2 Greenhouse Gases".[23]

It is conceivable that the points here dealing narrowly with the relevant CCA and NF3 issues could be linked to specific grounds for judicial review, should legal action seeking an application for judicial review of the Secretary of State's failure to revise the CCA's basket of greenhouse gases be considered.

Legal Action

In the first place, since the Secretary of State does not appear to have a specific duty to add any new gases to those listed in section CCA s.92(1), it would be appropriate to begin by asking him to make an order under s.92(2) amending the definition of "greenhouse gas" by adding nitrogen trifluoride. If he were to make such an order, the aim will have been achieved. If he were not to make such an order, it might then be possible to seek judicial review of the decision not to make an order. Proceedings could be taken in the High Court (England and Wales), the High Court in Northern Ireland or the Court of Session in Scotland, as the Secretary of State is domiciled throughout the United Kingdom.

The possible grounds for judicial review would depend to some extent on the reasons given by the Secretary of State (if any) for not making an order. Subject to that uncertainty, the possible grounds for review appear to fall under the general heading of 'illegality'. There are three grounds for judicial review (illegality, irrationality and procedural impropriety) – *Council of Civil Service Unions v Minister for the Civil Service*.[24] The general ground of illegality may be divided into a number of more specific grounds.

[23] *Projected Emissions of Non-CO2 Greenhouse Gases,* BEIS, January 2018.
[24] [1985] AC 374.

Breach of statutory duty

It would not be possible to base a claim on breach of statutory duty as the Secretary of State appears to have no specific duty to add any new gases to the definition in any circumstances. CCA s.92(2) and s.24(2) create a power to make an order in certain circumstances, but not a duty.

Irrationality

It might be argued that it is irrational for the Secretary of State to refuse to make an order given that:

- the purpose of the emissions reduction target in the CCA is to mitigate the possible impact of UK greenhouse gas emissions on global warming;
- there is clear scientific evidence that NF3 is a gas which contributes to global warming;
- adding NF3 to the definition of greenhouse gas would advance the purpose of the legislation,
- the UK has agreed to be bound by the Kyoto Protocol and subsequent amendments of the obligations it imposes;
- NF3 is now included in the list of Kyoto GHGs for this period; and
- there appear to be no major disadvantages to adding NF3 to the protocol.

However, the test of irrationality is a difficult one for a person challenging an executive decision to meet[25] and the court might well think that the test has not been met. The Secretary of State might argue that there are countervailing factors, e.g., the (arguably) relatively low level of UK NF3 emissions (albeit the IPCC assesses NF3's Global Warming Potential as 17,200 times more potent than carbon dioxide over a 100 year time horizon,[26] such that intensity in addition to quantity of emissions is a relevant consideration).

Illegality: the Effort Sharing Regulation 2021-2030

The ESR has been considered above, that is, EU Regulation 2018/842, generally known as the Effort Sharing Regulation 2021-2030. The ESR is intended to assist the EU in meeting its commitments under the Paris Agreement by setting binding annual GHG emission targets for Member States for the period 2021 to 2030. It has been noted that the UK has a target of 37% reductions from 2005 levels.

This Regulation lays down obligations on Member States with respect to their minimum contributions for the period from 2021 to 2030 to fulfilling the Union's target of reducing its greenhouse gas emissions. As noted above, NF3 is included in

[25] *Council of Civil Service Unions v Minister for the Civil Service* [1985] AC 374, 411 (per Lord Diplock).
[26] See further the UNFCCC Secretariat's aggregated summary of IPCC Global Warming Potential calculations: https://unfccc.int/process-and-meetings/transparency-and-reporting/greenhouse-gas-data/frequently-asked-questions/global-warming-potentials-ipcc-fourth-assessment-report

the definition of greenhouse gas. Article 4 states that each Member State shall, in 2030, limit its greenhouse gas emissions at least by the percentage set for that Member State in relation to its greenhouse gas emissions in 2005. It is clear, therefore, as a matter of EU Law, that the UK is bound to achieve the specified reduction in greenhouse gas emissions by 2030.

The regulation continues to be effective in UK law until the implementation period (IP) completion day (31st December 2020) by virtue of the European Union (Withdrawal Act) 2018 (EUWA) and the European Union (Withdrawal Agreement Act) 2018. It will continue to have effect after IP completion day as 'retained EU law' by virtue of EUWA, s.3. However, after IP completion day, the UK Parliament will be able to modify or remove those obligations unless constrained by a future agreement with the EU governing the post-Brexit relationship. The legal effect of the ESR may, therefore, vary depending on whether an issue arises before or after IP completion day.

In relation to whether refusal or failure to add NF3 to the list of gases in the CCA might be considered a failure to implement the ESR in the case of litigation begun *before* IP completion day, there is clear obligation to meet the 37% reduction target, but this is an overall target. There are no sub-targets for specific gases but in order to determine whether the target has been met, emissions of NF3 must be measured. The UK will have to measure emissions of NF3 and report on them to the European Commission in order for it to be determined whether the UK has in fact met the target by 2030. It is difficult to see how the UK could ensure that it fully implements its obligations under ESR legislation without legislation that defines NF3 as a greenhouse gas.

There is, therefore, *a strong argument that refusal or failure to add NF3 to the list of gases in CCA in the case of litigation begun before IP completion day would be considered a failure to implement the Regulation*.

Further, it is notable also that the Commission makes an annual assessment of Member State emissions under Regulation (EU) No 525/2013.[27] If it considers that a Member State (MS) is not making sufficient progress towards meeting its obligations under Article 4 of this Regulation, that MS shall, within three months, submit to the Commission a corrective action plan that includes additional actions that the MS will implement to meet its obligations. The Commission may issue an opinion regarding the robustness of the corrective action plan and the MS must take utmost account of the Commission's opinion and may revise its corrective action plan accordingly. The duty of sincere cooperation should be noted, per Article 4(3) TEU.

27 Regulation EU 525/2013, Art 21. See also above at *supra* n.22.

In relation to whether refusal or failure to add NF3 to the list of gases in the CCA might be considered a failure to implement the ESR in the case of litigation begun *after* IP completion day, if there has been no legislation modifying this aspect of 'retained EU law' by the time of the litigation, the argument would proceed exactly as above. However, if there has been modifying legislation by the time of the litigation, the effect on this ground of review will depend upon the nature of the modification.

Overall Conclusions and Recommendation

The points addressed across this briefing pertaining to the CCA and NF3 issues indicate that the Secretary of State should amend the CCA in order to add NF3 to the list of targeted GHGs at CCA s.24(1), and to the definitional list of GHGs at CCA s.92(1). It would be appropriate to begin by asking him to make an order for said purpose, under CCA s.24(1)(g) and s.92(2) respectively. If he were not to make such an order, the analysis above indicates that legal action seeking an application for judicial review of the Secretary of State's failure to add NF3 should be seriously considered.