Committee on Climate Change

Independent advice to Government on building a low-carbon economy

Scottish Climate Change Bill – Call for Evidence

The Scottish Government has committed to introducing a new Scottish Climate Change Bill. Recognising progress in Scotland and the Paris Agreement, this will include an ambitious new target of reducing emissions by more than 50% on a gross basis against 1990 levels by 2020. In early 2017 the Government plans to publish a new Climate Change Plan and a new Energy Strategy, which together will set out their low-carbon infrastructure priorities.

The Committee on Climate Change has been asked by the Scottish Government to provide advice on how the new Bill may look and is seeking evidence to help with that task.

Scotland's current Climate Change Act sets a long-term target to reduce emissions of greenhouse gases by at least 80% in 2050 relative to 1990, with an interim target to reduce emissions by 42% in 2020.[1] Secondary legislation has also set a series of annual emission reduction targets for 2010 to 2032.

Since the Act was passed, the Scottish Government has failed to meet annual targets for 2010 to 2013, but met the 2014 target by a wide margin with reductions of 45.8% since 1990 – outperforming the level of the 2020 interim target.[2]

The measure of Scottish emissions under the existing Act has been subject to considerable variability over this period, masking underlying progress in reducing emissions. This has been due to revisions to the Scottish greenhouse gas inventory and changes in the EU Emissions Trading System (EU ETS) that affect the Scottish share of emissions in some years, together with variations in annual temperatures. The changes in the emissions inventory reflect improvements in scientific understanding which led to changes in the methodology for estimating emissions. Such improvements are welcome but they have made the existing annual targets, which are set on an absolute basis, more difficult to achieve. The fact that targets in 2010 to 2013 have been missed is largely due to these revisions. **The deadline for responses is 12 noon on 1 February 2017.** For information about how to submit your response to this call for evidence, see: https://www.theccc.org.uk/2016/12/14/call-for-evidence-scottish-climate-change-bill/

QUESTION PROFORMA

QUESTIONS

a. Appropriate level of future emissions ("targets")

A new Scottish Climate Change Act would likely be passed in 2019 and so there will not be much time for new policies to affect progress towards a 2020 target. There is scope for the new Act to include further interim targets between 2020 and 2050 (e.g. for 2030 and 2040).

In previous work for Scotland[1] we have developed a "High ambition" scenario for Scotland, through which it would be possible for Scotland to achieve a 47% reduction by 2020, on a net basis, outperforming the current 42% target.

On a gross basis our High Ambition scenario identifies a possible reduction of 57% in 2020 relative to 1990 emission levels (from emissions in 2014 that were 39.5% below 1990). This includes abatement from all sectors of the economy, with the largest abatement from the continuing decarbonisation of the power sector and increased abatement in transport.

The current 2050 target in Scotland, for a reduction of at least 80%, is based on a global path that keeps central (i.e. 50% likelihood) estimates of global temperature rise close to 2°C. The Paris Agreement contains a set of new long-term aims to limit warming, which are more ambitious that previous UN agreements. The Agreement aims to keep the global temperature rise to well below 2°C, pursuing efforts to limit it to 1.5°C. To achieve this, the Agreement aims to balance sources and sinks of greenhouse gases in the second half of the century (i.e. net zero global emissions by 2050-2100).

The CCC published a report on the implications for UK climate ambition on the 13th October.[2] This concluded that it is not appropriate to set new UK-wide emissions targets now, but agreed with the intention to set a new UK target in future that reflects the global aim of reaching net zero emissions. To be credible, such a target needs to be evidence-based, accompanied by strong policies to deliver existing nearer-term targets and a strategy to develop greenhouse gas removals. The five-yearly cycle of pledges and reviews created by the Paris Agreement provides regular opportunities to consider increasing ambition.

The Scottish context differs from that of the UK, both in terms of the existing legislation and in terms of the policy landscape. The different target mechanisms within the 2009 Scottish Act have proven to be more sensitive to inventory revisions, as set out above. Scottish Ministers have made statements regarding their wish to remain at the forefront of global ambition,[3] and have committed to a new Bill in response to the Paris Agreement.

The Climate Change (Scotland) Act 2009 allows for annual targets (i.e. those currently set for each year to 2032) and the interim target (for 2020) to be amended, within certain limits, via secondary legislation. By contrast, the long-term target for an emissions reduction of at least 80% by 2050 cannot be amended, and no further long-term targets can be added.

[1] https://www.theccc.org.uk/publication/scottish-emissions-targets-2028-2032-the-high-ambition-pathway-towards-a-low-carbon-economy/
[2] https://www.theccc.org.uk/publication/uk-action-following-paris/
[3] For example, http://news.gov.scot/speeches-and-briefings/first-minister-address-to-seanad

Question 1: To what extent is there scope to increase emission reductions now to meet a more ambitious 2020 target? (Please provide evidence where relevant.)

ANSWER: There is genuine scope to achieve significantly greater reductions.

The scope to reduce is only limited by our desire and imagination to achieve a greener and cleaner world.

Local authorities could negotiate more demanding requirements for new housing/commercial developments, including for example incorporation of on-site zero and low carbon (LZC) equipment, and/or contribution to council carbon offset funds. More consideration of emissions control in travel to work plans for new developments and incentives for existing facilities could also be factored into the mix.

There is opportunity to be bold and embrace examples from around the world: Paris restricts cars over a certain age and is moving toward a ban of certain vehicle types.

New house builders could be required to adopt the Scandinavian approach to vehicle free urbanisations that prioritises people over vehicles and greens the environment.

There is also scope for more uptake of:

- Low carbon heat/power technologies.
- Incentives/disincentives for vehicle manufacturers to sell more ultra-low emission vehicles by central government.
- Investment in active travel and public transport measures and infrastructure.
- Reimbursement incentives from use of national entitlement card to public transport operators for use of low emission vehicles.
- Smart working practices by public organisations and their partners resulting in reduced travel (do physical meetings need to take place; greater use of virtual means of communication; work at home policies; use of partners' facilities policies...)
- 'Carbon free' sources of power; eg: solar power, wind power, geothermal energy, low-head hydropower, hydrokinetics (e.g., wave and tidal power), and nuclear power. And for carbon capture and sequestration (removal/capture of CO2 via plants, soil etc).

'Cap and trade' policies incorporating carbon-offset credits might be introduced/developed for example – subject to the dynamics that may arise from the potential introduction by the Scottish Government of a gross accounting framework.

Question 2: To what extent do you support further interim targets between 2020 and 2050 (e.g. for 2030 and 2040)?

ANSWER: There is wide assumption that targets are useful or at least necessary in achieving reductions in carbon emission, therefore there is an argument that interim targets would be similarly useful.

If the targets are directly associated with implementation of relevant policies and there is strong consensus and shared commitment from all political parties then the targets could be useful and effective in their purpose.

Consideration does need to be given however to the implications of inventory revision on the validity of targets whether interim or not. This matter is addressed later in this questionnaire.

The Scottish Government should create incentives to innovate and lead the way in changing attitudes and behaviours. So promoting initiatives, sharing stories, using social media to create memes for people to associate, and engage with is essential so that younger people see a clear path to follow that is credible, exciting and relevant.

Question 3: What are the opportunities to reduce emissions to 2050 that go beyond our High Ambition scenario, including opportunities for greenhouse gas removal? (Please provide evidence where relevant.)

ANSWER: The measures identified in the answer to question 1 above would need to be put in place comprehensively and determinedly with strong cross political/boundary support and together could provide the synergy required to extend and achieve the higher ambition.

At PRISM Alba Ltd we have created the National Green Standard Award (NGSA) to recognise the efforts of organisations in working to support the Scottish Government aims, the UN Global Goals and the principles of the tripe bottom line.

Question 4: Should the 2050 target be more ambitious than the existing level of 'at least 80%'?

ANSWER: Yes.

Scotland is making good progress towards its high ambition target for 2050. To go beyond this level would provide an ambitious challenge that would require concerted effort from all concerned, backed by a

political imperative at all levels. Pursuit of the higher level of achievement would provide for an even more meaningful ambition and help to ensure achievement of the already high ambition.

It should be acknowledged that in order to maximise the potential to achieve any carbon reduction targets, Scotland cannot do it alone and needs to work with and gain the co-operation of its neighbours and of the key global players. Arguably such co-operation is critical in the development of complementary policy and procedures including the accounting framework and incorporation and response to inventory revision.

PRISM Alba, through the NGSA is trying to do just that.

Question 5: Should there be a target for net-zero emissions for Scotland, and if so for when and on what basis?

ANSWER: Yes.

The achievement of the additional 20% would provide for a formidable challenge, requiring significant effort from the widest range of society and businesses including farming for example. Such ambition would need political support across all parties and sectors in Scotland and beyond. Arguably it would also need rethinking of existing policies in order to raise the bar sufficiently to create the radical change necessary to meet the additional challenge.

There would need to be a sea change in the views of society so that the use of fossil fuels becomes as much a taboo as drink driving or smoking for example. More evidence would undoubtedly need to be provided to validate the adverse impact of carbon use on our climate and the implications of this in terms of the effort and finances required to address the risks of climate change (storm damage and floods, for example).

However what would be the risks of not pursuing net-zero emissions? At the bottomline, many would argue that such means are essential in order to prevent irretrievable and catastrophic damage being caused to the Earth and its resources from carbon use. Scotland would also lose the opportunity to become a champion and innovator in the fight to reduce the damage caused by carbon use and therefore its opportunity to further enhance its profile amongst the leading countries of the world. This at a time of BREXIT and fundamental change in USA politics when Scotland needs more than ever to be seen as a serious country to be reckoned with.

Net-zero emissions should therefore be pursued on as realistic yet ambitious a time scale as possible,

perhaps targeting 2075.

The achievement of this target needs to be based on the widest and most integrated use of power sources and uptake of new technology. Sources should include innovation and/or new developments in power sources such as: wind and sea; solar; low emission vehicles; low carbon heating and improved insulation in new homes; re-forestation; geothermal. In addition, leading practice in carbon reduction should be encouraged, recognised and disseminated. The country's public transport system and infrastructure undoubtedly needs to be radically reviewed on an integrated basis across all forms of transport to provide for the most carbon efficient means of transport that is sufficiently attractive and effective to entice travellers away from more carbon hungry private transport.

Question 6: If it is not currently appropriate to set a target for net-zero and/or to adopt a more ambitious 2050 target, should provision be made within the new Bill to do so at a later date?

ANSWER: The ambition to achieve net-zero emissions should be stated sooner rather than later.

b. Duration and form of future carbon targets (one year or multi-year, absolute or percentage)

Scottish targets for 2020 and 2050 are currently set as percentage reductions from a 1990 baseline. Annual targets have been set on an absolute ($MtCO_2e$) basis.

Annual targets allow for continued assessment of progress and provide greater certainty as to the magnitude of emission reductions that need to be made at any given time. However the ability to meet them can be affected by annual fluctuations in emissions caused by weather or unforeseen factors, while the delay in greenhouse gas inventory data for Scotland means that progress against targets is assessed two years after the target year.

Multi-year targets, such as five-year budgets under the UK-wide Climate Change Act, provide greater smoothing of these annual fluctuations, while allowing for monitoring of progress towards longer-term emission reduction targets.

Targets on an absolute basis allow for assessment towards total cumulative emissions; however, revisions to the greenhouse gas inventory can make them harder or easier to meet without reflecting actual progress in reducing emissions. This can be more pronounced in Scotland, which as compared with the UK as a whole has a much higher share of emissions from agriculture and land use, in which most revisions occur.

Percentage reductions would be less affected by these revisions, but targets on a percentage basis are less strongly linked to the best scientific estimates of the absolute level of emissions, which are the fundamental driver of climate change.

When the current 2009 Act was set annual absolute targets and interim percentage targets aligned. However, subsequent revisions to the greenhouse gas inventory have 'shifted' the baseline and led to these targets diverging from each other, potentially creating confusion and a loss of transparency.

Question 7: Should Scottish targets be set on an annual basis or covering multiple years? If on an annual basis, what can be done to minimise the impact of confounding short-term factors (e.g. weather) on meeting them?

ANSWER: There should be a hybrid approach.

Annual targets should be set but not be absolute, so that non-achievement due to fluctuations within agreed tolerances is acceptable. More concrete targets should be set on five-yearly periods to help minimise slippage or evasion against annual targets. Targets that are more absolute should be set every ten years. The risks of flexibility in targets is addressed later in this questionnaire in the context of inventory revision.

The approach taken towards carbon reduction and the method used to encourage, monitor, review and improve upon carbon reduction should themselves be reviewed at least annually and be refined as appropriate against the findings identified.

Question 8: Should targets be set on percentage or absolute terms?

ANSWER: An absolute target of net-zero emissions should be set for the best estimated chronological deadline possible. Progress towards this absolute target could be made against percentage based targets to allow for more practicality in achievement.

At all times, the evidence drawn from scientific analysis should be considered in the review and refinement of any targets that are agreed. Similarly leading practice and developments in technology and/or identification and use of new power sources should be identified, acknowledged and made best use of with the implications of so doing impacting on the review of carbon use targets.

Question 9: What else can be done to make targets resilient to future revisions to the emissions inventory?

ANSWER: The importance of exploring, identifying and making best use of the widest scope of alternative power sources cannot be over emphasised. The more synergistic and integrated the framework of power sources used the greater the opportunity to introduce resilience to potential inventory revisions.

There is also a challenge here for the political process. As with other walks of life there can be a general tendency in politics towards point scoring and over focus on league tables. The political process needs to adopt a more mature and informed approach where there is recognition that the landscape and measurement indices are likely to develop with implications on the validity of the current targets. There is perhaps scope for an independent body to act as a regulator and/or advise on the review of targets and measurement processes, so that the risk of political bias and/or massage of targets is minimised. This might be a similarly structured body to the EU Emissions Trading System (EU ETS) for example.

c. Future accounting framework

The Scottish Government has committed to moving to a gross emissions accounting framework (i.e. actual emission reductions from all sectors of the economy will count towards the targets), as opposed to the net basis used in the 2009 Act.[1] A move to a gross framework aims to increase transparency around progress to targets in Scotland.

A change to gross accounting framework raises issues of;

- Whether there remains a role for credit purchase in such an accounting framework. The existing Act allows for credit purchase as a means to meet targets, although it also places further targets for "domestic effort" alone. To date, the Scottish Government has not purchased any such credits. Were it to do so, these would need to be procured through a programme that meets a required standard.
- How the role of emissions trading schemes (such as the EU ETS) should be reflected in such an accounting framework

Depending on the future relationship with the European Union, participation in the EU Emissions Trading System (EU ETS) may or may not continue.

Question 10: What is the role for credit purchase to supplement action to meet gross targets?

ANSWER: There is a potential role for credit purchase where the credit counts towards real environmental gain. This might include support of energy saving projects, planting trees or investment in alternative power sources for example.

The Scottish Government should support the role out of the NGSA as part of this process as a method of encouragement and genuine test of the capability of organisations to endorse and support their overarching goals.

Question 11: How should the role of the EU ETS, or other trading schemes, be reflected in the emissions accounting framework used for reporting progress to targets?

ANSWER: The EU ETS can provide the governance to ensure that credit purchases result in genuine reduction of emissions.

Question 12: Are there any competitiveness implications for current traded sector business (e.g. industry) to moving to gross targets in Scotland, and if so how could they be minimised?

ANSWER: There are industry concerns arising from the move towards gross accounting, exacerbated by the higher level of ambition for achievement.

These concerns are undoubtedly more prevalent in construction and/or manufacturing sectors and relate to changes in allowances that might ensue. Even though the concerns are not necessarily evidenced and probably impact on less than ten percent of international competitiveness, they need to be considered and might for example be addressed by focusing on higher level opportunities to reduce carbon use rather than more broad brush measures.

There is a role here for the EU ETS within a multilateral approach to the issue.

d. Criteria for setting future targets

The current Climate Change Act includes target setting criteria which must be taken into account prior to targets being legislated. These are:

a. Scientific knowledge about climate change
b. Technology relevant to climate change
c. Economic circumstances, in particular the likely impact of targets on –
    - The Scottish economy
    - The competitiveness of particular sectors of the Scottish economy
    - Small and medium-sized enterprises
    - Jobs and employment opportunities
d. Fiscal circumstances, in particular the likely impact of targets on taxation, public spending and public borrowing
e. Social circumstances, in particular the likely impact of targets on those living in poorer or deprived communities
f. The likely impact of targets on those living in remote rural and island communities
g. Energy policy in particular the likely impact of the target on energy supplies, the renewable energy sector and the carbon and energy intensity of the Scottish economy
h. Environmental considerations and, in particular, the likely impact of the targets on biodiversity
i. European and international law and policy relating to climate change

Question 13: Are the current target setting criteria listed in the Act still appropriate? Are any missing?

ANSWER: There are a number of areas that are potentially omitted.

The relevance of 'cradle to grave' considerations is not addressed. Examples that might be used to evidence the benefits of maintaining units for longer rather than expending the Earth's resources in providing newer more efficient units might be found in the automotive and white goods sectors. For example proper maintenance and repair of a vehicle over a long period of time might use fewer resources than more frequent replacement by more technologically advance vehicles. It may be more difficult to identify appropriate measures and achieve noteworthy publicity in addressing this concern; however the benefits may be substantial.

On a similar vein, the tendency to replace rather than repair is not addressed. Component parts could be replaced rather than replacing a complete assembly. The challenges and potential benefits could be similar to that of exploring the cradle to grave policy.

There should be more encouragement of developing leading practice. This might be in terms of incentivisation, and could certainly be achieved in part at limited/nil cost to the tax payer by promoting adherence to Green Award frameworks and elevating the recognition of achievement through the resultant accolades.

An additional factor worthy of consideration is that targets are not the complete answer. Performance trends, particularly over extended periods of time, need to be identified and explicitly factored into the equation of carbon reduction. Targets are not necessary in establishing positive performance trends and can even detract from such trends by placing focus on key measures rather than whole process/systems.

Consideration needs to be given to a levy on manufacturers to address the end of life issue of products. We cannot simple use and discard. We need to be more considerate and public procurement scoring systems should reward organisations that are making strides towards being greener as evidence through standards such as the National Green Standard Award or ISO 14,000. We need to do different things if we are to achieve different results!