

NHS Green Healthcare Scotland Programme

Action for Adoption

Automated switch off out of hours Heating Ventilation
Air Conditioning (HVAC) within Endoscopy
July 2026

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1. About

- 1.1 This document is to raise awareness on the automated switch-off out of hours Heating Ventilation Air Conditioning (HVAC) within Endoscopy units. There is no formal requirement to report on this action through the Green Healthcare Scotland Programme, however NHS Boards are encouraged to consider how they may adopt this action, where appropriate, ensuring they are connected with any relevant initiatives or national work streams.

2. Background

- 2.1 The highest direct sources of greenhouse gas emissions for NHS Scotland come from energy used for heat and power in NHS buildings.¹
- 2.2 Endoscopy is among the top 3 contributors of carbon emissions in hospitals, with power consumption making up a large contribution.²
- 2.3 Having the ability to switch-off or set-back HVAC systems during out-of-hours periods would help to reduce the power consumption within Endoscopy units, reducing carbon emissions and providing a reduction in operational costs.
- 2.4 The definition of HVAC switch-off and set-back can be seen in the [appendix](#).
- 2.5 The purpose of HVAC systems is to provide a, “safe and comfortable environment for patients and staff”³. It can help to control airborne infections risks, remove odours and control temperature.
- 2.6 Currently, endoscopy units operate their HVAC systems at full capacity 24 hours a day, including periods when the unit is unoccupied, such as overnight and at weekends. This can result in avoidable energy consumption, increased carbon emissions and higher operational costs.
- 2.7 Based on responses from the national benchmarking exercise undertaken by the National Green Endoscopy Programme (NGEP) in September 2025, a number of Health Boards reported that their endoscopy units were unable to switch off HVAC systems. This is primarily because these systems are centrally controlled and maintained, often providing ventilation to multiple areas within the hospital estate. Additionally, as noted in the Scottish Government’s Annual Report 2025 - ‘the diversity of building types in NHS Scotland’s

estate presents significant technical and financial challenges for decarbonisation, with the age and state of many buildings presenting issues”.⁴

- 2.8 The Joint Advisory Group (JAG) on Gastrointestinal Endoscopy UK Adult Global Rating Scale (GRS) Standards (2025) identify the patient environment and equipment as a key domain, requiring endoscopy units to demonstrate compliance with relevant Scottish Health Technical Memorandum (SHTM) ventilation requirements. The standards state that - “ventilation and temperature should be appropriately regulated throughout the unit to provide a comfortable environment and safely eliminate any noxious chemicals or fumes.”⁵
- 2.9 Endoscopy rooms are covered by the [Scottish Health Technical Memorandum \(SHTM\) 03-01](#) Part A and Part B. This provides advice and guidance on the legal requirements, design implications, maintenance and operation of specialised ventilation in healthcare premises providing acute care. Within this memorandum, “certain clinical and non-clinical areas within a healthcare establishment are considered critical to its ability to provide healthcare”.⁶ Endoscopy is considered to be critical.
- 2.10 The previous Opportunity for Change (OfC) published by the National Green Theatres Programme, for automated switch off out of hours HVAC, estimated that, for theatres, there could be estimated yearly savings of 5,937 tonnes of Co2e with annual cost reductions of £3,587,549⁷. This highlights the potential savings that could be reflected across endoscopy units where this action can be implemented.
- 2.11 The SHTM 03-01 recommends, “switching a system ‘off’ when not required to be the most energy efficient policy. If the system is needed to maintain a minimum background condition, reducing its output by ‘setting back’ to the minimum necessary to achieve and maintain the desired condition is the next best option”⁸. This applies to all ventilation systems installed in healthcare premises irrespective of the age of installation.
- 2.12 The Green endoscopy: [British Society of Gastroenterology \(BSG\)](#), Joint Accreditation Group (JAG) and Centre for Sustainable Health (CSH) joint consensus on practical measures for environmental sustainability in endoscopy⁹ has recommended that heating, ventilation and air conditioning systems should be set back to minimise air exchanges when endoscopy rooms are not in use. This is also reflected in NHS England’s Estates Technical Bulletin published in July 2026¹⁰.
- 2.13 As stated, several NHS Boards have currently indicated they are unable to switch-off HVAC, due to these being centrally controlled and maintained. Further investigation will be required, in collaboration with Public Services Delivery Scotland colleagues, local estates teams and energy managers, to assess the feasibility of switching-off or setting-back within Endoscopy units.
- 2.14 Suggested requirements and responsibilities when planning HVAC switch off or set back are provided in the [Appendix](#).
- 2.15 There is clear potential for significant environmental and financial savings where HVAC systems can be switched off or set back when not in use. This highlights the importance of incorporating localised control of ventilation systems within the design of new healthcare facilities. Consideration of such functionality at the design stage will be critical to enabling

future operational efficiencies and supporting decarbonisation objectives across NHS Scotland.

3. Potential Carbon and Cost Savings

- 3.1 This action enables endoscopy services to explore the feasibility of introducing HVAC set back or switch-off protocols, creating an opportunity to reduce energy consumption, lower carbon emissions and achieve substantial cost savings across NHS Scotland.
- 3.2 Other considerations regarding the cost and carbon savings include:
- Gas and electricity mix will differ across each site and will vary to reflect external conditions.
 - Energy use will vary depending on the size of the motor in the HVAC unit.
 - Unit energy pricing may differ regionally.
 - Savings will fluctuate depending on the agreed hours of switch off or set back.

4. Identified Risks and Issues

- 4.1 As part of the development of this action risks identified, to date, are outlined below:

Description of risk or issue	Mitigation / Action Plan
There is a risk that older hospitals will have to retrofit these changes through their building management systems resulting in a cost and, as such, the change is not taken forward.	Discussions should take place with the engineering and finance networks to identify the scale of the issue and determine way to break through the barriers to change.

5. Appendix

This establishes the requirements and responsibilities for implementing any planned HVAC (Heating, Ventilation and Air Conditioning) switch-off or set back within endoscopy units.

The aim is to ensure patient safety, maintain statutory compliance, protect clinical operations and minimise infection control risks.

Scope

This applies to all endoscopy units within NHS Scotland.

The following stakeholders should be consulted:

- All staff working within the endoscopy unit and associated rooms
- Estates and facilities teams
- Infection Prevention and Control (IPC)
- Health and Safety
- Departmental managers and clinical leads
- Ventilation Safety Group

- Contractors undertaking HVAC-related works
- Engineering Leads
- Finance

Definitions

- HVAC Switch-off: Complete cessation of heating, cooling, or ventilation to a defined zone.
- HVAC Set back: Reduction in system output (e.g., reduced air changes, temperature adjustment, or partial shutdown).
- Critical Area: Any space with statutory ventilation requirements or clinical dependency on controlled environmental conditions (e.g., theatres, isolation rooms, laboratories, sterile services).

Principles

- Patient and staff safety take precedence over operational convenience.
- No HVAC system may be switched off or set back without formal approval.
- All decisions must be risk-assessed, documented and communicated to relevant stakeholders.
- Infection Prevention and Control teams must be consulted and necessary risk assessments completed.
- Compliance with SHTM and any other statutory ventilation standards must be maintained.

Responsibilities

Estates and Facilities

- Assess technical feasibility and risks associated with the proposed HVAC change.
- Confirm any statutory or regulatory ventilation requirements.
- Provide timelines, mitigation options and monitoring arrangements.
- Maintain records of all approved HVAC interruptions.

Infection Prevention and Control (IPC)

- Review potential impacts on infection control measures.
- Advise on risks relating to airborne transmission, pressure regimes and air change rates.
- Review requests affecting clinical or high-risk areas.

Departmental Managers/Clinical Leads

- Identify any operational impacts on patient care and staff activity.
- Ensure staff are informed of planned changes.
- Provide clear communication of start/end times
- Provide access for monitoring and escalation if required.

Health and Safety/Ventilation Safety Group

- Review environmental and occupational risks.
- Advise on safe temperature and humidity ranges for staff and equipment.

6. Acknowledgements

Name / Organisation	Position Statement	Date
Colin McKie, Senior Engineer, NHSScotland Assure	Provided guidance during initial discussions and development.	Jan 2026
Mike Ralph, Head of Energy NHSScotland Assure	Provided guidance during initial discussions and development.	Jan 2026
GHS Green Theatres SDG	Provided endorsement of original HVAC publication – of which this Action is based.	May 2023

7. References

- ¹ NHS Scotland Climate Emergency & Sustainability Annual Report 2025. Available at www.gov.scot, Page 4 (Accessed May 2026)
- ² Impact of power consumption and power saving for GI endoscopy (power on study) on reducing CO2 emissions. Available at <https://gut.bmj.com> (Accessed May 2026)
- ³ SHTM 03-01. Available at <https://www.nss.nhs.scot/>, Page 14 Item 1.5 & 1.6 (Accessed May 2026)
- ⁴ NHS Scotland Climate Emergency & Sustainability Annual Report 2025. Available at www.gov.scot, Page 7 (Accessed May 2026)
- ⁵ The Guide to achieving a JAG compliant endoscopy environment, Available at <https://www.thejag.org.uk>, Page 4 (Accessed May 2026)
- ⁶ SHTM 03-01. Available at <https://www.nss.nhs.scot/>, Page 26 Item 4.13 (Accessed May 2026)
- ⁷ Automated switch off out of hours Heating Ventilation Air Conditioning (HVAC) within operating theatres - Opportunity for Change, Available at <https://www.nhscfsd.co.uk> (Accessed May 2026)
- ⁸ SHTM 03-01. Available at <https://www.nss.nhs.scot/>, Page 8 Para 3 (Accessed May 2026)
- ⁹ Green endoscopy: British Society of Gastroenterology (BSG), Joint Accreditation Group (JAG) and Centre for Sustainable Health (CSH) joint consensus on practical measures for environmental sustainability in endoscopy, Available at www.bsg.org.uk, Page 8, Position Statement 3.9 (Accessed May 2026)
- ¹⁰ NHS England (2026) NHS Estates Technical Bulletin (NETB) No. 2026/1: Generating energy efficiency savings through controlling theatre ventilation. Version 1.1. London: NHS England. Available at: <https://www.england.nhs.uk/wp-content/uploads/2026/07/PRN02301-netb-2026-1-energy-savings-in-theatres-v1.1.pdf>

8. Version Control

	Name	Title	Date
Author	Leigh Brown	Project Manager, National Green Endoscopy Programme	12/05/2026
Reviewer	Steven Chawk	Programme Manager, CfSD	12/06/2026
Approver	Sandeep Siddhi	Consultant Gastroenterology, NHS Grampian and Clinical Lead, National Green Endoscopy Programme	12/05/2026

Contact us

For questions or more information, please contact NHS Green Healthcare Scotland at cfsdghs@nhs.scot.