

Carbon Assessment of the Infrastructure Investment Plan for Scotland 2021-22 to 2025-26

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Infrastructure Investment Plan

The Scottish Government's [Infrastructure Investment Plan for Scotland 2021-22 to 2025-26](#) was published on 4 February 2021. The Infrastructure Investment Plan (IIP) sets out the Scottish Government plan to deliver the National Infrastructure Mission and details our long-term vision of infrastructure supporting an inclusive, net zero carbon economy in Scotland. It provides a pipeline of public sector infrastructure delivery, giving confidence to the construction sector and setting out our approach to infrastructure across three key themes:

- Enabling the transition to net zero emissions and environmental sustainability;
- Driving inclusive economic growth; and
- Building resilient and sustainable place.

The IIP puts a particularly strong focus on investing in areas central to delivering our emissions targets, including transport, heat, and nature. It shows how we will enhance our approach to choosing the right future investments and introduces a new infrastructure investment hierarchy.

This document draws on a range of evidence, including results from a taxonomy assessment¹, to carbon assess the 2021 IIP in line with section 94 of the Climate Change (Scotland) Act 2009.

Scotland's emissions targets

Scotland's ambitious emissions reductions targets are set out in the Climate Change (Scotland) Act 2009 – as amended by the Climate Change (Emissions Reductions Targets) (Scotland) Act 2019. This legislation set some of the most ambitious targets for reducing emissions in the world – ultimately committing us to reduce Scotland's emissions to net-zero by 2045.

The legislation also sets interim targets to achieve this, with targets for a reduction in emissions of:

- 75% by 2030
- 90% by 2040

The IIP covers the period from 2021-22 to 2025-26, however given the short-, medium-, and long-term impact of the infrastructure covered by the Plan, the

¹ Taxonomies give a categorisation of different types of infrastructure, e.g. as 'low carbon' or 'high carbon', usually for broadly indicating whether an asset is likely to be consistent with reduction targets.

investment it sets out will be crucial to delivering all of these targets. There are, however, limitations to how far the IIP can support the delivery of infrastructure – given the Plan only covers public investment in devolved infrastructure. Delivering the infrastructure required to deliver our Net Zero targets will also require investment by the private sector and UK Government.

Our approach to delivering our emissions reduction targets is set out in the Climate Change Plan, with the pathway most recently set out in the [Climate Change Plan update](#) (CCPu), published in December 2020, updated to reflect our new, ambitious, targets. The CCPu sets out a range of policies and actions across sectors, and highlights the key role of infrastructure in achieving our targets – with clear examples of highly positive projects including:

- The future transport fund, which supports a range of low and zero carbon transport initiatives.
- Investing in domestic energy efficiency programmes, and decarbonising the public sector estate.
- The Low Carbon Infrastructure Transition Programme (LCITP) which supports the acceleration of projects to develop investment grade business cases and the delivery of low carbon infrastructure projects capable of deploying heat and low carbon infrastructure at scale.
- Supporting peatland restoration and tree planting, including expanding tree nursery capacity.
- The Emerging Energy Technologies Fund, which supports carbon capture and storage, negative emissions technologies, and hydrogen development.

Taxonomy results

The Scottish Government has adopted a new taxonomy approach to assessing capital and resource expenditure that assesses the extent to which each spending line contributes to Scotland’s climate change targets.

This taxonomy evaluates every spend line along two dimensions:

- **Positive-Neutral-Negative Environmental Alignment:** Each line is assessed on how it aligns with delivering reductions in emissions in line with policies set out in climate change plan, to achieve the targets set out by the 2009 Act.

The CCPu sets out objectives across a range of large and small sources of emissions that together aim to deliver the emissions reduction targets. The taxonomy assessment reviews how a spend line’s stated delivery objectives correspond with the objectives of the CCPu. Positive alignment indicates that IIP spend contributes to achieving the objectives set out in the CCPu and therefore to meeting Scotland’s emissions reductions targets.

For example, the spending line 'CMAL – Voted Loans' was identified as delivering new ferries; this directly aligns to Outcome 6² of the CCPu transport chapter and thus is identified as Positive alignment.

- **High-Low Impact:** The scale of the impact is then identified.

This was determined by how significant a role a single spend line plays in delivering the CCPu objectives.

Taking the previous example, although ferries have significant lead times to replace requiring significant early action for emissions reduction in later years, they are not themselves large sources of emissions³. As such it is evaluated as being a low impact.

Together these two dimensions produce a 5-point scale:

1. Negative – High
2. Negative – Low
3. Neutral
4. Positive – Low
5. Positive – High

For example, using this taxonomy approach, relatively small amounts of money could be assessed as positively aligned and highly impactful (Positive – High) if they delivered on a specific objective set out in the CCPu. An example of this would be Active Freeways which directly support the Scottish Government objective of a 20% reduction in car kms⁴. The inverse is also true. Expenditure on the A77 Maybole Bypass would be negatively aligned with that same objective, but given its relatively small impact on both car km and emissions it would be rated as Negative – Low. The full evaluation of the IIP has been provided in Annex A.

This taxonomy approach improves on previous taxonomies by providing an assessment of scale for spend. However, it does not resolve the other limitations of a taxonomy approach such as misclassifications and a lack of detailed quantification of impacts. In addition, multiple spend lines identified as neutral may not reflect the actual efforts within that spend to support delivery of SG climate objectives. For example, health maintenance is classified as neutral although some of the spend will be used to upgrade heating systems and could be expected to contribute positively towards reducing carbon emissions. At present a taxonomy approach is proportionate given the availability of resource, data and granularity.

In line with the requirements of the Climate Change (Scotland) Act 2009, this taxonomy has been applied to the 2021 IIP to evaluate how closely the spending

² Proportion of ferries in Scottish Government ownership which are low emissions has increased to 30% by 2032.

³ Emissions from Scottish domestic ferries, including council and private operators, have been estimated at 1.7% of transport emissions.

⁴ In 2021 car emissions are estimated at 4.7 Megatonnes (Mt), down from a pre-Covid high of 5.7 Mt ([Scottish Greenhouse Gas Statistics 2021 - gov.scot \(www.gov.scot\)](http://www.gov.scot/Scottish-Greenhouse-Gas-Statistics-2021)). A 20% reduction in car kilometres could result in emission reductions between 0.9 Mt and 1.1 Mt. Active Freeways support the reduction in car kms and therefore is deemed to have a high impact.

aligns with delivering the Climate Change Plan and the Climate Change targets. The values assigned to the projects are based on the total SG Estimated Capital Investment over the period 2021-22 to 2025-26 as published in the 2021 IIP.

The high-level results are shown below:

Table 1 – High Level summary of the new Taxonomy on the IIP

Evaluation	Negative - High	Negative - Low	Neutral	Positive - Low	Positive - High
Spend (£m)	1,688	328	8,608	1,797	8,843
Share of total IIP spend	8%	2%	40%	8%	42%

The new assessment shows that cumulatively around 50% of all infrastructure investment is expected to contribute positively to the achievement of Scotland’s emissions reduction targets. There is however a significant minority of spend which has the potential to increase emissions. The remaining spend is on actions which are unlikely to have any significant impact on emissions reduction targets.

Aggregating a taxonomy into a single evaluation of net impact is difficult given the variable impacts of spend lines within each category. However, the level of positive spend supports an assessment that the IIP strongly contributes positively to Scotland achieving its emissions reductions targets.

The principal projects that have been assessed as negatively aligned with the CCPu and the Scottish Government’s climate objectives are:

Transport Scotland Maintenance, £1.36bn – Supporting the safety and maintenance of the trunk road network is seen to be enabling continuing levels of car traffic volumes which goes against the objective of a reduction of car km by 20%. Actions that sustain the level of car traffic levels are also likely to result in continuing increases to car emissions. As such this has been evaluated as being a “Negative – High” classification.

A9 Dualling Programme, £0.3bn – The A9 Dualling programme is estimated to result in increased traffic volumes. This goes against the objectives set out in the CCPu to reduce car km and to reduce emissions from transport. As such this has been rated as being a “Negative – High” classification.

The projects that are the most significant spend that is positively aligned with the CCPu and the Scottish Government’s climate change objectives are:

Investments in both Rail Infrastructure and Rail major project enhancement, together contributing £5.1bn – Improvements to rail will deliver the decarbonisation of rail transport, an objective set out within the CCPu. Rail enhancements also support modal shift and help reduce road transport emissions. As such this has been rated as being "Positive - High".

Active Travel £0.35bn – The funding supports investment in active travel infrastructure projects. This supports the objectives set out in the CCPu to reduce car km and increase active travel. As such this has been rated as being a "Positive - High" classification.

The principal projects that have been assessed as neutral are:

Affordable Housing Supply programme, £3.3bn – From December 1 2023 the Affordable Housing Supply programme has a requirement to install a zero direct emissions heating system. Given the IIP covers the period 2021-22 to 2025-26 some of this funding will be before this requirement comes into force and some will be after. Overall, the programme has therefore been evaluated as neutral.

Health maintenance £1.0bn – This funding supports maintaining Scotland's health infrastructure and is not expected to significantly impact carbon emissions positively or negatively.

Climate Change Plan

A high-level mapping exercise was also carried out to identify how strongly the infrastructure related policies and proposals in the CCPu were supported by the activities in the IIP. This focussed on policies in the CCPu that could reasonably be interpreted as requiring some level of infrastructure investment from the Scottish Government, such as supporting the development of new technologies, funding energy efficiency schemes, and investing in active travel infrastructure. The CCPu covers a longer timescale than the IIP, from 2018 to 2032, encompassing the full duration of this IIP – so an assumption has been made that the actions in the IIP are relevant to the CCPu.

A total of 39 proposals in the CCPu were identified as requiring some level of infrastructure investment. Of these, 22 commitments (56%) are **wholly supported** by the IIP – either direct funding, or a recognition of the policy in the CCPu. A clear example of this was the proposal in the Climate Change Plan update to “Support transformational active travel projects with a £500 million investment, over five years, for active travel infrastructure, access to bikes and behaviour change schemes.” This was reflected in both Chapter 4 of the IIP, and as a “Major Project” in Annex D.

There were 11 (28%) CCPu proposals which could be seen as being **partially** supported by the IIP. These were CCPu proposals which could reasonably be understood as being covered by actions set out in the IIP, but the explicit link was not made. For example, the CCPu included an explicit reference to the ACORN CCS Project, while the IIP refers to broader CCUS and Hydrogen projects.

There were 6 (15%) CCPu proposals which could be seen as requiring infrastructure investment, but had **no overlap** with the IIP – for example the CCPu spoke about purchasing zero/low emission aircraft, but this did not feature in the IIP.

This means that the IIP either wholly or partially supports the delivery of 85% of the relevant commitments, suggesting the IIP positively contributes to the meeting of Scotland's climate change targets.

Summary

The Scottish Government have identified three sources of evidence to support an overall assessment of the extent to which the IIP contributes to the achievement of our climate targets. First, the initial Strategic Environmental Assessment (SEA) identifies significant effects the IIP has on the environment, second, the application of a new taxonomy model to the investment, third a high-level comparison of the IIP and CCPu commitments.

A Strategic Environmental Assessment process on the strategic elements of the IIP was carried out in parallel to the IIP development process – with a summary of the process and an outline of how the findings of the SEA and the views of the consultees were taken into account in the IIP published [here](#). By looking at both a thematic level and a detailed whole-plan assessment, the SEA looked into how environmental considerations were embedded in the process for creating the plan, particularly as a clear objective in advice commissioned from the Infrastructure Commission for Scotland. The SEA identified that “overall, significant benefits were likely to arise for climatic factors, air quality, water, population and human health, biodiversity, cultural heritage and material assets”.

Applying the new taxonomy model gives an indication of how well the measures set out in the IIP align with the achievement of our climate targets, by reflecting not just the environmental alignment but the level of impact the investment will have on emissions and therefore the emissions reduction targets.

Through this assessment we can see that the majority of spending in the IIP has either a neutral or positive alignment with our emissions reductions ambitions (91% in total). Of those having a positive impact on achieving our climate targets, the majority (42% of all spend) has a highly positive impact – compared to only 8% having a highly negative impact. Therefore this analysis would suggest that the IIP plays a positive role in supporting Scotland achieve its emissions reduction targets.

While the taxonomy provides a detailed analysis of the impact of investments in the IIP, by looking at the IIP alongside the CCPu, it can also be seen that the IIP again either wholly or partially supports a majority (85%) of the infrastructure projects identified as supporting our climate targets.

Overall, there is clear and consistent evidence that supports the assessment that the Infrastructure Investment Plan contributes positively to the achievement of Scotland's emissions reduction targets.

Annex A – Detailed Breakdown of Carbon Taxonomy Categorisation

The detailed breakdown of the Carbon Taxonomy Categorisation is available in Excel format in the supporting files of this publication.

Annex B – Relevant policies and proposals as categorised

Relevant policies and proposals in the CCPu identified as wholly supported by the IIP:

- Identify and support major infrastructure improvements to ensure that Scotland's supply chain companies and facilities can benefit from the continued growth of renewable energy.
- Energy Efficient Scotland Delivery Schemes
- Area Based Schemes and Warmer Homes Scotland.
- Low Carbon Infrastructure Transition Programme (LCITP) - supports investment in decarbonisation of business and the public sector.
- Expanded £1.6bn Heat in Buildings capital funding over the next parliament Building on the Low Carbon Infrastructure Transition Programme (LCITP) and existing energy efficiency and zero emissions heat support programmes.
- Bring forward and support demonstrator projects, such as: hybrids and high temperature heat pumps; the use of hydrogen for space and water heating; projects to understand the impact of heat transition on existing energy networks.
- Continue delivery of energy efficiency investment to support fuel poor households and conduct further modelling and analysis to better understand the potential impact of the heat transition on fuel poor households and the scale of, and options for, mitigation that may be required.
- Support transformational active travel projects with a £500 million investment, over five years, for active travel infrastructure, access to bikes and behaviour change schemes. Enabling the delivery of high quality, safe walking, wheeling and cycling infrastructure alongside behaviour change, education and advocacy to encourage more people to choose active and sustainable travel. Support the use of E-bikes and adapted bikes through interest free loans, grants and trials.
- We will bring forward a step change in investment with over £500 million to improve bus priority infrastructure to tackle the impacts of congestion on bus services and raise bus usage. We will launch the Bus Partnership Fund in the coming months to support local authorities' ambitions around tackling congestion.
- Delivery of our first Active Freeways - segregated active travel routes on main travel corridors connecting communities and major trip attractors.
- We will consider and develop new financing and delivery models for electric vehicle charging infrastructure in Scotland and working with the Scottish Future Trust to do so.
- We have invested over £30m to grow and develop the ChargePlace Scotland network which is now the 4th largest in the UK. We will continue to develop the capacity of the electric vehicle charging network.
- Our commitment to decarbonise (the traction element of) Scotland's railways by 2035 will be delivered through investment in electrification and complementary alternative traction systems. Transport Scotland has published the Rail Services Decarbonisation Action Plan (July 2020) which will be updated as appropriate. Work is ongoing by industry partners to develop the initial schemes.

- Low Carbon Manufacturing Challenge Fund: to support innovation in low carbon technology, processes and infrastructure. Will be based on successful delivery of ERDF funded Advancing Manufacturing Challenge Fund.
- Emerging Energy Technologies Fund – to support the development of Hydrogen, CCUS and Negative emissions technologies.
- Establishing a £70m fund to improve local authority recycling collection infrastructure.
- Electronic waste tracking fund Improved waste data system will help drive further progress to deliver on existing waste and recycling targets.
- Accelerate Landfill Gas Capture and Landfill Legacy Management: we will work with SEPA and key industry partners to scale up the existing landfill gas capture programme to mitigate effects of landfill and environmental impact of closed landfill sites.
- Forestry grants: we will provide funding via a grant scheme, to support eligible land owners establish appropriate woodlands.
- Forestry and Land Scotland will begin development of a new approach to woodland investment with a view to acquiring more land to establish further woodland on Scotland's national forests and land for the benefit of future generations and to optimise carbon sequestration. This includes partnering with private sector and other organisations to enhance scale and funding of carbon capture projects.
- Restoration grants: We will provide grant funding to support eligible land managers to deliver peatland restoration. Levels of funding will enable at least 20,000 hectares of peatland restoration per year. We will undertake research to inform where restoration can deliver the greatest emission savings per hectare.
- Funding through the Scottish Industrial Energy Transformation Fund to consider the development of NETs demonstrators

Relevant policies and proposals in the CCPu identified as partially supported by the IIP:

- Support improvements to electricity generation and network asset management, including network charging and access arrangements that encourage the deployment and viability of renewables projects in Scotland.
- Support the development of technologies which can deliver sustainable security of supply to the electricity sector in Scotland and ensure that Scottish generators and flexibility providers can access revenue streams to support investments.
- SME cashback scheme for zero emissions heating technologies and energy efficiency measures - boosted.
- Home Energy Scotland cashback scheme for zero emissions heating technologies and energy efficiency measures - boosted.
- Support for Heat Networks: the District Heating Loan Fund helps address the financial and technical barriers to district heating projects by offering low interest loans.
- Hydrogen for heat demonstrator – providing £6.9m support for SGN's H100 hydrogen for domestic heat demonstrator.
- ACORN CCS Project: support the delivery of the CCS and Hydrogen capability at St. Fergus Gas Processing complex by 2025.

- Establish and deliver a Carbon Capture and Utilisation (CCU) Challenge Fund.
- Landfill gas capture on closed sites: in association with SEPA and the waste industry, double the number of landfill gas capture sites that undertake investigative or development work (from 12 to 24 sites) by 2025, in order to harness energy generated from landfill gas capture and maximise other circular economy opportunities. SEPA has already identified 12 sites for potential investigative work.
- Scale up the Agricultural Transformation Programme across all the policies, including monitoring to assess the effectiveness of the pilot Sustainable Agricultural Capital Grant Scheme that will enable farmers and crofters to purchase equipment that should assist in reducing their greenhouse gas emissions, and support practice change.
- Increase woodland cover on suitable agricultural land.

Relevant policies and proposals in the CCPu identified as having no overlap with the IIP:

- Renewed focus on developing local energy projects and models, including through CARES, supporting the achievement of 1GW and 2GW of renewable energy being in Local Community ownership by 2020 and 2030.
- We will deliver the actions from our Offshore Wind Policy Statement, published in October. These actions, ranging from support for supply chain, planning, innovation and skills, will support the development of between 8 and 11 GW off offshore wind capacity by 2030.
- Collaborate on actions to support investment in new pumped storage hydro capacity.
- Support for community low and zero emissions heat projects through CARES.
- Explore the potential for the purchase of zero/low emission aircraft by the Scottish Government, for lease back to operators, with more detailed assessment in the forthcoming Aviation Strategy.
- Implementation of our Deposit Return Scheme (DRS) for single use drinks containers.



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