Public Bodies Statutory Climate Change Duties Report

Healthcare Improvement Scotland

November 2022

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Chapter 1 – Introduction

Overview

The Scottish Government and NHSScotland have committed to be net zero for greenhouse gas (GHG) emissions by 2040. In addition to this, the Scottish Government has put in place a 2038 target for zero emissions heat for publicly owned buildings. As a result, all NHSScotland health boards plan to produce a net zero route map by the end of 2022. This will help each Health Board to establish how it can meet the 2040 net zero target and how it should transition to zero emissions heat for all NHSScotland owned buildings by 2038. To achieve net zero, NHSScotland's GHG emissions must be reduced to ensure they are equal to or less than the emissions that NHSScotland removes from the environment.

Healthcare improvement Scotland's net zero Route Map

In January 2021, Healthcare Improvement Scotland (HIS) was one of the five national health boards selected by Scottish Government to help set the NHSScotland net zero baseline. Ricardo Energy & Environment (Ricardo), were commissioned by Health Facilities Scotland (HFS) to produce net zero route maps on behalf of the chosen Boards. HIS's route map detailing the initial results, was received on 8 December 2021.

The report considers three possible futures for the Board in the form of pathways towards net zero emissions by 2040. Each pathway involves different combinations of decarbonisation interventions, providing costed options and timings for deployment of measures under those pathways

The report looked at the challenges and priorities facing HIS, the starting point in our 2019/20 baseline emissions and charted realistic options to progress the strategic decarbonisation of HIS towards achieving net zero by 2040.

 HIS is a national NHSScotland Health Body working to enable the people of Scotland to experience the best quality of health and social care by supporting improvement to services. HIS occupies two main buildings as a tenant – Gyle Square in Edinburgh and Delta House in Glasgow. Delta House was recently refurbished providing improvements to heating, lighting and ventilation. HIS only has two leased vehicles and its staff rely on public transport and grey fleet for its inspectors to visit sites. Moving forwards the key emission reduction challenges for HIS include:

• The Health Board is a tenant in its office space. As a result, there may be more complexities associated with governance, decision making, monitoring and funding of decarbonisation measures when compared to wholly owned sites.

• The service involves a significant amount of business travel and as such needs to look closely at reducing the emissions associated with this activity.

Chapter 2 – Baseline Data

The content of the report details HIS's carbon footprint baseline for the 2019/20 financial year based on evidence pre COVID when most staff were office based. The information contained in the report was based on evidence provided on raw energy/utility use (e.g. kWh, litres, tonnes), and this was then converted to tonnes of carbon equivalent (tCO2e) using the UK Government Conversion factors, released by BEIS annually.

Ricardo reviewed historical data and mapped the projected emissions against that baseline out to 2040, using current understanding of planned HIS activities and the wider context of local, regional, and national changes over that timescale. The emissions sources included in the baseline are fuels, electricity, water supply and treatment, leased vehicles, business travel, and waste.
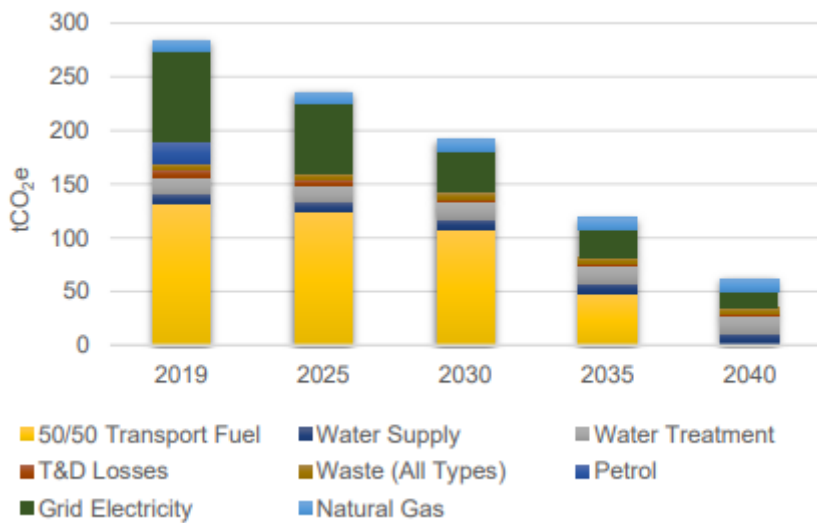
As noted in the graph above, in 2019/20, HIS was responsible for 284 tCO2e, with11% of these emissions being associated with scope 1, 29% scope 2 and 60% scope 3. Scope 1 being direct emissions from activities within HIS or under its control. Scope 2 relating to emissions from indirect/purchased energy used by HIS. Finally, scope 3 calculates emissions from indirect emissions from activities of HIS occurring from sources that we do not own or control.

The following diagrams provide a breakdown of the 2019/20 emissions baseline by scope, operational area within HIS, and emissions source.
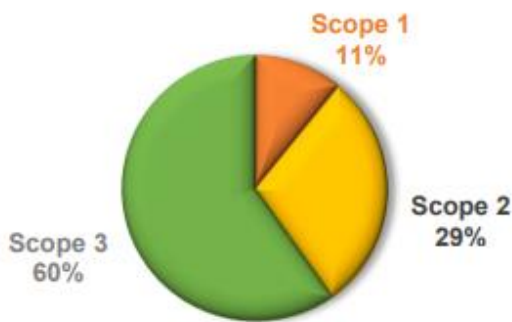

Scope	Emissions (tCO₂e)	% of Total
Scope 1	31	11%
Scope 2	83	29%
Scope 3	170	60%
Total	284	100%

The table below shows that emissions from offices account for approximately 46% of HIS' overall emissions, making this area the joint largest in terms of our contribution. Emissions associated with business travel, which includes grey fleet vehicles and public transport (buses, trains, taxis), also contribute to approximately 46% of HIS' overall emissions.

Area	Scope 1 (tCO₂e)	Scope 2 (tCO₂e)	Scope 3 (tCO₂e)	Total (tCO₂e)	% of Total
Offices	11	83	38	132	46.4%
Business Travel	0	0	132	132	46.4%
Fleet	20	0	0	20	7.2%
Total	31	83	169	284	100%

A more detailed analysis shows the HIS baseline split by both source and scope of emissions:
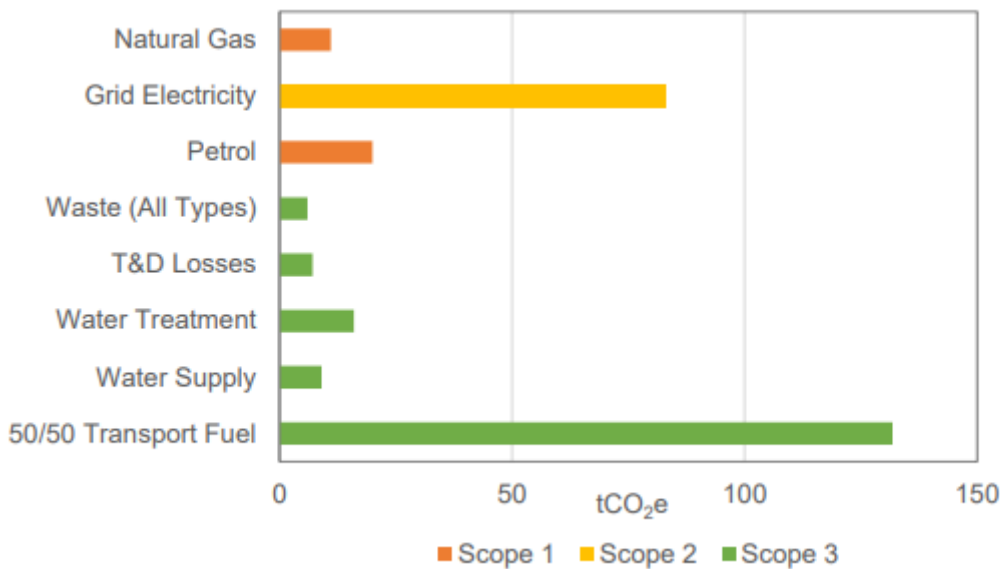
Chapter 3 – Business as Usual

On receipt of the results, HIS staff, were invited to attend a 1-2-1 net zero workshop on Wednesday 15 December 2021 with Ricardo to review our baseline score and identify potential ways of reducing our carbon footprint and energy costs.

As part of the consultation discussions with Ricardo, given the individual circumstances of HIS, it was agreed that three net zero pathways would be modelled, to demonstrate how we could achieve our emissions reductions by 2040. These were:

Aspirational Pathway – assumes that significant resources and budget are made available to allow the rapid implementation of measures while taking account of current contractual constraints.

Restricted Pathway – assumes that the resources and budget available to allow the implementation of low-carbon changes are significantly constrained, for example linked to higher levels of service demand due to a prolonged and complicated global recovery from COVID-19.

Balanced Pathway – attempts to find a middle ground between the two previous scenarios. The scenario assumes some restrictions on resources but also seeks to implement changes at a point where costs and risks are minimised while also reducing carbon emissions as quickly as possible given the identified constraints.

The three pathways modelled will all achieve an emissions reduction of 87-89% from 2019 to 2040 compared to 80% under BAU. The key differences are the rate at which emissions are reduced which is greatest for the aspirational pathway and lowest for the restricted pathway. The remaining emissions gap which will need to be addressed to achieve net zero by 2040, is 57 tCO2e.

The changes modelled under the BAU pathway suggest that emissions will reduce by 80%. The greatest impact will be to business travel, which is expected to reduce emissions by 98%. This is based on the assumption that grey fleet cars and public transport make a gradual switch to low carbon (e.g. electric or hydrogen) over the next 25 years.
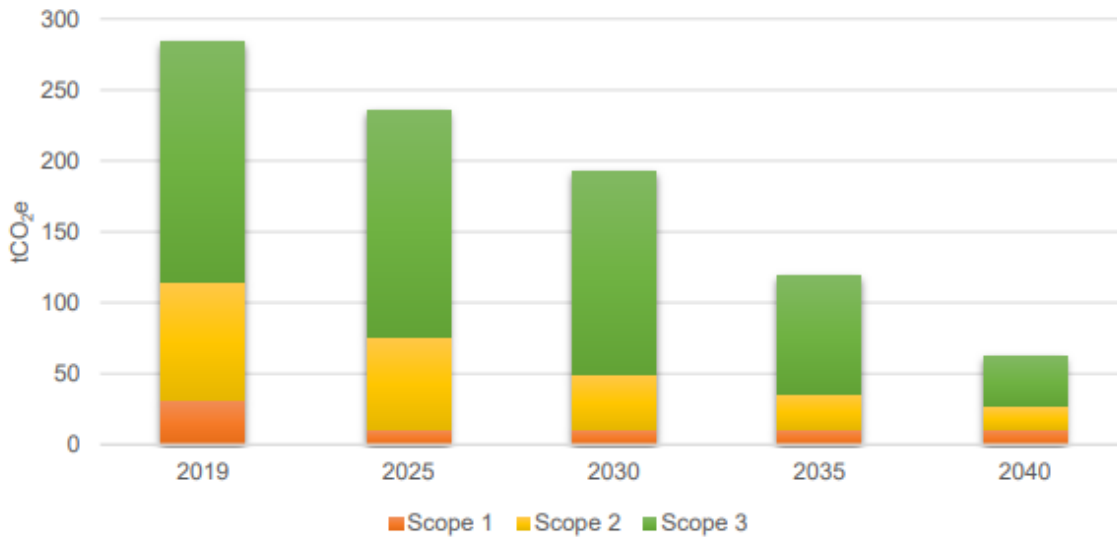
Under the BAU scenario, offices (Gyle Square and Delta House) and fleet vehicles are projected to be the two largest emission sources in 2040, respectively. Although it can be assumed that all fleet vehicles will be electric in 2040, total decarbonisation of the UK's electricity grid is only assumed to be achieved by 2050. It is also assumed that total electricity use (kWh) will increase to 2040 due to both the electrification of vehicles and heat.
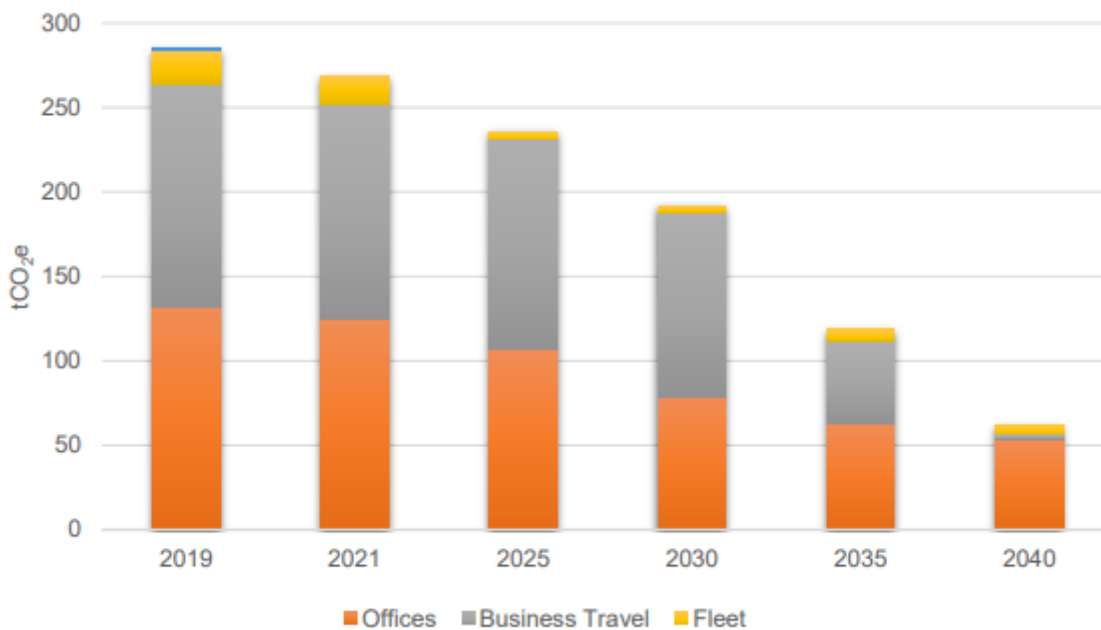
Chapter 4 – Recommendations

Within the final net zero route map Ricardo clearly indicated key areas where HIS must implement decarburization measures to achieve the reductions indicated within the report and these are:

1. Implement the aspirational pathway wherever feasible.
2. Explore external funding and whether this can fast-track implementation.
3. Set voluntary emissions reduction targets and monitor progress against these.
4. Develop implementation plan.
5. Develop a timeline for the implementation of all measures, which reflects priority.

5a: Incorporate the planned BAU changes within the timeline.

5b: Identify quick wins, which can be implemented in the short term.

5c: Assess which measures require further feasibility analysis.

6. Develop a resourcing plan to support implementation of measures.
7. Develop an engagement plan for sites HIS leases.

    7a: Explore alternatives if the intended measure is not feasible.

    7b: Investigate ways to improve data collection and reduce estimates.

8. Clarify how NHSScotland will net off residual emissions to achieve net zero.
9. Periodically review and update the net zero route map.
10. Review approach to data management.

Chapter 5 – Targets for achieving net zero

This section describes recommendations and key priority actions captured as part of the discussion workshop with Ricardo on 1 December 2021 broken down into a more detailed approach by emission sources and associated pathways:

Fuels (petrol and natural gas)

1. Installation of heat pumps *(Aspirational Pathway)*
2. Replace window and door seals to prevent heat loss
3. Replace windows or doors
4. Fit shades to large windows to prevent heat gain or loss

Electricity (transmission and distribution losses)

1. Installing LED Lighting *(Balanced Pathway)*
2. Purchase green electricity when through Scottish Government contract.*(Balanced Pathway)*
3. Improving energy management – discuss automatic meter reading installation with service provider (SMETS2 or similar)*(Restricted Pathway)*
4. Improving energy controls – Introduce sensors for lighting and C02 sensors for air handling plant
5. Installing roof mounted solar photovoltaics. *(Aspirational Pathway)*
6. Optimising the operation of existing plant

Water Supply and Treatment

Water Measurement and Monitoring

1. Improving measurement and management of water use.
2. Installing smart meters / data loggers on mains supply to establish baseline flow, monitor trends and identify continuous use (e.g. leaks).
3. Developing water use benchmarks by building and based on staff occupancy. This will provide an improved understanding of the trends in water use in the building.
4. Developing a water mass balance for the site and use, it to identify areas of high consumption, which can be further, investigated.
5. Reducing water consumption

Optimising water use – Staff Kitchens

6. Install percussion taps in food preparation sinks to prevent taps being left running.
7. Avoid using running water to wash produce. Even if washing large amounts of food, it should be washed in a basin and then refilled to rinse as necessary.
8. Pre-soak utensils and dishes in ponded water instead of using running water rinse.
9. Dishwasher use should be evaluated and only used when they are fully loaded. Ensure staff know how to fill the dishwasher to ensure all pots are cleaned whilst maximizing the number of pots in the dishwasher for each cleaning cycle.
10. Optimize the cycle times and temperatures – refer to the manufacturer's instructions or check with the supplier.
11. If dishwashers are to be replaced, water efficient models should be selected

Reduce water used for sanitary/domestic purposes

12. Repair all dripping taps and leaking WCs. Ensure all existing fittings and fixtures are regularly maintained.
13. Reduce WCs flush volumes to a maximum of 6 l/flush (minimum) and further through installation of single low flush (4l) or ultra-low flush (1.5l) WCs respectively.
14. Reduce flow rates in hand wash basin taps to maximum of 6 l/min. Install electronic auto-shut off taps.
15. Reduce frequency of urinal flushing through installation of passive infra-red (PIR) or time controllers to control cistern flushing to periods when the WC is in use.
16. Install integrated flush controls into all urinal bowls.
17. Reduce shower flow rates to 8l/min through the installation of flow regulators or low flow showerheads.

Business Travel (lease cars and public transport)

1. Replace all lease cars with EV's by 2025
2. Develop a strong and clear lease car/travel policy which should include:
    - Strong & clear communication with employees.
    - Clear responsibilities and governance.
    - Focus on avoid and then shift to more sustainable modes; active transport, car sharing, public transport, pool car, salary sacrifice/company cars.
    - Ensure travel guidance is fully inclusive.

Waste (disposal)

High Quality Recycling

1. Reduce the generation of waste *(Balanced Pathway)*
2. Where possible, install dry mixed recycling bins.
3. Provide clear bin labels on all waste bins (e.g. domestic and recycling).
4. Reduce the use of single-use items and consumables

Waste prevention management

5. Implement paper usage policy (covering actions to use paper efficiency, actions for the IT department and purchasing actions).
6. Carry out supplier engagement to minimise packaging including options for packaging tack-back.
7. Implement ordering system for stationary and hold regular stationery amnesties.
8. Avoid purchasing disposable catering products (e.g. individual milk containers, sugar sachets, paper plates).

9. Develop an internal tracking system for unwanted and end-of-life furniture and utilize the NHSScotland corporate subscription for the online re-use service WarpIt).

10. Ensure procurement strategy considers the purchase of leased, reconditioned or refurbished items and equipment prior to purchasing new.
11. For meetings, use glasses and plates rather than single-use products and prior to confirming catering arrangements, accurately establish the numbers attending.

Overarching Targets

1. Explore external funding and whether this can fast-track implementation.
2. Set voluntary emissions reduction targets and monitor progress against these.
3. Develop an implementation plan.
4. Develop a timeline for the implementation of all measures which reflects priority.
5. Incorporate the planned BAU changes within the timeline.
6. Identify quick wins which can be implemented in the short term.
7. Assess which measures require further feasibility analysis.
8. Develop a resourcing plan to support implementation of measures.
9. Develop an engagement plan for buildings leased to HIS.
10. Investigate ways to improve data collection and reduce estimates.
11. Periodically review and update the net zero route map.
12. Review approach to data management.

The figure below shows the emissions trajectory for all pathways.
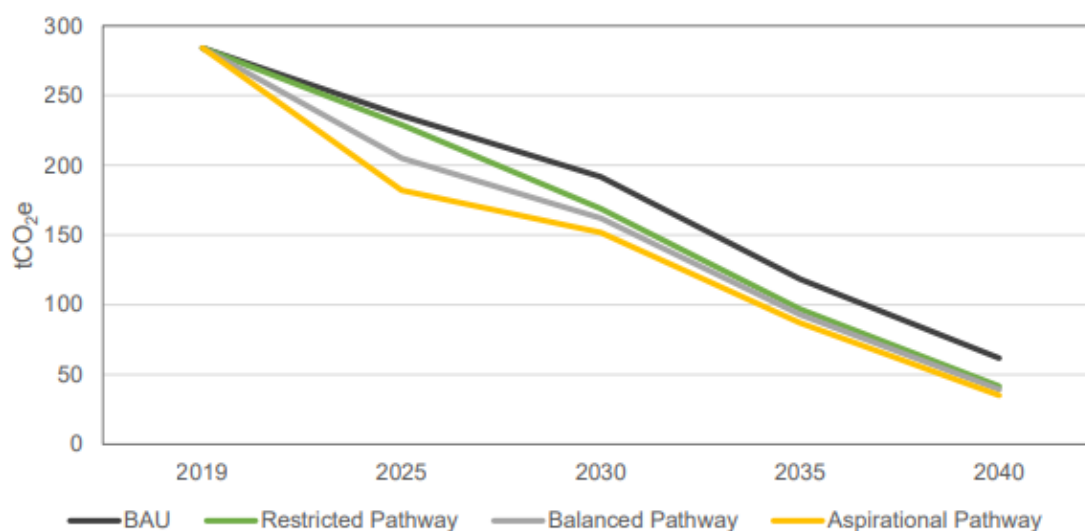
As previously indicated the three pathways modelled will all achieve an emissions reduction of 87-89% from 2019 to 2040. This can be compared to 80% under BAU. The key differences are the rate at which emissions are reduced, which is greatest for the aspirational pathway and lowest for the restricted pathway. Taking a proactive approach, as modelled by the aspirational pathway, would result in the greatest reduction in cumulative emissions of approximately 700 tCO2e between 2019-2040. HIS as tenants in both main sites will struggle to achieve the aspirational targets but this information is critical when submitting business cases to the property owner.

Chapter 6 – Priority Targets for 2022/23

Although HIS should be able to demonstrate carbon reduction in 2022/23, it is unlikely this will result in substantial financial savings due to three years of inflation rises and the major rise in Energy and Utility costs. To drive further measurable savings we are producing HIS's first net zero action/implementation

plan which would be supported by a new active Travel adaptation policy, based on Scottish Government's new Travel recommendations.

Within HIS we have set ambitious targets for 2022/23 based on the 2019/20 Baseline Co2 emissions summary as indicated in the table below:

Baseline Data	2019/20 Data	(tCO2 Emissions)	2022/23 Target Reduction
Petrol	7%	20	2%
Natural gas	4%	11	-
Grid electricity	29%	83	3%
Water supply	3%	9	0.2%
Water treatment	6%	18	0.3%
Waste (All types)	2%	6	0.2%
Transport & Travel	46%	132	9.0%
Electricity (T&D)	3%	7	0.3%
Total	100%	284 (tCO2)	15% Saving

Some measures will require further appraisal and/or development of plans and therefore will take time to implement regardless of ambition. On the other hand, some measures can be implemented swiftly without the need for a detailed business case. We will identify any short-term measures which can be implemented quickly as this will help to align national performance with the 2030 target to reduce emissions by 75%.

Examples of measures that HIS have prioritized are:

1. Install of LED bulbs at all sites.
2. Repair all dripping taps and leaking WCs. Ensure all existing fittings and fixtures, are regularly maintained.
3. Develop a resourcing plan which highlights where additional/temporary internal resource may be needed to support implementation of measures
4. Develop an engagement plan (e.g. with property owners and territorial Health Boards) to implement decarbonisation measures at these sites. This may maximise the positive impact of measures and results in cost efficiency savings
5. Engagement should also consider how approaches to data collection at shared and tenanted sites, could be improved. This will allow for a reduction in the quantity of data that needs to be estimated and may include improving access to data, better understanding how data should be split for reporting and implementing further data collection measures such as sub-metering
6. Periodically review and update the net zero Routemap
7. Replace window and door seals to prevent heat loss
8. Fit shades to large windows to prevent heat gain
9. Purchase green electricity when through Scottish Government contract
10. Improve energy controls – Introduce sensors for lighting and C02 sensors for air handling plant
11. Reduce water consumption
12. Dishwasher use should be evaluated and only used when they are fully loaded. Ensure staff know how to fill the dishwasher to ensure all pots are cleaned whilst maximising the number of pots in the dishwasher for each cleaning cycle.
13. Optimise the cycle times and temperatures – refer to the manufacturer's instructions or check with the supplier.
14. If dishwashers are to be replaced, water efficient models should be selected
15. Replace all leased cars with electric vehicles
16. Develop a strong and clear lease car/travel policy
17. Where possible, install dry mixed recycling bins.
18. Provide clear bin labels on all waste bins (e.g. domestic and recycling)
19. Implement paper usage policy (covering actions to use paper efficiency, actions for the IT department and purchasing actions).
20. Carry out supplier engagement to minimise packaging including options for packaging tack-back.

21. Implement ordering system for stationary and hold regular stationery amnesties.
22. Avoid purchasing disposable catering products (e.g. individual milk containers, sugar sachets, paper plates).
23. Develop an internal tracking system for unwanted and end-of-life furniture and WEEE (and utilise the NHSScotland corporate subscription for the online re-use service WarpIt).
24. Ensure procurement strategy considers the purchase of leased, reconditioned or refurbished items and equipment prior to purchasing new.
25. For meetings, use glasses and plates rather than single-use products and prior to confirming catering arrangements, accurately establish the numbers attending.

Chapter 7 – Conclusion

In conclusion, HIS will continue to work toward achieving the aspirational and restricted pathways while implementing the balanced pathways to support the reduction in our emissions and achieve the desired targets.

Regular updates will be provided to the HIS Board and Governance Committees and progress will be shared on our intranet for staff to view.

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