Business and Regulatory Impact Assessment

Climate change mitigation in the agricultural sector

- Farming for a Better Climate -

Agriculture & Climate Change Branch
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1. Purpose and intended effect

1.1 Objectives

1.1.1 To identify and enact a mechanism to encourage the mitigation of greenhouse gas (GHG) emissions from the agricultural sector with a view to enabling the sector to contribute to the reduction in GHG emissions of 42% by 2020 in line with requirements set out in the Climate Change (Scotland) Act.

1.1.2 Any measures to reduce agricultural emissions should not result in reduced agricultural activity or output but instead aim to strengthen farm businesses and make them more resilient to the impacts of climate change. Mitigation measures should support the sector in reducing avoidable greenhouse gas emissions, balanced with the need to continue sustainable food productions as well as taking into account wider environmental sustainability.

1.2 Background

1.2.1 The main objective of the Climate Change (Scotland) Act 2009 is to reduce Scottish GHG emissions by 80% by 2050, with an interim target of a 42% reduction by 2020.

1.2.2 Agriculture (including agriculture-related land-use change) is estimated to contribute approximately 20% of Scotland's GHG emissions; however, due to the complex nature of biological cycles much of these emissions are unavoidable.

1.2.3 The Climate Change Delivery Plan published in June 2009 proposes a reduction target for agriculture of 1.3 $MtCO_2e$ (Mega tonnes of carbon dioxide equivalent) by 2020. This is the equivalent of a 10% reduction in emissions in the agricultural sector.

1.2.4 Funding support is available to farmers for projects which mitigate against climate change from the Scotland Rural Development Programme. For example, on-farm installations such as slurry storage sheds may be eligible for up to 40% of capital costs.

1.2.5 There is existing legislation in the agricultural sector which indirectly contributes to GHG emission reduction, though little which directly addresses GHG emission reduction. For example, Nitrate Vulnerable Zones (NVZs), which are designed to protect water quality, cover 14.2% of Scotland and require careful planning and management of inorganic and organic nitrogen fertilisers; this has the side-effect of reducing GHG emissions (nitrous oxides) from these areas. The Soil Protection Review which forms part of the Cross Compliance requirements also encourages land management options designed to reduce erosion and, thereby, enhances carbon sequestration in the soil. These incidental indirect mitigation measures do not go far enough to provide land managers with the decision-making tools to meet the reduction targets outlined above.

1.3 Rationale for Government Intervention

1.3.1 The Climate Change (Scotland) Act requires emission reductions from all sectors of Scotland's industry as well as society as a whole. How the government chooses to deal with GHG emissions is important in the context of building a greener, fairer and safer country. In particular the objectives of realising the full economic potential and reducing the global and local environmental impact of our consumption and production.

1.3.2 The development of a strategy to mitigate greenhouse gas emissions from agriculture will assist the achievement of the National Performance Framework outcomes on:

- Environment – acting now to reduce greenhouse gas emissions will preserve the Scottish environment and, potentially, species which may have been threatened for future generations
- Environmental Impact – reducing greenhouse gas emissions aims to avoid dangerous climate change and protect the global environment
- Economic potential – by sustaining the image of Scottish agriculture and developing policies which ensure that the sector is resilient and not unduly pressured
- Educated and skilled workforce – by raising awareness of best practice amongst agricultural workers

1.3.3 Though none of the national indicators directly address greenhouse gas emissions the two key Purpose Targets on Sustainability are to reduce emissions over the period to 2011 and to reduce emissions by 80% by 2050. Allowing the agricultural sector to effectively work towards these goals will help Scotland achieve these goals.

1.3.4 Stakeholders including e.g. the National Farmer's Union for Scotland (NFUS), the Scottish Agricultural College (SAC), Quality Meat Scotland (QMS), Scottish Environment Protection Agency and Scottish Natural Heritage are all important agencies to support any form of agricultural intervention. Stakeholders have expressed a desire to work with the Scottish Government in order to establish Scottish agriculture as a thriving, climate-friendly and environmentally sustainable industry, thus raising the international profile of Scottish produce.

1.3.5 GHG emissions from agriculture are spatial diverse, with high levels of uncertainty and complexity. At the same time, the changing climate affects Scottish agriculture. The industry is keen to engage with the challenges posed by climate change, but at the same time there is a need for Government facilitate to provision of advice and support - enabling the uptake of mitigation measures by the industry to meet the statutory targets.

2. Consultation

2.1 Within Government

2.1.1 The internal Agriculture and Climate Change Steering Group was established to ensure that all relevant policy areas are involved in the development of the approach to agricultural mitigation. The remit of the group includes the recognition of the need for sustainable and efficient food production and the provision of advice on the range of measures required to deliver, in the best, way meaningful reductions in GHG emissions within the agricultural sector in Scotland. A key recognition during the inception of the steering group was the need not only to consider the actions necessary to reduce emissions but also the behavioural changes required.

2.1.2 The Steering Group is chaired by the Director for Rural and Environemt, and includes the Deputy Director, Agriculture and Rural Development Division), representatives from Agriculture and Climate Change Branch), the Chief Scientific Adviser (RERAD), the Chief Veterinary Officer, representatives from Climate Change Division, the Head of Policy Forestry Commission Scotland, the Deputy Director Natural Resources Division, the Chief Agricultural Officer, Rural Payments and Inspections.

2.1.3 From its inception the Steering Group has recognised the considerable uncertainties and difficulties in measuring GHG emissions from agriculture; especially the scaling issues in calculating and reporting both emissions and abatement potentials. This has fed into discussions on policy emanating from a voluntary perspective.

2.1.4 The Steering Group has noted that meeting the 10% reduction target would necessitate a 90% take up rate of voluntary measures. If the uptake from a voluntary approach is not sufficient then the shortfall must be filled by i) incentivising measures, ii) regulatory measures, or iii) taking additional additive measures.

2.1.5 The Steering Group has performed an important role in identify areas of relative scientific weakness, recommending improvements, identifying cross-sector benefits and formulating communication strategies.

2.2 Public Consultation

2.2.1 As part of the development of the policy approach, a key focus was placed on extensive involvement of the industry and industry bodies. Discussion as part of the SG internal Steering Group, as well as the external Agriculture and Climate Change Stakeholder Group (see 2.3 below) showed at an early stage that a voluntary, industry-led approach would be the favoured. Whilst extensive informal consultation took place during the policy development phase, no formal consultation was carried out. If a regulatory approach to agricultural mitigation would be considered at some point in the future, a formal consultation will be undertaken.

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2.2.2 Scottish Agricultural College (SAC), an agricultural research and advisory body has been one of the key players in the development of the voluntary policy approach. The close connection of SAC with the agricultural industry further ensured that stakeholders were continuously involved in all stages of the policy development.

2.2.3 The Soil Association Scotland has been running the Scottish government-supported Climate Change Programme since 2008. This programme uses a skills-based approach where farmers who have implemented adaptation or mitigation measures host seminars to discuss their experiences and costs. The on-going development of these seminars was examined during policy deliberations.

2.3 Business

2.3.1 The Agriculture and Climate Change Stakeholder Group was established to ensure the range of interests (industry, research, environmental) are reflected in policy development. The remit of the group is to make appropriate recommendations to stimulate action and to consider ways in which the agricultural industry could adapt.

2.3.2 The Agriculture and Climate Change Stakeholder Group compromises: representatives from Scottish Environment Protection Agency, National Farmers Union Scotland, Scottish Beef Cattle Association, Scottish Environment LINK, National Beef Association, Forestry Commission Scotland, Scottish Agricultural College, Macaulay Land Use Research Institute, National Sheep Association, Quality Meat Scotland, Scottish Crop Research Institute, Agricultural Industries Confederation, Scottish Natural Heritage, Scottish Rural Property and Business Association, a number of Scottish Government policy leads. The group is chaired by the Director for Rural and Environment.

2.3.3 In addition, SG actively sought views from the industry by participating in farm open days, workshops and seminars as part of agricultural shows and giving presentations. Also, stakeholder workshops on mitigation policies were held by Climate Change Division during summer 2010. Scottish Agricultural College held a series of farmers workshops and open days looking at mitigation in agriculture, seeking feedback from businesses on mitigation options. Responses from these were passed on to SG. This highlights the very extensive and participatory approach to policy development and emphasizes that business have had a key role.

3. Options

3.1 Sectors and Groups affected

3.1.1 Agricultural policy primarily affects the farming industry. However, consideration should also be extended to those working in agriculture-related

areas: agriculture is thought to be directly responsible for contributing about £650 million to the economy and supporting 65,000 jobs. If the whole supply chain is included, from primary producers to retailing and food services, the sector supports 75,000 businesses and 360,000 jobs. Food and drink accounts for one in five manufacturing jobs in Scotland.

3.1.2 The following people may be affected by the proposals:

- Farmers and land managers
- Agricultural workers (inc. full-time, seasonal and gang workers)
- Agricultural contractors
- Agricultural suppliers and distributers
- Building firms
- Landowners
- SEPA
- SNH
- SRPBA
- Auctioneers
- Vets
- Consumers

3.2 Options

This section contains a summary of the different regulatory approaches and a brief look at the specific mitigation measures available.

1: Do nothing
2: Targeted communication
3: Enhanced Cross-Compliance
4: Voluntary agreements
5: Environmental Stewardship
6: Livestock productivity: improved animal health
7: Increased coverage of Nitrate Vulnerable Zones
8: Cap and trade

Option 1: Do nothing

GHG emissions from agriculture have reduced since 1990 without specific climate-change oriented policy. These reductions have largely been driven by Common Agricultural Policy (CAP) reforms which decoupled production and payment, resulting in less fertiliser use and reduced livestock numbers. Market forces and tangential environmental policy may continue to drive GHG emissions down or the trend may reverse.

Benefits

- Little/no additional administration necessary on farms or within government

Costs

- A failure to contribute to emission reduction targets as required by Climate Change legislation.
- The Stern Review warned that the costs of failing to mitigate GHG emissions are likely to be greater than the costs of mitigation (see http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/stern_review_report.htm)

Option 2: Targeted communication

This voluntary approach would reduce GHG emissions from agriculture through the provision of advice (knowledge transfer) which emphasise the key mitigation measures farmers should consider adopting on-farm at zero or reasonable costs. These 'win-wins' have been identified by the Scottish Agricultural College (SAC).

Benefits

- Farmers can identify the best solution for them
- The industry is strengthened by improving the business (measures will result in savings)
- Knowledge-transfer may increase adoption of best practise management with other environmental benefits
- Potential to learn what works during a voluntary phase, with later reviews of uptake and efficiency of actions
- Greater ability to respond flexibly to a strengthening science base
- Likely to have industry support (i.e., NFUS & QMS)
- Reduced bureaucracy - no compliance monitoring required

Costs

- Current estimate is £80,000 plus £327,650 (ex VAT) for the set up and implementation of Focus Farms and the running of the initiative
- If the level of voluntary uptake was at 90-100%, this approach could deliver the 10% reduction by 2020. However, experience of voluntary initiatives suggests that a much lower level of uptake should be expected. Based on farm holdings (currently 28,600 in Scotland) a 50% uptake by farmers of FFBC measures would deliver 5-6% reductions.

Option 3: Enhanced Cross-Compliance

Including further prescribed measures to deliver GHG reductions within the Cross-Compliance legislation. Failure to demonstrate compliance would result in the loss or reduction of the Single Farm Payment. Around 90% of Scottish farmers (72% of agricultural area) are currently enrolled in this scheme.

Benefits

- This falls within existing regulation which has been proven to work
- Research suggests that this may deliver a 7-8% reduction

Costs

- This may require negotiation at the EU level to secure agreement and industry buy-in
- Compliance monitoring required

Option 4: Voluntary agreements

Individual farmers submit voluntary agreements (i.e., based on self-assessment of a quality assurance standard) on implementing specific mitigation measures and reducing emissions. Engagement would promote behavioural change by farmers but the voluntary nature may deliver only modest reductions

Benefits

- Potential to open a new market based on consumer demand for products demonstrating their environmental credentials
- Potential emissions reduction of 1-2%; based on 10-20% uptake of farmers who implement 10-20% of cost-effective 'win-win' measures

Costs

- Increased administration burden

Option 5: Environmental Stewardship

Investigating additional measures (i.e., not already captured as 'win-wins' under Targeted Communications) this will reduce emissions and also deliver other environmental co-benefits. This would be a voluntary scheme with the funding regime to incentivise action already in place through Rural Development Contracts - Rural Priorities (RDC - RP), SRDP or through agri-environment focused Land Manager Option route

Benefits

- Funding mechanisms already exist
- Reduction potential and uptake not yet forecast

Costs

- Not quantified

Option 6: Livestock productivity: improved animal health

The eradication of cattle diseases will increase the efficiency of livestock production and therefore reduce emissions per unit output. These initiatives focus on animal health and rural economy concerns rather than a focus on reducing GHG emissions.

Benefits

- Clear animal welfare benefits
- Increased market value of Scottish produce – seen as desirable status

Costs

- Not quantified, but potentially high levels of investment – if more diseases are tested for there is a higher demand for vets and lab time/space.

Option 7: Increased coverage of Nitrate Vulnerable Zones

The role-out of Nitrate Vulnerable Zones (NVZs) across 100% of agricultural land would result in better inorganic and organic N management, and therefore, reduce GHG (nitrous oxides) emissions. The NVZs were designed to protect waterbodies (primarily groundwater) from diffuse nitrogen pollution. They currently cover 14.2% of Scotland. Consideration must also be given to the fact that there are other environmental benefits beyond the reduction of GHG emissions – although the focus of the NVZ would be delivering better water quality, there is no direct mechanism to reduce CH_4 or CO_2 emissions.

Benefits

- The Cross-Compliance legislation is already in place
- Would provide a helpful pathway to allow Scotland to meet the requirements of the Water Framework Directive (EU: 2000/60/EC) as ell as GHG emission reduction targets)

Costs

- Not quantified, but likely to be substantial: involves capital costs for slurry storage and annual costs for implementation of specific fertiliser measures. The NVZ RIA available gives indicative costs (http://www.scotland.gov.uk/Resource/Doc/980/0003144.pdf)

Option 8: Cap and trade

Threshold levels for participation could be set depending on farm holding size. This market-based approach would be compulsory and an estimate based on a threshold of 100 tCO_2e/year would affect 11,500 farms and have the potential to deliver a 6.5% reduction.

Benefits

- Would not unfairly penalise smaller farms

Costs

- Cost to government estimated at £1m
- Cost to farmers estimated at £23m

3.3 Summary of Options

3.3.1 The clear message from the Steering Group and the Stakeholders Group is that a voluntary approach is the most appropriate given the complexities, heterogeneity of the sector and the current state of knowledge. Thus potential options, as outlined above, seems to be *do nothing*, *targeted communication* or *voluntary agreements*.

3.3.2 The sector needs to make its contribution to achieving the targets of the Climate Change (Scotland) Act and *doing nothing* will not necessarily deliver the reductions or prepare the sector if a later regulatory approach is enacted. The *voluntary agreements* carry an increased administrative burden with no indication of the level of impact they would have. Therefore*, targeted communication* was identified as the most appropriate strategy. The remainder of this document deals with the targeted communication strategy named the Farming For a Better Climate Initiative.

3.3.3 The Farming For a Better Climate (FFBC) initiative is a 5-point action plan, which sets out key mitigation measures farmers and land managers should consider adopting on-farm. The initiative is voluntary, and based on 'win-wins' - good for the climate, and good for the productivity and resilience of farming businesses. The key measures are:

1. Using energy and fuels efficiently
2. Developing renewable energy
3. Locking carbon into the soil and vegetation
4. Optimising the application of fertilisers and manures
5. Optimising livestock management and storage of waste

FFBC also signposts to grant funding support.

3.3.4 The FFBC website can be found here. It contains a series of detailed, downloadable guidance leaflets developed to underpin each FFBC mitigation measure.

3.3.5 The Maximum Technical Potential (MTP) for abatement in 2022 relative to 2006 for various measures recommended by FFBC are included below, alongside the cost-effectiveness of the actions. Negative figures for cost-effectiveness indicate potential savings to the farmer; it is this incentive to improve farm profits which encourages a voluntary approach.

	[1] MTP for abatement in 2022 relative to 2006 (ktCO2e)	[2] Cost-effectiveness (2009£/tCO2e)	[3] One-off cost?
Crops & soils mitigation options			
Improved timing of mineral fertiliser N application	393	-109	No
Improved timing of slurry and poultry manure application	360	-72	No
Full allowance of manure N supply	164	-157	No
Plant varieties with improved N-use efficiency	113	-72	No
Reduced tillage / No-till	13	-456	Yes
Avoiding N excess	96	-53	No
Use composts, straw-based manures in preference to slurry	27	0	No
Separate slurry applications from fertiliser applications by several days	16	0	No
Livestock mitigation options			
Improved genetic potential for beef cattle	24	-3800	No
Probiotics: beef	56	-2143	No
Improved genetic potential for dairy cows - productivity	84	0	No
OFAD: Fattening pigs - large farms	9	3	Yes
OFAD: Beef cattle - large farms	60	4	Yes
OFAD: Fattening pigs - medium farms	2	6	Yes
OFAD: Dairy cattle - large farms	56	9	Yes
CAD: Poultry-5MW	56	13	Yes
TOTAL	**1529**		

Source: Abatement potential and costs based upon SAC (2009) – An assessment of the costs of achieving greenhouse gas abatement in Scottish agriculture. AA211 Special Study report to SEERAD.

3.3.5 FFBC measures for the period 2010-2022 are estimated to come at a cumulative cost of £1.92m to the government and £-469.57m to the farmers (the negative indicates a saving). Initial calculations indicated that funding for anaerobic digesters through the SRDP might come at a cumulative cost of £2.51m to the government and £0.88m to the farmers.

3.3.6 SAC has organised a range of seminars to be delivered throughout Scotland to focus on communicating the key messages from FFBC. Feedback from these seminars will help inform the evolving communication strategy for FFBC.

3.3.7 Detailed information from Focus Farm case studies will be found on the FFBC website. The Focus Farms were identified with involvement from NFUS and are composed of four contrasting farms; dairy, upland livestock, arable and diversified. These farms will demonstrate the implementation of the recommended mitigation measures over the course of three years, and (with the help of SAC specialists) focus farmers and their discussion groups will look at a range of options, consider what steps to put into practice and identify the benefits for their farm business. The Focus Farms are delivered through the SAC Public Good Advisory Service funded by the Scottish Government.

4. Scottish Firms Impact Test

4.1.1 Section 2.3 (Business) sets out the extensive involvement of business in the policy development process. Key to the determination of mitigation measures to be included in the voluntary approach was the consideration of the cost and benefits. Businesses agreed that the net impacts of FFBC on the business would be positive, resulting in business savings. Businesses also said that the voluntary nature of the FFBC would also allow flexibility in taking forward those measures which are most applicable for each individual business. Additionally, it was pointed out that the voluntary approach would not need compliance monitoring and sanctions, further reducing burden on both businesses and regulatory bodies

4.1.2 The high degree of involvement and supervision by SAC of the Focus Farms as part of FFBC will provide a more accurate assessment of the business impacts of the Farming For a Better Climate initiative in the future. The Focus Farms are bringing together teams of local farmers with specialist knowledge in that area of farming, and allowing them to discuss the recommendations and select the most appropriate for them. They are also demonstrating the full costs and benefits of the measures on their business. While this would not be an appropriate exercise with most policies, the voluntary nature of this policy means that successful demonstration of benefits may be key in engaging farmers and attaining a high level of uptake.

4.2 Competition Assessment

4.2.1 The voluntary nature of the policy and the fact that it is delivered through existing knowledge transfer partners ensures that farmers have equal opportunities to take advantage of the initiative. Therefore, it is unlikely to have any significant distortionary effects on the market. This has been confirmed through communication with the Office of Fair Trading.

4.2.2 If the measures result in improved productivity or lower costs then Scottish farms may become more profitable compared to other countries.

4.2.3 Different farms may have different capabilities to take up the measures, with the least efficient businesses having the greatest potential gain. This should not significantly distort the market but is an important step to reducing the environmental impact of Scottish farming.

4.2.4 Larger farms may have more capital available to invest in on-farm renewables. This may affect the competitiveness of smaller businesses as state aid rules will not allow for the recipients of SRDP grants to qualify for the Feed-In-Tariff. However, this is not a good reason not to recommend the uptake of renewables on farms which have the capacity. There is on going discussion with the UK Government on this specific issue and OFGEM has issued guidance to officials who assess and advise on SRDP. Additionally there is the potential for groups of smaller farms to act cooperatively and invest in on-farm renewables.

4.3 Test run of business forms

4.3.1 There are no new forms associated with this proposal.

4.4. Legal Aid Impact Test

4.4.1 The voluntary nature of the policy and the lack of sanctions for non-compliance indicate that there should be no impacts on the legal aid fund. This has been confirmed through advice from Justice Department.

5. Enforcement, sanctions and monitoring

5.1.1 The voluntary nature of this policy requires no enforcement and sanctions are not relevant. This section will therefore focus on monitoring the success of FFBC. This can be divided into two separate challenges: monitoring the uptake of FFBC and monitoring the effect that this is having on GHG emissions at the national level. The national inventory is not fit for this purpose as it uses the IPCC Tier 1 methodology, therefore, for example, the only way to reduce livestock emissions is to have fewer cattle, however, FFBC recommendations such as accurate feeding or modifying cattle's diet to reduce GHG emissions will not be reflected no matter how great the improvements they deliver are.

5.1.2 Dialogue between advisory service providers and farmers may give an indication of the how well integrated the FFBC message has become but there remains a difficulty in proportioning individual farmers' actions to the FFBC initiative. For example, if a farmer decides to upgrade his slurry store, this is an action that is encouraged under FFBC; however, he may have many motivations other than the wish to mitigate GHG emissions. The old store may not be fit for purpose, or it may be an adaption to climate change which is reducing the number of days a year he can spread. While it doesn't matter what his motivations are in relation to reducing the GHG emissions, it will not allow for an assessment of the success of FFBC.

5.1.3 The second challenge relates to measuring the effect of the implementations on the ground. All measures in FFBC are backed with sound scientific evidence, however, the national figures of fertiliser use or cattle numbers translated into GHG emissions will not necessarily reflect FFBC even if the inventory is constructed in a 'per unit production' form. For example, the recommendation that slurry should not be spread on to warm soils in order to minimise ammonia emissions is impossible to monitor. Though lab tests and small-scale field trials can confirm the effectiveness of this measure, there is no way to remotely check whether farmers are considering this, and interviews and surveys on such topics can be misleading.

5.1.4 As a result of the difficulties described above there is a need for indicators to be identified at the national scale which can help capture the full picture of changing patterns of GHG emissions within the sector. This need is

recognised by the Committee on Climate Change and research is underway to establish indicators for agriculture (and related land use). Such indicators need to reflect farm practices and measures identified in the Scottish Agricultural College Marginal Abatement Cost Curve work. Additionally, Scottish Government undertakes research to identify and measure uptake and effectiveness of FFBC measures. This research will provide a basis on which indicators for agriculture and related land use will be developed.

5.1.5 Defra is also looking to establish indicators and there is a high level of communication between the administrations to identify the most appropriate indicators.

6. Implementation and Delivery Plan

6.1.1 The website and Focus Farms are already running under SAC's supervision. Two of the Focus Farms have had their initial public launches which were well attended and received by the stakeholders and local farmers. These events got positive reports in both the Press and Journal and The Courier. SAC are also running outreach events and incorporating the FFBC message into all on-farm advice which they provide.

6.2. Post-implementation review

6.2.1 The success of FFBC and its ability to enable Scotland to meet its emissions targets is likely to be reviewed in 2015. The industry is aware that there is the possibility of regulation if there are low levels of uptake during the voluntary phase.

6.2.2 The research outlined above in the monitoring section will be particularly important in this review.

7. Summary and recommendation

7.1.1 As outlined above, there are a number of options open to Scottish Government; however, given the time scales at which action must happen (interim 2020, final target 2050) and the heterogeneity and number of farming enterprises in Scotland, it appears advantageous to consider the most flexible approaches. This encourages a voluntary approach, as any mandatory approach would have to be governed by communicable specifications which may not be suitable for all farmers. Any approach which encourages inappropriate actions will not aid the economy, food security or the mitigation of GHG emissions. Therefore, it is preferable to open a dialogue of tailored recommendations and examples of best management practices rather than a 'one size fits all' regulation. SAC has undertaken an analysis of the cost-effectiveness of different on-farm strategies to reduce GHG emissions (Moran et al., 2010). The resulting Marginal Abatement Cost Curve identifies potential areas in which reductions are cost-effective.

7.1.2 The differing scales between measurement and action is particularly apposite, for example, though the science is sound that better management of N fertilisers reduces N_2O emissions, budgets of N_2O are only sensitive to the total amount of N fertilisers used in Scotland. These levels of complexity confirm that, at the moment, targeted communication of the benefits of best practice, alongside practical demonstrations on real farms of measures reducing GHG emissions also strengthening the robustness of the business, is the favoured option.

7.1.3 In order to meet the twin objectives of this legislation which were to enact a mechanism to encourage the mitigation of GHG gas emissions from agriculture and to strengthen the Scottish agricultural sector, targeted communication in the form of the Farming For a Better Climate strategy is the recommendation of this BRIA.

Summary costs and benefits table

	costs	**Negatives attributes**	**Positive attributes**
Do nothing	£0	• Uncertain impact	• Places no constraints on sector
Targeted communication	£80000 + £327000	• May have limited uptake and not meet 10% target	• Strengthen resilience of Scottish farms • Deliver GHG emissions reductions
Enhanced cross-compliance	unknown	• Require EU level changes	• Would deliver significant reductions
Voluntary agreements	unknown	• Increased administration burden	• Creation of niche markets
Environmental stewardship	unknown	• Escalating costs to industry	• Funding mechanisms already in place
Livestock productivity	unknown	• Need for new regulations • Need for investment in veterinary sciences and labs	• Animal welfare benefits • Improved reputation of Scottish agriculture
NVZs	High but unknown	• High administration burden • Greater burden on arable farmers than livestock • No CH_4 or CO_2 reductions	• Environmental benefits from improved water quality
Cap and Trade	£1M to gov £23M to farmers	• Expensive on the industry	• Not unfair on small farms

Declaration and publication

I have read the Business and Regulatory Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) that the benefits justify the costs. I am satisfied that business impact has been assessed with the support of businesses in Scotland.

Cabinet Secretary for Rural Affairs and the Environment **Richard Lochhead**	Signed:
Date	

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