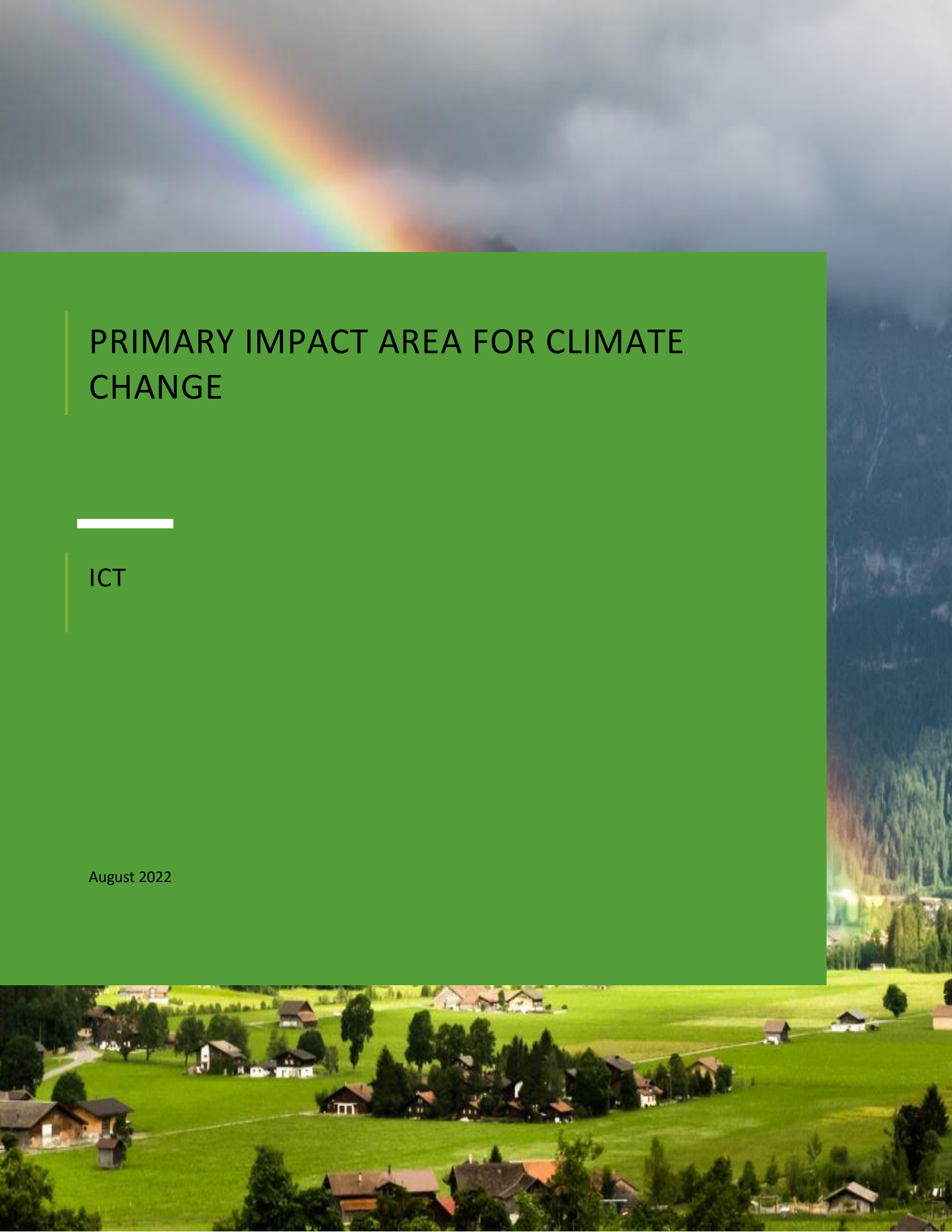

PRIMARY IMPACT AREA FOR CLIMATE CHANGE

ICT

August 2022

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INTRODUCTION

This document aims to provide information in as simple and brief a form as possible, of the aspects that can be considered in applying action to reduce the impacts on climate emissions on goods or service procured by institutions.

- Section 1 provides information on framework agreements that are available to the sector that have climate emission reduction / low climate emission options either as a fundamental part of the framework or as a lot within the framework or otherwise as provided for via the framework.
- Section 2 contains potential short-term permanent changes that can be made now for this PIACC area / sub-area
- Section 3 contains potential longer term aspects that may need a longer lead-in / planning time and / or liaison with other parties. This can include aspects where the CEPWG may be able to collectively represent the sector and seek change in policy, regulations etc, and if applicable, engage other sector bodies and individuals in influencing the desired changes.
- Section 4 contains details of other working groups / organisations that may also be working on similar work to the area covered by this document.
- Section 5 contains links to other sources of information that have been reviewed by a CEPWG PIACC Member.
- Section 6 contains (where applicable) potential sources of funding / grants that may be available to develop work in this area.
- Section 7 contains information on Lifecycle Impact / Whole Life Costing, which identify and assess the social and environmental impacts as well as whole life costing factors for this area.
- Annex 1 contains information on examples of good practice already identified in relation to this PIACC / case studies, / draft codes of good practice etc (or further links to them).
- Annex 2 contains information from the APUC Responsible Procurement Guides in relation to carbon reduction

SECTION 1 – FRAMEWORK AGREEMENTS

Find below information on framework agreements that are available to the sector that have climate emission reduction / low climate emission options either as a fundamental part of the framework or as a lot within the framework or otherwise as provided for via the framework:

Higher and Further Education Sector Framework Agreements

ITS5042 LU Desktop & Notebook (NDNA)

- Focus on energy efficient solutions
- Take back options to encourage recycle and reuse
- Work with suppliers to understand the supply chain map and identify any areas of vulnerability to Climate change

ITS6004 HW Apple Equipment & Services (National)

- Focus on energy efficient solutions
- Take back options to encourage recycle and reuse
- Work with suppliers to understand the supply chain map and identify any areas of vulnerability to Climate change

ITS4031 SU Servers, Storage and Solutions National Agreement (SSSNA)

- Focus on energy efficient solutions
- Take back options to encourage recycle and reuse
- Work with suppliers to understand the supply chain map and identify any areas of vulnerability to Climate change

AV1017AP - Audio Visual Equipment - Supply of Energy Efficient AV Equipment and Consumables

- Focus on energy efficient solutions
- Take back options to encourage recycle and reuse
- Take back Schemes
- Whole life Cycle Costing model
- Work with suppliers to understand the supply chain map and identify any areas of vulnerability to Climate change
- Increase the use of audio-visual technology for work from home/face to face meetings and associated travel
- Work with stakeholder groups to drive increase of MS teams across AV equipment
- Potentially the lifecycle of AV equipment could be extended

ITS2005 NE Data Centre Management

- The service itself facilitates EOL extension of existing equipment through refurbishment (often with reused components)
- Power saving equipment and Energy Management Systems available through the agreement
- Action: Promote the contract and its benefits

ITS 1024 AP Assistive Technology, Hardware, Software & Consumables

- Consolidate local logistics and deliveries

- Monitor manufacturing and shipping activities
- Sustainable packaging
- Take back options to encourage recycle and reuse

ITS2006 NE Printers and Managed Print Services (NEPA)

- Due to low usage the Scottish Procurement Agreement (SP-16-013) is promoted

LIB1009 AP Library Security and Self-Service Equipment, Software and Maintenance

- Focus on energy efficient solutions
- Take back options to encourage recycle and reuse

EFM1027 AP Waste Management Agreement Innovative IT

- Recycle & repurpose redundant IT Equipment
  Donate to charities or other nominated organisations

National Framework Agreements Scottish Government

SP-19-016 Desktop Client Devices (National Framework for)

- Focus on energy efficient solutions
- Take back options to encourage recycle and reuse
- Potential options for remanufacture and redeployment
- Bulk packaging for bulk consolidated bulk deliveries
- Design for Circularity encouraged
- Supply chain mapping to note any vulnerability to climate change

SP-19-013 Web based and Proprietary Devices

- Focus on energy efficient solutions
- Take back options to encourage recycle and reuse
- Potential options for remanufacture and redeployment
- Bulk packaging for bulk consolidated bulk deliveries
- Design for Circularity encouraged
- Supply chain mapping to note any vulnerability to climate change

SP-16-013 Office Equipment

- Focus on energy efficient solutions
- Take back options to encourage recycle and reuse
- Leasing model
- Circular cartridges
- Paper saving measures and rule-based printing
- Old ex-lease equipment available for hire and purchase

SP-19-001 Server and Infrastructure Maintenance Framework

- Repair, maintain and repurpose legacy product to prolong the life

SP-19-020Mobile Client Devices (National Framework for)

- Focus on energy efficient solutions
- Take back options to encourage recycle and reuse

- Potential options for remanufacture and redeployment
- Bulk packaging for bulk consolidated bulk deliveries
- Design for circularity encouraged
- Supply chain mapping to note any vulnerability to climate change

SP-14-009 General Stationary and Office Paper

- Focus on recycled paper
- Encourage enhanced sustainable sourcing of paper
- Encourage reduction in paper waste

SP-15-016 IT Consumables

- Recycled toner cartridges

SECTION 2 – POTENTIAL SHORT-TERM PERMANENT CHANGES THAT CAN HAVE POSITIVE IMPACTS

1. Quick wins available through Framework Agreement	
1. Reusing products / refurbished (reverse logistics / Take-Back Schemes)	Most Framework Agreements offer Take-Back by suppliers. Speak to your suppliers directly or contact the Framework Agreement Manager (see Buyers Guides!)
2. Choose remanufactured/refurbished over new product	Potential options for remanufacture and redeployment available on SP-19-016 Desktop Client Devices

2. Procurement / Buying Behaviour Changes	
1. Buy IT equipment with high spec when new to enable extended life without upgrades.	Plan ahead and consult suppliers about newest developments and offers in regards to maintenance and warranty extensions. Service contracts evaluated on whole life costing terms can provide better transparency
2. Contact local charities (use a donation declaration form, ensure an audit trail) or sell it for a pittance (creates a contract – sell as seen	Lower performance ICT may still be suitable for the needs of other organisations such as charities. Ensure all data has been removed prior to change of hands.
3. Energy efficient equipment and low power modes	All Framework Agreements ensure energy efficiency is considered. Yet, challenge the suppliers for particular requirements and check that low power modes are suitable for your needs
4. Refresh / upgrade IT equipment for extended life – target minimum of 7 year life	Depending on use, equipment can be upgraded rather than fully replaced.
5. Take extended warranties – 5 years + - where cost effective to maximise productive life	Many suppliers can provide extended warranties at an extra cost. Request options during market engagement or in the tender process
6. Share use of ULCDCs across / between sectors	
7. Increase the use of audio-visual technology for work from home/create alternatives to face to face meetings and associated travel. Productivity may be increased if used to an optimal level	COVID-19 has revealed many roles able to be performed at home using AV technology, decreasign the need to travel.
8. Utilise whole life costing tools to identify the best solution in terms of cost	WLC Costing information available on *AV1017AP - Audio Visual Equipment - Supply of Energy Efficient AV Equipment and Consumables*

3. Specifications	
1. Develop an Output Specification: Build a high IT equipment specification for new equipment rationalising down to the actual need of the equipment whilst ensuring extended life without major upgrades or refurbishments. Include warranties (5 years +) to spread the risk.	IT equipment can be defined exactly by it's requirement specification. Ensure it is build for the future or can be easily modified and replaced. Warranties will ensure some extended life, modularity can provide you with the option of exchanging parts and refurbishing the equipment at relatively low cost.
2 Develop an Input Specification: Specify your requirements by detailing what needs to be achieved now and in the future. Challenge suppliers to provide you with a long-term solution.	Specify to suppliers what needs to be achieved and evaluate on the proposed solution. Ensure evaluation methods are very clear, fair and open.
3. Change packaging requirements i.e. order bulk deliveries to save on packaging	Whilst packaging requirements are covered on Framework Agreement level, support the requirement by specifying to your contractor that packaging must be removed and reused or recycled.

For more information:

IT Department Sustainability Engagement Guide: https://www.sustainabilityexchange.ac.uk/it_epdg

SECTION 3 - POTENTIAL LONGER-TERM PERMANENT CHANGES THAT CAN HAVE POSITIVE IMPACTS

These potential longer term aspects may need a longer lead-in / planning time and / or liaison with other parties. This can include aspects where the CEPWG may be able to collectively represent the sector and seek change in policy, regulations etc, and if applicable, engage other sector bodies and individuals in influencing the desired changes.

- Ensure that Framework Agreement(s) and / or circular economy shared service options, are put in place / maintained that provide, as a priority, simple cost-effective routes to market for IT hardware purchases and refurbishment needs that enable, specify and encourage lower overall GHG emissions and provide transparency over the impacts attributed to the purchase / circularised economy approach as applicable.
- Ensure hardware available from framework agreements are energy efficient – and specify eco label such as EPEAT, TCO where possible.
- Develop an efficient process for circular procurement on IT hardware, to enable institutions to gain GHG savings and cost savings through redeployment.
- Encourage that goods supplied to the sector have a “right to repair” and are designed to enable repair and modular upgrade either within institutions or through circular economy solutions.
- Explore the use of upgraded desktop devices as thin clients to operate as virtual desktops with cloud solutions
- Demand that suppliers provide take back options to encourage recycle and reuse.
- Challenge the market to increase where appropriate the availability of spare parts for longer periods of time.
- Work with suppliers to understand the supply chain map and identify any areas of vulnerability to climate change (e.g. semiconductors shortages caused by droughts in Taiwan).
- Challenge suppliers to reduce emission in their own supply chain, for example, to invest in renewable energy throughout the supply chain.
- Challenge suppliers reuse content of goods within the supply chain.
- Develop enhanced understanding of GHG emissions used in cloud hosted environments, software and streaming products and recommend / adopt ways to reduce CO2 emissions through low carbon supply chain and optimisation of use.
- Evaluate the optimum IT environment to reduce impact on CC, for example, hosting data in the cloud or on premise
- Reduce data centre GHG impacts by implementing / reviewing data retention strategies that mean data will be held in as low impact form as possible for only as long as it is needed to be retained for legal or operational reasons
- Consider the optimum use of teleconference software platforms, such as MS Teams and Zoom. For example, switching off cameras reduces the impact on emissions.
- Institutions will review policies and practices to limit the number of devices in use per staff member to the minimum and provide guidance in efficient technology equipment utilisation to students.

- Institutions will deliver policies that address digital wellbeing and digital poverty so that the full environmental benefits of optimal use of technology can be achieved by all staff and students having equitable access to relevant technologies

SECTION 4 - OTHER WORKING GROUPS / ORGS THAT MAY ALSO BE WORKING ON SIMILAR WORK

1. HEPA/EAUC Climate ICT/ IS Working Group
2. HEIDS/SCIL Sustainability Working Groups
    a. HEIDS/ucisa working group established to share ideas and to research Net Zero initiatives
    b. Working on Circular IT initiative

Links to other groups/organisations:

Warp-it: https://www.warp-it.co.uk/

https://www.sustainabilityexchange.ac.uk/sharingseries_ict_carbon

SECTION 5 - LINKS TO OTHER SOURCES OF INFORMATION

1. Government Buying Standards – ICT and Office Equipment
2. Inspiring solutions for more sustainable ICT (transform together – case studies)
3. REBus ICT Sector report (circular procurement of ICT)
4. EU GPP Criteria for computers and monitors

Sustainability Exchange – Sustainable ICT

https://www.sustainabilityexchange.ac.uk/sustainable_ict_

Sustainability Sharing Series: Lowering the carbon impact of ICT Guide
https://www.sustainabilityexchange.ac.uk/sharingseries_ict_carbon

SECTION 6 – POTENTIAL SOURCES OF EXTRA FUNDING

1. There has been previous funding rounds to drive energy efficiency in the Scottish HE sector including Universities Carbon Reduction Fund and the Universities for the Future: Decarbonising Scotland
2. Scotland Recycling Fund
3. SFC
4. Research Councils
5. EAUC put together a Scottish Funding Register
6. NUS Green Impact - A United Nations programme designed to support environmentally and socially sustainable practice in an organisation and has a programme for Unis and Colleges
7. Zero Waste Scotland
8. UCISA (Events funding)

SECTION 7 – WHOLE LIFE COSTING / LIFECYCLE IMPACTS

Find information on Lifecycle Impact / Whole Life Costing, which identify and assess the social and environmental impacts as well as whole life costing factors for this area.

- Whole-life costing model already used in AV Framework Agreement around acquisition, running costs, replacement of high value parts and take back after 5 years useful life
- To improve on this model would require some inputs considering embedded carbon emissions, including manufacturing & transportation
- A number of assumptions would be required for this so a model could potentially become unfair and increase the risk of challenge

Life Cycle Impact Mapping + Carbon Impact

Impacts of obtaining raw materials	**Impacts of manufacturing and logistics**
Environmental risks - mineral exploration, extraction, production and waste management Conflict Minerals - 3TGs high risk as derivatives from minerals extracted from regions of Conflict and therefore benefiting armed groups Finite supply of raw materials Labour Rights - Poor working conditions within the mining industry Transport of Raw Materials Material and component shortages Supply Chain disruption due to unstable geopolitical situation or by climate change (e.g. droughts in Taiwan & chip shortages)	Complex supply chains with significant transportation impacts Energy involved in production of products ie motherboards, SSDs, plastics & metals Labour intensive activities within the ICT industry have mainly be transferred to low-cost locations. Production stresses (production peaks and troughs, late orders, last minute changes to orders, etc.) absorbed by factories further down the supply chain. Limited regulation and workers' rights issues prominent as a result. Energy involved in transportation of products. Packaging of products. E.g. polystyrene & non-recyclable packages Single use designed in some products Toxic & Hazardous chemicals used within the process & waste stream
Impacts during use of product/service	**Impacts at end of life / disposal**
Consumables & Maintenance (Spare Parts) Adaptability Reconditioning Energy used during production & Use (Energy efficiency) Short Lifecycles of products / Lifespan Technological advances can render products obsolete Lower cost of reconditioning versus new Cloud hosting reduces maintenance requirements but may push the responsibly upstream	Energy involved in transportation to disposal/ recycling centres. Some products ending up in landfill sites. Potential harmful impact of chemicals during disassembly, e.g. printer ink, mercury, lead, etc. not safely disposed of. Products not always designed to be easily repaired leading to unnecessary waste. Many ICT suppliers involved in schemes with third sector organisations who recycle/ refurbish ICT for use by charities/ organisations locally or in the developing world. Toxic metals in eWaste can lead to leaching & contamination

Life Cycle Impact Mapping – Scottish Government

International Institute for Sustainable Development – Life Cycle Costing

Life Cycle Costing ICLEI

Life Cycle Costing – European Commission

ICLEI Fair ICT Procurement Guidance

https://csr-indkob.dk/tco-vaerktoejer/

ANNEX 1 -INFORMATION ON GOOD PRACTICE / CASE STUDIES / DRAFT CODES OF GOOD PRACTICE ETC

Annex 1 contains information on examples of good practice already identified in relation to this PIACC / case studies, / draft codes of good practice etc (or further links to them).

https://apucscot.sharepoint.com/GPH/Shared Documents/EC LCC Guides/EC LCC Guide for Computers and Monitors.pdf?web=1

https://apucscot.sharepoint.com/GPH/Shared Documents/Circular economy briefing July 19.pdf?web=1

ANNEX 2

Annex 2 contains information from the Responsible Procurement Guides in relation to carbon reduction:

Fairly and Ethically Traded

Development Stage Worker conditions in IS supply chains are known to be at risk of modern slavery, human trafficking, poor worker conditions (hours, health and safety, pay) and child labour. Think about where the risk lies – different types of hardware may be manufactured in different places, with their own worker rights issues. Consider risks relating to modern slavery and human trafficking in supply chains. What types of labour makes up the supply chain? Are these at risk of human rights abuse either in the UK or overseas. Engage with Electronics Watch regarding monitoring the supply chain, OEMS and brands.
Tender Stage Ask suppliers how they address fair pay, child labour, unreasonable working hours, and forced overtime issues in their supply chains. What standards do they assess to? How do they manage any issues that arise? Request supplier's Modern Slavery statement and compliance with Act. Ask them how they guard against modern slavery and human trafficking in their supply chain.
Contract Stage Where such issues pose key risks in a tender, look to mandate the suppliers' participation in Sustain post award. Consider organisations such as Electronics watch and relevant contract clauses to maintain a reporting process throughout the Contract Management lifecycle.

Materials Scarcity and Security

Development Stage

Think about whole product lifecycle – cradle to cradle approach. Can a circular economy approach be applied regarding hardware, avoiding the production of waste? Or reducing the need for new/raw materials to be consumed in the production and delivery of the goods? At the very least what scope is there to reuse resources and recycle goods within the manufacturing process.

Consider alternative solutions - for example by switching from desk top printers to Multi-Function Devices reduces the overall consumables (paper, toner etc.) consumption at a site.

Are there materials related to the contract that are at risk of being from conflict zones, for example Tungsten or Gold, where profits and may be being used to fund armed conflict.

When developing specifications, engage with suppliers that are aware, and actively addressing, issues around materials scarcity and security in.

Tender Stage

Demand supply chain transparency from tenderers to gain an understanding of where suppliers are based.

Ask suppliers how they prevent conflict minerals entering their supply chain. Note that EU legislation on conflict free minerals is due to come into effect from 2021.

Consider what requirements could be put into a specification to promote conservation of scarce materials;

Promote reduction in packaging by reusable stillages/pallets in production/delivery.

Promote (or require) packaging with high recycled content.

Require that packaging must not contain any plant-based material that was illegally sourced from its country of origin e.g. Palm Oil

Contract Stage

Ask suppliers for data on the number of times packaging can be reused and how the supplier manages this.

Think about extending product lifecycle once purchased, modular reparability (i.e. fixing component parts),

upgrades to hardware to extend longevity and applicability, limiting end user demands for new hardware

Promote use of long-life and/or recycled consumables (e.g. toner cartridges) amongst end-users.

Climate Change

Development Stage

Think about innovation in the supply market. Are there ways to reduce reliance on new materials in their product supply? Are there new ways to reduce environmental impact? Think about Greenhouse gas levels in production and delivery.

Consider materials sourcing and the impact of raw materials mining on the environment and end of life disposal/product management.

Consider streamlining logistics processes e.g. can the frequency of deliveries be decreased though consolidation. What level of coordination is required for this?

Tender Stage

Ask suppliers at tender stage how they will manage/mitigate negative climate change impacts associated with the production, distribution and disposal of IT Hardware.

Specify minimum standards for energy efficiency in IT Hardware e.g. EPEAT+, Energy Star, or EST Recommended.

Assess 'cost' on a whole life basis considering energy consumption of the equipment involved, as well as the unit and support costs rather than only unit cost.

Encourage the reuse and remanufacture of devices to reduce the embedded carbon emissions. Between 50% and 70% of emissions are created from the manufacturing process.

Recovery of WEEE components after primary useful life should be made to create potential for and encourage a secondary use.

Details on EU Green Public Procurement criteria for Computer and monitors can be found here.

Details on EU Green Public Procurement criteria for Imaging Equipment can be found here.

Details on Government Green Buying Standards can be found here

Contract Stage

At the contract management stage promote the use of renewable energy internally and within the supply chain.

Is there scope for an institution to invest in a carbon offsetting scheme? Carbon offsets are a form of trade, which allows the institutions to fund global projects that that reduce greenhouse gas (GHG) emissions.

Reporting; to what extent will contractors be expected to maintain and monitor carbon reduction activity. This is relevant to any contract provisions regarding reduced CO2 emissions.

Waste production

Development Stage

Identify where waste might occur and think about innovative ways of minimising waste through all stages of the product life cycle. Engage with suppliers.

Where waste is unavoidable think about alternate uses for waste e.g. reuse or material recovery

Tender Stage

Ask supplier how they intend to reduce volume of waste during production. Ask what suppliers are doing regarding a circular (cradle to cradle) approach.

Request suppliers to advise the % of equipment that can be recovered/reused to avoid being sent to landfill (look for highest recovery rate).

Challenge suppliers on product design so that products are built or circularity ie. modular design, reusable components, recycled plastics, reusable packaging

Contract Stage

Over the course of a contract think about increasing the use of digital scanning as an alternative to printed documents. Can suppliers assist with this.

Hazardous materials/ emissions

Development Stage

Think about risks in the lifecycle associated with hazardous materials and emissions; Worker Safety, Environmental pollution. What scope is there to eradicate hazardous materials or reduce emissions?

Tender Stage

Ask suppliers what efforts are made to reduce the amount of hazardous materials/ emissions during production, including;

Heavy metals, Ozone depleting chlorinated compounds (CFCS), Carcinogens, mutagens and teratogens, Other corrosive, flammable, toxic substances and pollutants. Ask suppliers to detail what Health and Safety measures are in place to ensure the health and wellbeing of workers in having to deal with hazardous materials.
Contract Stage Look at company reporting regarding environmental management and health and safety.