The Committee will meet at 9.15 am in the Robert Burns Room (CR1).

1. **Decision on taking business in private**: The Committee will decide whether to take item 4 in private.

2. **Declaration of interests**: Rhoda Grant will be invited to declare any relevant interests.

3. **Climate Change (Emissions Reduction Targets) (Scotland) Bill**: The Committee will take evidence on the Bill at Stage 1 from—

   - Shane Donnellan, Senior Behaviour Change Specialist, Changeworks;
   - Dr Rachel Howell, Lecturer in Sustainable Development, School of Social and Political Science, University of Edinburgh;
   - Mary Sweetland, Chair, Eco Congregation Scotland;
   - Jamie Stewart, Policy Officer, Citizens Advice Scotland;

   and then from—

   - Paul Gray, Chief Executive, NHS Scotland;
   - Mai Muhammad, Energy Manager, Aberdeen City Council;
   - Tom Thackray, Director of Infrastructure and Energy, CBI Scotland;
   - Chris Wood-Gee, Chair, Sustainable Scotland Network.

4. **European Union (Withdrawal) Act 2018**: The Committee will consider management of its anticipated work considering consent notifications.
5. **Climate Change (Emissions Reduction Targets) (Scotland) Bill (in private):**
The Committee will consider evidence heard earlier in the meeting.

Lynn Tullis  
Clerk to the Environment, Climate Change and Land Reform Committee  
Room T3.40  
The Scottish Parliament  
Edinburgh  
Tel: 0131 348 5240  
Email: eccll.committee@parliament.scot.
The papers for this meeting are as follows—

**Agenda item 2**

Climate Change (Emissions Reduction Targets) (Scotland) Bill cover note
PRIVATE PAPER
Introduction

1. The Climate Change (Emissions Reductions Targets) (Scotland) Bill was introduced on 23 May 2018 and under rule 9.6 of the Standing Orders, the Parliamentary Bureau referred the Bill to the Environment, Climate Change and Land Reform Committee to consider and report on the general principles.

2. The Scottish Government has published the following documents in relation to the Bill:
   - Climate Change (Emissions Reductions Targets) (Scotland) Bill
   - Policy Memorandum
   - Explanatory Notes
   - Financial Memorandum
   - Delegated Powers Memorandum
   - Statement on Legislative Competence

3. In addition, the Cabinet Secretary for Environment, Climate Change and Land Reform wrote to the Committee to highlight an information and analysis document to support discussion of the Bill. This is included at Annexe A.

4. No secondary Committee was appointed to scrutinise the Bill. However, the Finance and Constitution Committee will consider the Financial Memorandum to the Bill. Provisions relating to delegated powers within the Bill will be considered by the Delegated Powers and Law Reform Committee at Stage 1.

5. This paper sets out the purpose of the meeting and background to the Bill and the Environment, Climate Change and Land Reform Committee’s approach to consideration of the Bill at Stage 1.

Purpose of the Meeting

6. At this meeting, the Committee will hear from:

Panel One - Behaviour Change

- Dr Rachel Howell, Lecturer in Sociology/Sustainable Development
- Mary Sweetland, Chair, Eco-Congregation Scotland
7. The purpose of the meeting is to hear about the behaviour change that will be required to meet more challenging climate change targets and to discuss how the public and private sectors can be governed, motivated and supported in this respect.

8. Written submissions from witnesses can be found at Annexe B.

Background


10. The key provisions of the agreement were:

   - Global temperature rises should be limited to “well below” 2°C and to “pursue efforts” to limit temperature increase to 1.5°C above pre-industrial levels (See Article 2);
   - Parties to the agreement are to aim to “reach global peaking of greenhouse gas emissions as soon as possible”;
   - Parties are to take action to “preserve and enhance” carbon sinks;
   - To conduct a “Global Stocktake” every five years, starting in 2023;
   - For developed countries to provide financial support for developing countries to mitigate climate change;
   - Creation of goal of “enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change”.

11. Following the adoption of the agreement, the First Minister (who attended the summit) welcomed the agreement and said:
“COP21 has, as we had hoped, achieved a big step forward in the international fight against climate change. Devolved administrations, like the Scottish Government, will be strong drivers of a progressive climate agenda. We look forward to working with our international partners to secure the successful implementation of the Paris agreement.”

12. In its [Programme for Government 2016-17](#), the Scottish Government signalled its intentions to legislate to create new, more pressing climate change targets via new legislation in order to address the Paris Agreement. In its 2017-18 [Programme for Government](#), the Scottish Government stated the Bill would be included in the programme of legislation that year and said:

“The Climate Change Bill will respond to the historic Paris Agreement by setting more ambitious targets to reduce greenhouse gas emissions. The Bill will increase transparency, demonstrate our commitment to sustainable economic growth and signal to the international community that Scotland is the place to do low carbon business.

13. The Scottish Government requested advice from the Committee on Climate Change (CCC) in October 2016 and received this [advice](#) in March 2017. Between 30 June and 22 September 2017, the Scottish Government [consulted on provisions and policy for inclusion in the Bill](#). The main themes of the consultation were:

- Updating the 2050 target in the Climate Change (Scotland) Act 2009 by increasing this from 80% to 90% lower than baseline levels;
- Whether the Bill should contain provisions to allow for a net zero emissions target to be set at a later date;
- To update the interim target for 2020 contained in the Climate Change (Scotland) Act 2009 from 42% to 56% lower than baseline levels;
- To add further interim targets of 66% by 2030 and 78% by 2040;
- To change the presentation of annual targets from tonnes of emissions to percentages to be consistent with the interim targets;
- For these annual targets to be presented as equidistant linear points between the interim targets;
- For targets to be set on the basis of actual emissions, rather than adjustments for crediting systems such as the European Union Emissions Trading Scheme (EU ETS);
- Whether the interim and 2050 emissions targets should be allowed to be changed;
- Reporting, including Climate Change Plans; and
- The impacts of the Bill on people, businesses and the environment.
14. The Scottish Government received 19,365 responses, of which 273 were non-campaign generated. An analysis document published in December 2017 highlighted the views of consultees.

15. In October 2017, the Scottish Government sought further advice, due to revisions to emissions estimates, which was received in December 2017. The Environment, Climate Change and Land Reform Committee took evidence on this advice from the Cabinet Secretary for Environment, Climate Change and Land Reform on 8 May 2018.

Content of the Bill

16. The Bill proposes to increase the 2050 target for reduction of greenhouse gas emissions from the 1990 baseline from 80% (as laid out in the Climate Change (Scotland) Act 2009) to 90%. The Bill also allows for a target of the 100% reduction (known as a net zero target) from the baseline to be created at a future date.

17. The Bill contains 5 Parts and 1 Schedule.

- **Part 1** allows for the creation of a net zero emissions target at a future date and updates the 2009 Act 2050 target from 80% to 90%. It also creates new interim targets for 2030 and 2040, as well as updating the previous 2020 interim target. The Bill creates a new provision for modification of these targets. Part 1 also includes sections proposing annual targets be presented in percentage terms in future and on advice the Scottish Government must seek in setting targets.

- **Part 2** is concerned with Emissions Accounting and how the emissions will be calculated in relation to the targets. This includes restricting the use of carbon units which can be purchased to contribute towards emissions reductions.

- **Part 3** is about the reporting and planning duties of the Scottish Government on the targets. It also includes detail of proposals for how reports on policies and proposals, suggested to be renamed Climate Change Plans, will be created and published in the future.

- **Part 4** provides further detail on the meaning of terms within the Bill and further consequentials to the 2009 Act.

- **Part 5** contains final general and miscellaneous provisions such as:
  i. Meaning of the 2009 Act
  ii. Ancillary Provision
  iii. Commencement
  iv. Short title
Environment, Climate Change and Land Reform Committee Scrutiny

18. The Committee has agreed to conclude its evidence taking at Stage 1 of the Bill prior to Christmas 2018. The Committee’s timetable for consideration of the Bill at Stage 1 is:

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tr>
<td>19 June 2018</td>
<td>Bill team evidence session</td>
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<tr>
<td>26 June 2018</td>
<td>Consideration of approach paper</td>
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<tr>
<td>June – August</td>
<td>Call for views</td>
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<tr>
<td>August 2018</td>
<td>Evidence sessions</td>
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<tr>
<td>October –</td>
<td>Evidence sessions</td>
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<tr>
<td>November 2018</td>
<td>Consideration of Stage 1 Report.</td>
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<tr>
<td>December</td>
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<td>2018/January</td>
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<td>2019</td>
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19. In addition, the Committee held a call for views in July and August 2018. You can read the responses received [here](#).

20. The Committee plans to consider its draft Stage 1 report following the Christmas recess 2018 and report to Parliament by the end of January 2019.

**Evidence sessions**

21. At its meeting on 19 June 2018, the Committee heard from the Scottish Government Bill Team. In advance of the meeting, the Committee [wrote](#) to the Bill Team and received a [response](#) on 12 June 2018. The Committee also [wrote](#) to the Bill Team after the session and received a [response](#) on 27 July 2018.

22. On 23 October, the Committee heard from:

   - ClimateXChange
   - Intergovernmental Panel on Climate Change
   - The Committee on Climate Change

23. The official report of the meeting can be found [here](#).

24. Following the meeting, the Committee wrote to the Scottish Government on the Financial Memorandum to the Bill and to the Committee on Climate Change.

25. On 30 October, the Committee heard from:

   - Anders Wijkman, Chair, [Climate-KIC](#) and former Swedish Parliamentarian; and
   - Stefan Nyström, Director of Department for Climate Change and Air Quality at the [Swedish Environment Protection Agency](#)
26. The official report of the meeting can be found here.

Clerks
Environment, Climate Change and Land Reform Committee

Annexe A

Cabinet Secretary for Environment, Climate Change and Land Reform
Roseanna Cunningham MSP

T: 0300 244 4000
E: scottish.ministers@gov.scot

Graeme Dey MSP
Convener
Environment, Climate Change and Land Reform Committee
Room T3.40
The Scottish Parliament
Edinburgh
EH99 1SP

24 May 2018

Dear Graeme,

When to set a net-zero greenhouse gas emissions target year: Information and analysis to support discussion of the Climate Change (Emissions Reduction Targets) (Scotland) Bill.

As you will be aware the Climate Change (Emissions Reduction Targets) (Scotland) Bill was introduced to the Scottish Parliament on 23 May 2018.

The Bill includes the target levels that were advised by the UK Committee on Climate Change and that the Scottish Government consulted on last year, including a 90% emission reduction target for 2050.

The Bill establishes a net-zero target but it does not set a date for that target. In light of the large number of consultation responses calling for a net-zero target to be set for 2050 or sooner, the Bill requires that Ministers regularly consider the earliest achievable year for such a target.

I considered a range of information and analysis in coming to my view on the target levels, and to support the Committee in debating the issue I have today laid a paper in Parliament that summarises that information and analysis. The paper is annexed to this letter for your ease of reference.

Yours,
ROSEANNA CUNNINGHAM

PAPER LAID IN SCOTTISH PARLIAMENT – “WHEN TO SET A NET-ZERO GREENHOUSE GAS EMISSIONS TARGET YEAR: INFORMATION AND ANALYSIS TO SUPPORT DISCUSSION OF THE CLIMATE CHANGE (EMISSIONS REDUCTION TARGETS) (SCOTLAND) BILL”
SUBMISSION FROM CITIZENS ADVICE SCOTLAND

1. Citizens Advice Scotland (CAS) seeks to improve outcomes for consumers. We use research and other evidence to put consumers at the heart of policy and regulation in the energy, post and water sectors in Scotland. We work with government, regulators and business to put consumers first, designing policy and practice around their needs and aspirations.

This submission pertains primarily to two points that the Committee is keen to hear views on:

• Can target setting be considered without also considering what action will be required to meet them?
• Challenges associated with implementation of the Bill

We argue that emission reduction targets in the residential and transport sectors will implicitly affect consumers in their every day lives, and as such, policies should not be set without first:

i) undertaking behavioural change modelling to considering how consumers will be affected by targets – and further how different groups of consumers will be affected differently. As our recent research, outlined below concludes, factors such as socio-economic status, rurality, local authority area and tenure will have a bearing;

ii) a routemap outlining exactly how consumers will be supported to lead lower carbon lifestyles, in terms of financial support and non-financial support like advice and education in order to reach targets. We argue that a large-scale public education campaign is required to this end.

iii) understanding current consumer attitudes towards switching to energy-saving behaviour or personal investments like loft insulation or electric vehicles. It is essential that policy-makers undertake further research and behaviour change modelling to understand the scale of public awareness and investment required to make low-carbon lifestyles aspirational and indeed financially feasible for all consumer groups. Our policy recommendations are listed in pages 4-5.

Summary of research and CAS’s policy recommendations for the Climate Change Bill

2. There is a growing recognition that the people of Scotland will have to adapt their lifestyles and make behavioural changes to help meet the decarbonisation targets proposed in the Climate Change Bill – in particular the target of a 23% decrease in
emissions from the residential sector by 2032\(^1\) and the decarbonisation of transport. As such we wanted to further understand the implications of these evolving climate change policies on the people of Scotland.

3. In 2017 we commissioned Changeworks and Hilliam Research and Analysis to undertake a study to examine the detail of energy and climate change policy in Scotland. The primary research objective was to determine how the Climate Change Plan (Feb 2018), and Scotland’s first Energy Strategy (Dec 2017) and associated policies will potentially impact on consumers and to assess what steps are being taken by the Scottish Government and others to facilitate behaviour change. The technical research report and our policy insight report ‘Changing behaviours in a changing climate’ to which this submission refers is available online\(^2\).

4. Our research identified that programmes designed to facilitate one-off ‘structural’ behaviour changes such as installing retrofit energy efficiency measures, are well established in Scotland, and if well designed and implemented can succeed. However programmes to support habitual behaviour changes are less well established and targets for energy and water saving for example, are unspecified.

5. While the research team noted the difficulty in assessing the impacts that climate change policies will have on consumers, due to a lack of detail in current policies, it is clear that to meet ambitious climate change targets individual consumers will have to adapt. In many of the 7 key behaviours studied in detail in this research, there are positive outcomes for consumers over time with, for example, reduced bills and improved health and well-being.

6. However as identified in the research, a number of key behaviours rely on consumers making an upfront financial investment. This may act as a barrier to both consumers (despite the fact that they would benefit from the change) and to the Scottish Government in meeting its emission reduction targets.

The 7 key behaviours identified in research commissioned by CAS were:

<table>
<thead>
<tr>
<th>One off behaviour changes</th>
<th>Habitual behaviour changes</th>
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<tbody>
<tr>
<td>Upgrading domestic heating</td>
<td>Adopt energy saving behaviours (heat)</td>
</tr>
<tr>
<td>Completing energy retrofits</td>
<td>Adopt energy saving behaviours (electric/water)</td>
</tr>
<tr>
<td>Install of smart meters</td>
<td>Purchase energy efficient equipment</td>
</tr>
<tr>
<td>Switch to electric vehicles or ultra-low emission vehicles ULEVs</td>
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7. As discussed in our stakeholder workshop, it is risky for the Scottish Government to rely upon the assumption that individuals will spend their own money on the interventions noted above, at a time when inflation is rising above wage growth and household budgets are tight for many. In this circumstance the appropriate financial and non-financial support is needed to facilitate change – especially when those consumers who will feel the biggest impact are likely to have contributed the least to emissions. Support programmes should also consider factors such as: socio-economic status; local authority support; tenure; and rurality because people from different groups will require different approaches to help change their behaviour.

8. There is also a risk that the time and hassle factor for consumers who more commonly lead busier lives will be an additional barrier. As highlighted in our *Warming Scotland up to Energy Efficiency* research a large scale campaign of public communications and engagement is needed to ensure that climate change targets and the behaviour change needed to meet them are aspirational for the people of Scotland as well as the Scottish Government. It is also important that any programmes that rely on consumer interaction are as simple and clear as possible.

9. Based on this research CAS make a number of **policy recommendations:**

1) **As the proposals and targets outlined in climate change plans and strategies will now need to be delivered, there is immediate need for the Scottish Government to put consumers’ behaviour at the heart of policy.** Policy-makers should consider how targets are likely to impact consumers in real terms and design policies that support consumers to meet these. The ISM Tool is a proven means to achieve this and develop appropriate solutions that consider the numerous factors that influence any behaviour or choice. However, this must be embraced across the Scottish Government so that policies are built around consumers and their behaviour, rather than behaviour being considered as an ‘add-on’. Genuine commitment to supporting behaviour change is needed.

2) **The appropriate financial and non-financial support is needed to facilitate change.** Support programmes should consider factors such as: socio-economic status; local authority support; tenure; and rurality, because changing behaviours is particularly hard for particular groups.

3) **A large-scale campaign of public communications and engagement is needed to secure popular support and ‘buy-in’ for Scotland’s climate change targets,** and for the ‘habitual’ and as well ‘one-off’ behavioural changes needed to meet them. This is essential so that the people of Scotland, as well as the Scottish Government, genuinely aspire to achieve such change together.

4) **Further clarity will need to be provided to delivery organisations, local authorities and consumers themselves to understand the scale of behaviour change needed, as well as the most appropriate means to achieving this.** In particular, as this relates to the consumption linked to consumer habits and lifestyles.

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3 CAS ran a workshop with key stakeholders to discuss the research findings in May 2018.
5 The Individual Social Material (ISM) Tool is a model used to identify and tease apart the multitude of factors which can influence behaviour.
5) In order to bridge current gaps in knowledge about what may motivate certain people to change their behaviours (particularly those who are not interested in climate change), there is a need for research. Better understanding of current trends, attitudes and motivations for change amongst consumers will be paramount to developing appropriate supports and interventions.

10. Key Findings from research CAS commissioned

The following findings incorporate results from the review of Scottish climate change policy documents as well as points raised and insights from stakeholder interviews. The research found that:

- 41 behavioural expectations were identified across the policies, of which seven were explored in depth.

- A number of the targets for achieving emissions reductions through changes to consumer behaviours are not explicit in Scottish climate policy documents. It was noted that the ‘one off’ changes to behaviours were more detailed and better considered than the ‘habitual’ behaviour changes. Habitual behaviours are more complex to understand and influence.

- This was linked to an over-arching approach that explored how to make current consumption more efficient (e.g.: more efficient air travel) rather than looking to change social practices linked to consumption (e.g. taking trains instead of flying).

- Four areas which are likely to influence how certain policies will impact individual consumers differently were:
  - those living in urban compared with rural areas
  - the socio-economic status of consumers
  - their local authority area
  - consumers’ tenure.

- While most behaviours identified will reduce household costs over time - such as reducing energy use in the home - a number of changes, such as installing new low carbon heating systems and installing energy efficiency measures, require significant up-front financial investment.

- The lack of clarity around some of the targets for behaviour change was noted as indicative of the uncertainty as to how the policy ambitions will be achieved. Interviewees expressed concerns about a lack of clear routes to delivery which could support widescale behaviour change, in particular regarding everyday habitual behaviours (e.g. energy use in the home).

- At present, a gap appears to exist between consumers’ awareness of the need to change behaviours and the momentum needed to achieve Scotland’s emission-reduction ambitions. In order to bridge this gap, tough decisions will be required by the Government, which may involve increased regulation as one of the means to influence behaviour at scale.
• In spite of some of the short-comings of the application of the ISM Tool or the extent behaviour change was considered in policy development, the Scottish Government has laid significant groundwork on which to build. There is an awareness of the benefits of behaviourally-informed decision making within Scotland, and some recent innovative pilots have been run which will inform future policy and planning.

SUBMISSION FROM ECO CONGREGATION SCOTLAND

Eco-Congregation Scotland (ECS) welcomes the opportunity to submit evidence to the committee on the Climate Change (Emissions Reduction Targets)(Scotland) Bill

Who are we?

Eco-Congregation Scotland is a Christian environmental organisation that helps local church congregations address environmental issues through their life and mission. There are over 430 eco-congregations in Scotland. 139 of them have the Eco-Congregation Award for environmental excellence.

Our programme has three strands:

• Spiritual living: Making the link between environmental issues and the Christian faith
• Practical living: Taking practical action in the church and in the home to reduce our environmental impact
• Global living: Influencing attitudes and taking action in the local or global community on issues like climate change

Encouragement and peer support is provided through 20 local networks across Scotland with two network co-ordinators promoting local activity.

Action on climate change

As a faith driven organisation we encourage congregations to consider in prayer and worship why care for creation is an essential part of Christian faith; and how they should respond to climate change. Creation Time is a new fixture in the church calendar each September and has been widely taken up in Scotland as elsewhere in Europe as an opportunity to explore care for creation in worship.

Practical action to reduce carbon emissions in churches includes working with the Energy Saving Trust and its delivery partners to encourage churches to take advice on energy management in church buildings and in their own homes. Church buildings are notoriously difficult to heat and a project in Cowal churches in Argyll identified air source heat pumps as the most effective low carbon heating for remote churches off the gas grid. The project recently won a Roman Juriga award from the European Christian Environment Network as a leading example of energy management in churches across Europe.

ECS receives funding from the Scottish Government to promote awareness and behaviour change. This has helped deliver a range of activities including carbon
conversations with church groups around Scotland. There are signs of significant behaviour change with ministers and other church members installing low carbon heating at home, driving electric cars and promoting community food and other low carbon projects. Many other churches have taken advantage of Climate Challenge Funds and other grants to promote low carbon projects in church buildings of benefit to the wider community.

Activism includes encouragement to church members to get involved in campaigning activity with partners such as Christian Aid, SCIAF, TearFund, Stop Climate Chaos Scotland (SCCS) and others. It is noticeable that, at lobbies of parliament and other SCCS events, church members are prominently represented.

What motivates action?

One of the principal drivers of climate action in churches is the impact of stories from partner churches around the world. Messages from church members in Tuvalu or Malawi or Bangladesh about the loss and damage consequent on climate change have a big impact on church audiences in Scotland, probably more so than scientific reports or statistics. It is worth considering how such stories could be shared more widely across Scotland to increase awareness and promote behaviour change.

What next?

That over 400 churches have registered with ECS is indicative of the commitment and concern in churches. In worship and advocacy many churches are actively engaged but there remains concern that members of congregations will struggle with behavioural decisions necessary to achieve the target of a zero carbon emissions Scotland by 2050, whether that is in changes to domestic heating, food, other shopping or travel.

One opportunity of increasing interest is in decarbonising finance. We know that many church members have concerns about investment in fossil fuel companies but the debate is beginning to spread to the role of savings, investments and pensions. Promoting awareness, campaigning and action on fossil fuel finance is likely to be a priority for coming years.

Commitment

ECS and sponsoring denominations are committed to supporting the Scottish Parliament and Scottish Government make the rapid transition to a low carbon economy. We have joined other SCCS members in calling for a net zero carbon emissions (100%) target in the Bill and offer our commitment to support the Scottish Government and others in helping bring about this outcome.

Adrian Shaw, 30 October 2018
SUBMISSION FROM ABERDEEN CITY COUNCIL

Targets and scope of the Bill

Aberdeen City Council is supportive of the primary objective and the administrative requirements (seeking advice, ministerial duties, reporting and climate change plans) of the Bill, being to set greater emission reduction targets and for Scotland to continue to act as a World leader in tackling climate change. This legislation aligns with the principles of our own Local Outcome Improvement plan in having an Aberdeen that prospers, where people are resilient, included and supported when needed and we have empowered, resilient and sustainable communities. However, it should be noted that some officers would have liked to see the legislation go further to make a firmer commitment to net zero emissions and global leadership as a clear long-term marker from government for driving investment, innovation and change.

The inclusion of aviation and shipping in the setting of targets is welcomed, though there is a feeling that the Bill doesn’t address the need for stronger Public Bodies Duties. It would be useful if the scope went beyond ambition and reporting at a national level and also strengthened the framework / expectations for leadership, accountability, target setting, action planning and reporting across other tiers of public sector and industry (i.e. major players / emitters). This might become more apparent through the Climate Change Plans and subsequent local level plans mentioned through the draft Energy Efficiency Strategy legislation.

As such, Aberdeen City Council welcome the provisions for modifications to set a net zero emissions target at a future point and the restrictions against offsetting, believing these targets and frequency of reporting are ambitious and are at the very limit of feasibility. It should be acknowledged that these will only be achievable if supported by strong policy measures, wider collaboration and potentially fiscal penalties/incentives to ensure transposition. However, Aberdeen City Council would urge caution in setting targets solely based upon the advice of the Committee on Climate Change. Their advice should be taken into consideration as part of a wider consultation with other groups to ensure holistic views are obtained.

Annual targets / reports would enable a clear path and trajectory but may not account for fluctuations such as unseasonably cold weather or economic dips which will affect emissions in any given year. It should be acknowledged that this may not give a clear picture.

In response to the question: Can target setting be considered without also considering what action will be required to meet them? It is felt that this should be no. Target setting should always be done following robust analyses. That said, long-term targets can and perhaps should go beyond / be more ambitious than what is technically feasible today as situations change and it’s important that ambitious leadership is shown.

While it’s useful to see what criteria will be used to consider changes, it’s not clear how useful this list is / will be in practice. Its wide ranging and difficult to deduce where the evidence will come from, what format it will take, etc. Overall, the wide scope risks giving too much room to allow for any scenario to be presented / justified. Would it not be more transparent / equivalent to say, ‘Ministers will seek
and take account of advice that must consider actual / potential impact (positive / negative) on all sectors of society’. Elements that are useful to see in here are those relating to ‘Just Transition’. However, it may be more constructive to see these established more formally (i.e. through a ‘Commission’ as proposed by Friends of the Earth Scotland). This is pertinent for Aberdeen where a major part of the economic output of the region is currently anchored on oil and gas exploration / production and associated services. While Aberdeen is working hard to diversify the economy of the region and see a long-term shift to a low-carbon economy, it’s critical to ensure the avoidance of shocks to the system as has already been experienced through the reduction in the price of oil. Ensuring a ‘Just Transition’ is one way to help protect from dramatic shifts that may have major impacts on local economies, jobs, inequalities, etc.

In respect to emissions accounting and the restriction on the use of carbon units, this is considered a step in the right direction towards ensuring strong domestic action to address Scottish emissions is the focus, and not offsetting emissions elsewhere. In an ideal world, this would not take place at all. There is also some disagreement over how emissions should be expressed. Some officers agree these should be expressed as percentages, as this is consistent and makes it more readily understood by the general public; however, others would prefer absolute emissions reporting alongside the percentages.

**Challenges with implementation**

It will be necessary for the Scottish Government to ensure consistent application and consideration of these targets, ensuring emissions reduction is embedded throughout all aspects of decision making and agreeing levels of priority in areas of policy conflict.

The impact and speed of change will be determined by:

- How quickly Scottish Government provide the first plan. Given they already have done a lot of work in this area, it would be pertinent for a position to be put forward on the plan almost immediately and no longer than 2 years.
- Research and innovation in alternative technologies, models of growth (especially in relation to consumption) and the speed at which these are applied. To be at the fore, it might be necessary for individuals and organisations to be slightly less risk averse and be proactive in trialling new approaches. This might need to be supported by Scottish Government in relation to financial and reputational risks.
- Who will fund the actions? Will there be duties on local authorities, developers /farmers /landowners etc? Para 68 states in the Policy Memorandum says: *As this is a framework Bill and does not set out how the targets will be delivered it is not possible to identify any direct effects on local authorities from the Bill proposals. Clearly there will be a lot of local and regional delivery required.*
- The continued levels of population growth, which means maintaining Business As Usual targets will be challenging in themselves.
• Considering emission production through whole life costing of products / projects; encouraging target compliance through all elements of the supply chain.

• Affordability of technology both at an individual and organisational level, with greater use of innovation and smarter technology to aid day to day operations, research and knowledge transfer.

• Effective communication and awareness, with easy understanding of what people can do and the interpretation of what net-zero emissions actually means. The use of Plain English will be essential, with simple infographics and stakeholder engagement with the diverse range of cultures being required to ensure understanding across all aspects of society.

• A need to provide additional support to those from disadvantaged backgrounds and those most vulnerable to the impacts of emissions.

• Ease with which people can participate to make change e.g. not having complicated application processes for grants, loans, funds etc.

• Embedding climate change and emissions reduction more strongly within the planning process, beyond existing building standards and supplementary guidance whilst ensuring its consideration within all aspects of locality decision making including education, transport, waste, energy, social care, health care etc. Will more detailed regulations follow on how these targets are to be implemented, and will other acts and regulations be amended to help deliver the targets?

• Having the resource available for undertaking emissions accounting, potential skills gaps / training needs in this area and the requirement for verification.

• If organisations and local authority areas aren’t performing then there should be some recourse from this, either in the form of support to aid development or penalties for non-compliance or both. Presently performance monitoring is undertaken through Climate Change Reporting with limited individual feedback and no action taken in regard to positive or negative outcomes.

• Low carbon heat and transport are particular areas of concern where wide spread transformation presents particular challenges.

• How compatible these targets are with those of our present economy; there is still a heavy emphasis on fossil fuel sectors.

• There is a huge role for hydrogen to play in helping Scotland reach these targets, but this would require Government support and leadership to:
  o Increase hydrogen storage opportunities for renewable energy installations, current and future, so that renewable energy is not wasted when there are grid constraints but instead stored as hydrogen;
  o Scale up hydrogen refuelling infrastructure throughout Scotland in general forecourts and subsidise hydrogen fuel costs to encourage private uptake of the vehicles as a complementary option to the investment already made in Electric Vehicles (EV). Hydrogen
vehicles have a longer-term potential as their fuel cells don’t rely on finite resources when compared to EV batteries such as lithium; and

- Invest in hydrogen from heat projects. Scotland could be a leader in this, as there is a huge opportunity to reduce emissions from heat (which are more than from transport). Current gas pipe networks have the potential to supply hydrogen and with only household appliance modification needed to achieve this. However, it should be noted that hydrogen vehicles are substantially (more costly) heavier than their electric counterparts, causing an increase in particulate matter coming off the tyres which can have a significant impact on human health. Further hydrogen isn’t presently produced using green energy.

Comments on the Financial Memorandum

- Given the timescales and the inherent uncertainty surrounding the potential cost implications of the Bill, the Financial Memorandum needs to recognise the risks that the cost estimates may prove to be significantly under (or over) stated.

- The Financial Memorandum outlines that the additional costs circa £13billion will be faced some years into the future, between 2030 and 2050. It does not outline which party the costs fall to / be met by due to the timescales and leaves that decision open to future governments. To any extent that those costs may fall to / be met in any proportion by Local Government, the Scottish Government should make clear it’s commitment now to fully fund those costs in the settlement. Furthermore, it would surely enhance the quality of the discussion and decision making if there was some thought given as to how the current Scottish Government thinks the costs should be met, whether that be by the government, public sector or business, or what proportion by each. Whilst it would be open to the government of the day to change the approach it would give some guidance as to the current thinking and enable some forward planning to take place.

- The Financial Memorandum suggests that there will not be any costs to Local Government in the short term, with any future costs as outlined in the bullet point above not anticipated to be required before 2030. Costs could be faced by service practitioners in relation to resources and capital/revenue spend required to meet target implementation.

Other comments

- Should aim to better link adaptation and mitigation.

- Achieving these targets will require key actions including: policy change, investment, support and funding. With transport, buildings and industry highlighted as key sectors for emission reduction there will need to be a considerable work to overcome any shortfall between actions planned and the
timeframe for wider mainstreaming, implementation and delivery. Similarly, much of the new and existing infrastructure will still be here in 2050 to meet targets and timeframes bolder steps will be required to meet the scale of transition necessary.

- Sectors need to clearly understand their role in the implementation of the bill. If the public sector is essential to the delivery of the bill - they will need stronger accountability and more teeth, funding and resources to deliver and implement change.
- The business sector will have to be engaged and encouraged to take action to support the delivery of this bill.
- Knowledge sharing on successfully implemented low carbon projects by early adopters will be essential for wider uptake.
- Costs, lack of options and inconsistency in support and information are barriers to consumer driven change. Need for a clear navigation process for people to find their way through the different options and funding sources ensuring there are opportunities for all, in support of the climate just agenda.
- The public also need to be engaged and encouraged to make their contribution / play their part. This is a collective responsibility and not something that any layer of government can really impose entirely – buy in from everyone to the real purpose of trying to reduce our emissions, with the capacity for everyone to contribute, will probably make for the best success.