

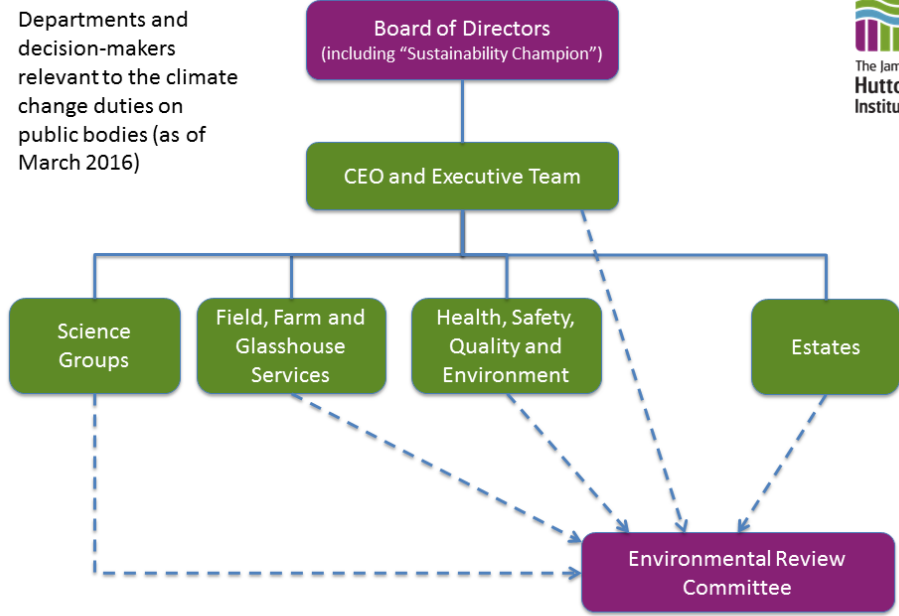
# PBCCD Report for the James Hutton Institute, Financial Year 2019/20

## Section 1 – Profile of reporting body

<b>1a</b>	<b>Name</b>	The James Hutton Institute
<b>1b</b>	<b>Type of Body</b>	Others
<b>1c</b>	<b>Highest number of FTE staff in 19/20</b>	511
<b>1d</b>	<b>Other Metrics:</b>	<p><b>Floor area</b></p> <p>27,302 m<sup>2</sup> total buildings Invergowrie              8,668 m<sup>2</sup> glasshouses Invergowrie              4,718 m<sup>2</sup> laboratories Invergowrie              4,382 m<sup>2</sup> storage Invergowrie              2,555 m<sup>2</sup> offices Invergowrie</p> <p>12,610 m<sup>2</sup> total Aberdeen              3,738 m<sup>2</sup> laboratories Aberdeen              3,369 m<sup>2</sup> offices Aberdeen              3,281 m<sup>2</sup> corridors and other Aberdeen              2,222 m<sup>2</sup> ancillary buildings Aberdeen</p>
<b>1e</b>	<b>Overall budget of the body</b>	£35,803,000
<b>1f</b>	<b>Report year</b>	Financial (April to March)
<b>1g</b>	<b>Context</b>	<p>The James Hutton Institute is a world-leading research centre for the sustainable management of land, crops and natural resources to support thriving communities. We are one of the Major Research Providers (MRPs) for the Scottish Government’s Rural and Environmental Science and Analytical Services (RESAS) strategic research programme. Our research addresses food, energy and environmental security. As such, we are a key provider of evidence and innovation for climate change mitigation and adaptation both in Scotland and across the world. We have two main campuses, one in Dundee and one in Aberdeen as well as several research farms: Mylnfield and Balruddery Farms, adjacent to our Dundee research site, and Glensaugh Research Station in South Aberdeenshire. Our major greenhouse gas emissions sources are similar to other public bodies, i.e. natural gas and electricity use (see section 3). However, two aspects set us apart from other reporting organisations: frequent national and international travel by our research staff (similar to universities) and the emissions associated with our farms. Our major climate change risks concern our farms and field trials. Increased winter rainfall and drier summers are making growing and harvesting conditions more challenging; milder winters are allowing insects and diseases to spread northward; and more violent storms could threaten some of our key growing infrastructure, such as polytunnels. Climate change could thus affect our ability to conduct systematic research to provide needed evidence to decision-makers across Scotland. However, this is something we are actively addressing (see section 4).</p>

## Section 2 – Governance, Management and Strategy

<p><b>2a</b></p>	<p><b>How is climate change governed in the body?</b></p>	<p>Note that the Institute underwent a re-structuring process that will take effect from the 1<sup>st</sup> of April, 2020. This will be described in next year's report. During the reporting year (April 2019 to March 2020), the following bodies had responsibilities relevant to the climate change duties:</p> <p><b>The Board of Directors</b> Oversee the work of the Institute and receive regular reports on the Institute's performance. Susan Davies, a specialist in conservation, is the Board's sustainability champion. <i>Challenge the Executive on how the Institute is responding to Climate Change and provide guidance.</i></p> <p><b>The CEO and Executive Team</b> The Executive team are responsible for strategy development and the leadership and management of the organisation. <i>Budget allocation; key decision-making; long-term planning; Overall accountability</i></p> <p><b>The HSQE department</b> The Health, Safety, Quality and Environment department coordinates the Institute's Health and Safety, Quality Assurance and Environmental Management Systems. <i>Compliance; Reporting; Risk Management</i></p> <p><b>The Estates department</b> The remit of the Estates team is to maintain the buildings and facilities on all sites and provide services to FCS (Finance and Corporate Services) and Science teams to meet their technical services requirements. <i>Heating; Lighting; Institute vehicles; Waste</i></p> <p><b>The Field, Farm &amp; Glasshouse Services department</b> The Farms, Field and Glasshouse team provide relevant services to scientists and researchers in relation to their specific requirements for growing plants and conducting field and glasshouse experiments. <i>Land management; Adaptation; Agri-renewables</i></p> <p><b>Environmental Review Committee</b> The Environmental Review Committee brings together staff from science and FCS departments to focus on environmental issues. The committee meets three times annually, contributes to the development of Institute policies and decision-making and is chaired by a member of the Executive. <i>Environmental policy development; Staff feedback and engagement;</i></p> <p>The relationships between these roles are illustrated in the following diagram.</p>
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		<p>Departments and decision-makers relevant to the climate change duties on public bodies (as of March 2016)</p>  <p>The James Hutton Institute logo is located in the top right corner of the chart area.</p>						
2b	<p><b>How is climate change action managed and embedded by the body?</b></p>	<p>The Institute has had a Sustainability Co-ordinator (0.5 FTE) in post since September 2016. The role was line-managed by the Head of Health, Safety, Quality and the Environment (HSQE), answerable in turn to the Institute’s Director of Operations. As a result of the restructuring undertaken in 2019/20, the role will increase to 0.8 FTE from the 1<sup>st</sup> of April 2020. The Sustainability Co-ordinator will take on additional responsibilities and will report directly to the Director of Operations to reflect increased focus on climate change and environmental issues.</p> <p>The Sustainability Co-ordinator has also reported three times a year to the Environmental Review Committee. Again, as a result of the re-structure, the Sustainability Co-ordinator will take a more active role in convening the committee and in developing it as an active forum for continual improvement.</p> <p>Other staff, including the Capital Projects Manager, the farms team and the estates team continue to exercise their responsibilities in terms of developing renewable energy projects, ensuring our farms’ adaptation to ongoing climate change and making ongoing energy efficiency improvements to the estate. The Sustainability Co-ordinator supports their work.</p>						
2c	<p><b>Does the body have specific climate change mitigation and adaptation objectives in its</b></p>	<p>A new corporate plan for 2016-2021 was adopted in May 2016 and includes some specific objectives relating to climate change:</p> <table border="1" data-bbox="472 1358 1995 1398"> <thead> <tr> <th data-bbox="472 1358 981 1398">Wording of Objective</th> <th data-bbox="981 1358 1487 1398">Name of Document</th> <th data-bbox="1487 1358 1995 1398">Link</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Wording of Objective	Name of Document	Link			
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	<b>corporate plan or similar document?</b>	<p>“Climate Action: From agriculture to the psychology behind lifestyle choices, every aspect of the Institute’s work has adaptation to or mitigation of climate change woven into it:</p> <ul style="list-style-type: none"> <li>• reducing inputs to crop production</li> <li>• promoting management that conserves peatlands for carbon storage</li> <li>• providing key information for protecting our natural resources under a changing climate</li> <li>• developing crops and varieties adapted to the environment they are grown and used in.” (p. 6)</li> </ul>	<p>The James Hutton Institute Transformative Science Strategy 2016-21</p>	<p><a href="#">Public Link</a></p>	
		<p>In the course of our business the James Hutton Institute will seek to:</p> <ul style="list-style-type: none"> <li>• Reduce the Institute’s greenhouse gas emissions/ carbon footprint in particular from travel and energy consumption.</li> <li>• Implement an Environmental Strategy to improve our environmental performance and contribute to sustainable development.</li> <li>• Ensure the Institute chooses more sustainable products and services and engages with its suppliers to understand and reduce the impacts of supply chains.</li> </ul> <p>[...]</p> <ul style="list-style-type: none"> <li>• Invest, wherever feasible, in agri-renewables</li> </ul> <p>[...] (pp. 54-55)</p>	<p>James Hutton Institute Corporate Plan 2016-2021</p>	<p>Internal document. No public link</p>	
		<p>Implement measures to allow accurate Climate Change Reporting as required by the Climate Change (Scotland) Act 2009. (p. 55, see also p. 51)</p>	<p>James Hutton Institute Corporate Plan 2016-2021</p>	<p>Internal document. No public link</p>	

		Implement the Agri-renewables strategy; progress business cases for Bullion field solar meadow and other agri-renewable projects. (p. 50, see also pp. 32, 53 and 57)	James Hutton Institute Corporate Plan 2016-2021	Internal document. No public link		
		Reduce the Institute's greenhouse gas emissions/carbon footprint from travel: carry out a vehicle review to identify and implement most economic and environmentally sustainable options for the Institute's fleet of cars. (p. 55)	James Hutton Institute Corporate Plan 2016-2021	Internal document. No public link		
		Replace office, workshop and glasshouse light fittings with equivalent LED fittings. (p. 55)	James Hutton Institute Corporate Plan 2016-2021	Internal document. No public link		
<b>2d</b>	<b>Does the body have a climate change plan or strategy?</b>	<p>The James Hutton Institute has a Corporate Environmental and Sustainability Strategy (2019-2021). This was agreed by the Environmental Review Committee in November 2018 and is an improvement over the previous strategy. It is designed to help the Institute meet and exceed our legislative obligations and to improve our environmental performance.</p> <p>The strategy has four main aims:</p> <ul style="list-style-type: none"> <li>• Reduce the Institute's carbon footprint</li> <li>• Reduce energy costs</li> <li>• Reduce waste costs</li> <li>• Support the Institute's value of 'We lead by example'</li> </ul> <p>And six objectives:</p> <ol style="list-style-type: none"> <li>1) Set and achieve environmental impact reduction targets.</li> <li>2) Improve monitoring of the Institute's environmental Key Performance Indicators (KPI) specifically energy, travel, waste and water.</li> <li>3) Encourage staff engagement in sustainable development and resource efficiency through communication campaigns and workplace initiatives.</li> <li>4) Progress renewable energy projects on the Institute's estate.</li> <li>5) Review the Institute's approach to climate change adaptation.</li> <li>6) Maintain an Environmental Management System that meets the requirements of ISO 14001: 2015</li> </ol> <p>The strategy also identifies the different parties involved in implementing the objectives as well as ways of monitoring progress.</p>				
<b>2e</b>	<b>Does the body have any plans or</b>	<b>Topic area</b>	<b>Document name</b>	<b>Link</b>	<b>Time period covered</b>	<b>Comments</b>

<b>strategies covering the following areas that include climate change?</b>	Adaptation	Corporate Environmental and Sustainability Strategy	No public link	2019-2021	Objective 5 covers climate change adaptation
	Business travel	Travel Plan	No public link	2015 onwards	
	Staff travel	Travel Plan	No public link	2015 onwards	
	Energy efficiency	Corporate Environmental and Sustainability Strategy	No public link	2019-2021	Objectives 1-4 cover various aspects of energy
	Fleet transport	Travel Plan	No public link	2015 onwards	
	IT				
	Renewable Energy	Corporate Environmental and Sustainability Strategy	No public link	2019-2021	Objective 4 covers renewable energy projects
	Sustainable/ renewable heat	Corporate Environmental and Sustainability Strategy	No public link	2019-2021	Objective 4 covers renewable energy projects, including heat
	Waste management	Corporate Environmental and Sustainability Strategy	No public link	2019-2021	Objectives 2 and 3 cover waste
	Water and sewerage	Corporate Environmental and Sustainability Strategy	No public link	2019-2021	Objectives 2 and 3 cover water
	Land Use	Glensaugh Trasformation Plan	<a href="https://glensaugh.hutton.ac.uk/">https://glensaugh.hutton.ac.uk/</a>	2020-2023	Our research farm is being developed as a climate-positive land use initiative.
	Other				
<b>2f</b>	<b>What are the body's top 5 priorities for climate change governance, management and strategy for the year ahead?</b>	<ol style="list-style-type: none"> <li>1. Revise our Environmental Management System to get the best value out of our ISO14001 accreditation, making sure we use it to its full potential.</li> <li>2. Ensure that our commitment to action on climate change comes through in our operational strategy as we develop the Hutton Corporate Plan 2021-2026.</li> <li>3. Continue to push forward projects to reduce our greenhouse gas emissions in the areas of heating, electricity use and travel.</li> <li>4. Maintain the Environmental KPI Dashboard for the Institute, internally sharing up-to-date data on energy and resource consumption, costs and associated GHG emissions.</li> <li>5. Submit the 19/20 public bodies climate change duties report in the new reporting format, continuing to improve the quality and breadth of reporting across all parts of the report.</li> </ol>			

<b>2g</b>	<b>Has the body used the Climate Change Assessment Tool (a) or equivalent tool to self-assess its capability / performance?</b>	No. The tool was last run in October 2015 and included in the report for FY14/15. The results at that time were: Governance (36%) Emissions (7%) Adaptation (0%) Behaviour (20%) Procurement (13%)
<b>2h</b>	<b>Supporting information and best practice</b>	

### Section 3 – Emissions, Targets and Projects

<b>3a</b>	<b>Emissions from start of the year which the body uses as a baseline (for its carbon footprint) to the end of the report year.</b>	<table border="1"> <thead> <tr> <th>Year</th> <th>Scope 1</th> <th>Scope 2</th> <th>Scope 3</th> <th>Total</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>14/15</td> <td>1539</td> <td>3795</td> <td>332</td> <td>5666</td> <td>Electricity and gas only</td> </tr> <tr> <td>15/16</td> <td>1684</td> <td>3387</td> <td>280</td> <td>5351</td> <td>Electricity and gas only</td> </tr> <tr> <td>16/17</td> <td>1750</td> <td>3010</td> <td>763</td> <td>5523</td> <td>Electricity, gas and flights (flights add 491t to Scope 3)</td> </tr> <tr> <td>17/18</td> <td>1586</td> <td>2464</td> <td>604</td> <td>4654</td> <td>Electricity, gas and flights (flights added 374t to Scope 3)</td> </tr> <tr> <td>18/19</td> <td>1619</td> <td>1833</td> <td>788</td> <td>4240</td> <td>Scope enlarged to include energy, fuels, all transport, waste and water. Total footprint would have been 4044 if calculated on the same basis as last year.</td> </tr> <tr> <td>19/20</td> <td>1671</td> <td>1599</td> <td>680</td> <td>3950</td> <td>Scope identical to 18/19. Our footprint has reduced by 7% year-on-year.</td> </tr> </tbody> </table>						Year	Scope 1	Scope 2	Scope 3	Total	Comments	14/15	1539	3795	332	5666	Electricity and gas only	15/16	1684	3387	280	5351	Electricity and gas only	16/17	1750	3010	763	5523	Electricity, gas and flights (flights add 491t to Scope 3)	17/18	1586	2464	604	4654	Electricity, gas and flights (flights added 374t to Scope 3)	18/19	1619	1833	788	4240	Scope enlarged to include energy, fuels, all transport, waste and water. Total footprint would have been 4044 if calculated on the same basis as last year.	19/20	1671	1599	680	3950	Scope identical to 18/19. Our footprint has reduced by 7% year-on-year.
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	Natural Gas	1	7,668,422	kWh	1,409.84	Last year: 7,316,271 kWh and 1346 tons. This includes the gas burned in our combined heat and power plant.
	<i>Fuels</i>				261.00	
	Diesel (average biofuel blend)	1	96,081	Litres	249.24	Balruddery, Invergowrie and Glensaugh red diesel, Institute fuel cards, some additional deliveries to Craigiebuckler and some staff expense claims. Last year: 98,298 litres and 258.22 tons.
	Petrol (average biofuel blend)	1	4,040	Litres	8.92	Institute fuel cards and some additional deliveries to Craigiebuckler. Last year: 5,004 litres and 11.02 tons.
	LPG	1	1027	Litres	1.56	Propane for the forklifts and caravans in Invergowrie. Last year: 583 litres and 0.89 tons.
	Burning oil (Kerosene)	1	500	Litres	1.27	Glensaugh. Last year: 1,000 litres and 2.54 tons.
	<i>Travel</i>				522.65	
	Domestic Flights (average passenger)	3	168,977	Passenger-km	43.08	Data from our travel booking system. Last year: 285,449 km and 85.16 tons.
	Domestic Flights (average passenger)	3	21,264	Passenger-km	5.26	Estimate of flights paid for outwith our travel booking system. Last year: 49,038 and 14.63 tons.
	Short-haul flights (average passenger)	3	664,840	Passenger-km	105.26	Data from our travel booking system. Last year: 556,422 km and 90.34 tons.
	Short-haul flights (average passenger)	3	26,845	Passenger-km	4.25	Estimate of flights paid for outwith our travel booking system. Last year: 56, 406 and 9.16 tons.
	Long-haul flights (average passenger)	3	1,453,585	Passenger-km	280.83	Data from our travel booking system. Last year: 1,643,539 km and 349.35 tons.
	Long-haul flights (average passenger)	3	57,286	Passenger-km	11.21	Estimate of flights paid for outwith our travel booking system. Last year: 57,060 km and 12.13 tons.
	Rail (National rail)	3	542,352	Passenger-km	22.32	Data from our travel booking system. Last year: 577,102 km and 25.53 tons.
	Rail (National rail)	3	136,257	Passenger-km	5.61	Estimate of rail travel paid for outwith our travel booking system. Last year: 164,620 km and 7.28 tons.



	Average Car – Unknown Fuel	3	187,141.54	Km	33.14	General business mileage. Last year: 82,794.63 km and 14.96 tons.
	Average Car – Unknown Fuel	3	65,990.88	Km	11.69	Intersite mileage. Last year: 20,888.9 km and 3.77 tons.
	<b>Waste</b>		<b>257.37</b>		<b>3.54</b>	
	Refuse Commercial & Industrial to Landfill	3	7.15	Tonnes	0.71	Invergowrie. Last year: 1.03 t waste and 0.10 tons emissions
	Refuse Municipal / Commercial / Industrial to Combustion	3	8.78	Tonnes	0.19	Invergowrie. Last year 11.38 t waste and 0.24 t emissions.
	Construction (Average) Recycling	3	126.48	Tonnes	0.17	Invergowrie. Last year : 97.92 t waste and 0.13 t emissions.
	Organic Food & Drink Composting	3	1.79	Tonnes	0.02	Invergowrie. Last year : figures not available.
	Mixed Recycling	3	88.89	Tonnes	1.90	Invergowrie. Last year : 44.83 t waste and 0.96 t emissions.
	WEEE (Mixed) – Recycling	3	3.18	Tonnes	0.07	Invergowrie. Last year : figure not available.
	Refuse Commercial & Industrial to Landfill	3	0.8	Tonnes	0.07	Craigiebuckler. Last year: 0.7 t waste and 0.07 t emissions.
	Refuse Municipal / Commercial / Industrial to Combustion	3	8.3	Tonnes	0.18	Craigiebuckler. Last year: 7.9 t waste and 0.17 t emissions.
	Organic Food & Drink Composting	3	2.3	Tonnes	0.21	Craigiebuckler. Last year: 2.91 t waste and 0.03 t emissions.
	Mixed Recycling	3	9.7	Tonnes	0.02	Craigiebuckler. Last year: 10.13 t waste and 0.22 t emissions.
	<b>Water</b>				<b>17.64</b>	
	Water – supply	3	3,707	m3	1.28	Craigiebuckler. Last year: 3,977 m3 and 1.37 tons.
	Water – treatment	3	3,522	m3	2.49	Craigiebuckler. Estimated as 95% of supply, as recommended in the Reporting Guidance from SSN. Last year: 3,778 m3 and 2.67 tons.
	Water – supply	3	13,644	m3	4.69	Invergowrie. Meter not functional, so reporting same usage as last year: 13,644 m3 and 4.69 tons.

		Water – treatment	3	12,962	m3	9.18	Invergowrie. Estimated as 95% of supply, as recommended in the Reporting Guidance from SSN. Last year 12,962 m3 and 9.18 tons.																				
<b>3c</b>	<b>Generation, consumption and export of renewable energy</b>	<table border="1"> <thead> <tr> <th>Technology</th> <th>Consumed on-site (kWh)</th> <th>Exported (kWh)</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>Solar PV</td> <td>31,364</td> <td>0</td> <td>Invergowrie PV – AN (last year 33,405 kWh). We do not export to the grid as peak generation is less than baseload electricity demand.</td> </tr> <tr> <td>Solar PV</td> <td>27,187</td> <td>0</td> <td>Invergowrie PV – AO (last year 28,616 kWh). We do not export to the grid as peak generation is less than baseload electricity demand.</td> </tr> <tr> <td>Solar PV</td> <td>50,669</td> <td>0</td> <td>Invergowrie PV – AP (last year 53,427 kWh). We do not export to the grid as peak generation is less than baseload electricity demand.</td> </tr> <tr> <td>Solar PV</td> <td>11,583</td> <td>25,780</td> <td>Glensaugh PV (last year 39,379 kWh).</td> </tr> </tbody> </table>						Technology	Consumed on-site (kWh)	Exported (kWh)	Comments	Solar PV	31,364	0	Invergowrie PV – AN (last year 33,405 kWh). We do not export to the grid as peak generation is less than baseload electricity demand.	Solar PV	27,187	0	Invergowrie PV – AO (last year 28,616 kWh). We do not export to the grid as peak generation is less than baseload electricity demand.	Solar PV	50,669	0	Invergowrie PV – AP (last year 53,427 kWh). We do not export to the grid as peak generation is less than baseload electricity demand.	Solar PV	11,583	25,780	Glensaugh PV (last year 39,379 kWh).
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					This year's figures include a revised estimate of our grid export. We estimate this at 69%, whereas we previously assumed it was 0%.
		Wind	0	0	Glensaugh Wind turbine off-line (last year: also 0). Work is ongoing to bring the turbine back on-line.

<b>3d</b>	<b>Targets</b>	<b>Name of target</b>	<i>Total electricity consumption reduced by 14%</i>	<i>Proportion of renewable electricity increased to 15% of total consumption</i>	<i>No increase in heating demand</i>	<i>Proportion of renewable heat increased to 25% of total demand</i>
		<b>Type of target</b>	Percentage	Percentage	Cap	Percentage
		<b>Units</b>	Total % reduction	% increase	kWh reduction	% increase
		<b>Boundary/ scope of target</b>	Energy use in buildings	Energy use in buildings	Energy use in buildings	Energy use in buildings
		<b>Progress against target</b>	6,609,621	13%	7,668,422	0%
		<b>Year used as baseline</b>	2016/17	2017/18	2016/17	2016/17
		<b>Baseline figure</b>	7,707,830	10%	9,513,395	0%
		<b>Units of baseline</b>	kWh	Other (specify in comments)	kWh	Other (specify in comments)
		<b>Target completion year</b>	2020/21	2020/21	2020/21	2020/21
		<b>Comments</b>	Including all electricity import and self-consumed solar PV and CHP generation. Current value is 86% of the baseline.	Proportion of renewable electricity in the above total consumption figure. Including on-site solar PV and the proportion of our	Heat demand, currently measured as natural gas consumption. Current value is 81% of the baseline. This means the	Proportion of renewable heat in the above total heat demand figure. Progress on the

		This means the target has been met, one year early.	electricity supply mix that is renewable. There has been no progress towards the target this year.	target of “no increase” has been achieved.	Craigiebuckler heat pump project stalled in 2019/20 and the focus shifted to the Invergowrie site.
	<b>Target</b>	6,628,734 [15% reduction]	15%	9,513,395	25%

<b>3e</b>	<b>Estimated total annual carbon savings from all projects implemented by the body in the report year</b>			
		<b>Source</b>	<b>Estimated savings</b>	<b>Comments</b>
		Electricity	160	Our operations teams make continuous improvements to the estate (e.g. lighting, IT equipment) that are gradually reducing our electricity use over time. A change made in Invergowrie in October 2017 has resulted in a sustained 10% drop (~530,000 kWh) in the site’s annual electricity consumption. This equates to around 160 tCO <sub>2</sub> e per year.
	Natural gas	110	Changes to the Craigiebuckler heat distribution system in April 2018 resulted in a reduction in heat demand from 3.2GWh/year to 2.6GWh/year (estimated). This equates to 110 tCO <sub>2</sub> e per year.	

		Other heating fuels	0		
		Waste	0		
		Water and Sewerage	0		
		Business Travel	0		
		Fleet transport	0		
		Other			
		<b>TOTAL</b>	<b>0</b>		

<b>3f</b>	<b>Detail the top 10 carbon reduction projects to be carried out by the body in the report year</b>	<b>Project Name</b>	<i>Invergowrie electricity efficiency savings</i>	<i>Craigiebuckler heating system changes</i>
		<b>Funding source</b>	Internal	Internal
		<b>First full year of CO2e savings</b>	2018/19	2018/19
		<b>Are these savings figures estimated or actual</b>	Estimated	Estimated
		<b>Capital cost (£)</b>		
		<b>Operational cost (£/annum)</b>	0	0
		<b>Project lifetime (years)</b>		
		<b>Primary fuel / emission source saved</b>	Grid Electricity	Natural Gas
		<b>Estimated carbon savings per year (tCO2e/annum)</b>	160	110
		<b>Estimated cost savings (£/annum)</b>	53,000	10,800
		<b>Behaviour change aspects including use of ISM</b>	n/a	n/a
<b>Comments</b>	Note that annual carbon savings from electricity reductions will reduce over time as the grid decarbonises.	Replaced valves in the air handling system that allowed more than two-thirds of the air in the building to be recirculated.		

<b>3g</b>	<b>Estimated decrease or increase in the body's emissions</b>	<b>Emissions Source</b>	<b>Total estimated annual</b>	<b>Increase or decrease in emissions</b>	<b>Comments</b>
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	attributed to factors (not reported elsewhere in this form) in the report year		emissions (tCO <sub>2e</sub> )																																	
		Estate changes																																		
		Service provision																																		
		Staff numbers																																		
		Other (specify in comments)																																		
3h	Anticipated annual carbon savings from all projects implemented by the body in the year ahead	<table border="1"> <thead> <tr> <th>Source</th> <th>Estimated savings</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td>Electricity</td> <td>0</td> <td></td> </tr> <tr> <td>Natural gas</td> <td>0</td> <td></td> </tr> <tr> <td>Other heating fuels</td> <td>0</td> <td></td> </tr> <tr> <td>Waste</td> <td>0</td> <td></td> </tr> <tr> <td>Water and Sewerage</td> <td>0</td> <td></td> </tr> <tr> <td>Business Travel</td> <td>0</td> <td></td> </tr> <tr> <td>Fleet transport</td> <td>0</td> <td></td> </tr> <tr> <td>Other</td> <td></td> <td></td> </tr> <tr> <td><b>TOTAL</b></td> <td><b>0</b></td> <td></td> </tr> </tbody> </table>					Source	Estimated savings	Comments	Electricity	0		Natural gas	0		Other heating fuels	0		Waste	0		Water and Sewerage	0		Business Travel	0		Fleet transport	0		Other			<b>TOTAL</b>	<b>0</b>	
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		Estate changes																																		
		Service provision																																		
		Staff numbers																																		
		Other (specify in comments)																																		
3j	Total carbon reduction project	<b>Total savings:</b> 646 tCO <sub>2e</sub> <b>Comments:</b>																																		

	<b>savings since the start of the year which the body uses as a baseline for its carbon footprint</b>	Caretaker's van replaced with an EV in FY15/16: 2tCO <sub>2</sub> e/year x 5 years = 10 tCO <sub>2</sub> e Craigiebuckler heating reduction since April 2018: 110tCO <sub>2</sub> e/year x 2 years = 220 tCO <sub>2</sub> e Invergowrie electricity use reduction since October 2017: 160 tCO <sub>2</sub> e in 18/19 and 19/20 + 96 tCO <sub>2</sub> e in 17/18 = 416 tCO <sub>2</sub> e
<b>3k</b>	<b>Supporting information and best practice</b>	

## Section 4 – Adaptation

<b>4a</b>	<b>Has the body assessed current and future climate-related risks?</b>	The James Hutton Institute has not assessed current and future climate-related risks in a structured way. However, researchers at the James Hutton Institute are instrumental to a range of projects assessing the risks posed by climate change to Scotland as a whole. See descriptions below.
<b>4b</b>	<b>What arrangements does the body have in place to manage climate-related risks?</b>	As of the end of the reporting period (March 2020), climate-related risks would only have come to the attention of the Institute's management structure insofar as they directly affected our ongoing operations. Incidents such as storm or flood damage or droughts would be dealt with by the Estates team or the Farms, Fields and Glasshouses department.
<b>4c</b>	<b>What action has the body taken to adapt to climate change?</b>	<p>While we do not (yet) have an Institute-wide strategic approach to adapting to climate change, our farms are participants in the "Farming for Better Climate" programme (<a href="https://www.farmingforabetterclimate.org/">https://www.farmingforabetterclimate.org/</a>). Balruddery Farm in Invergowrie and Glensaugh Research Farm near Laurencekirk are both case studies for the programme.</p> <p>At Balruddery Farm (and Mylnefield Farm which is adjacent), we have implemented:</p> <ul style="list-style-type: none"> <li>- "Tied ridges" in potato fields, to keep water on the field and reduce run-off. This prevents erosion and reduces the pollution caused by heavy rainfall.</li> <li>- Similarly, our farm managers have developed a new way to form field margins (called "Magic Margins"). The textured surface slows field run-off, reducing erosion and preventing potential pollution caused by heavy rain fall.</li> <li>- Mixed hedgerow planting and tree lines will mitigate the impact of strong winds, acting as natural wind breaks to protect our polytunnel structures.</li> <li>- Drilling commercial crops by contour drilling across sloping fields encourages infiltration and reduces the impact of heavy rains.</li> </ul> <p>At Glensaugh Research Farm, we have implemented:</p> <ul style="list-style-type: none"> <li>- Woodland planting to replace shelterbelts that were felled during World War I.</li> <li>- Replacing suckler cows with sheep and replacing low-ground sheep breeds with hill breeds to reduce the farm's reliance on conserved winter feed.</li> </ul>

		<p>More information on Balruddery and Glensaugh's efforts to adapt to a changing climate can be found at the following links:</p> <p><a href="https://www.farmingforabetterclimate.org/wp-content/uploads/2018/01/balruddery_adapting_changing_climate.pdf">https://www.farmingforabetterclimate.org/wp-content/uploads/2018/01/balruddery_adapting_changing_climate.pdf</a></p> <p><a href="https://www.farmingforabetterclimate.org/wp-content/uploads/2018/01/glensaugh_research_station_adapting_changing_climate.pdf">https://www.farmingforabetterclimate.org/wp-content/uploads/2018/01/glensaugh_research_station_adapting_changing_climate.pdf</a></p>
<b>4d</b>	<b>Where applicable, what progress has the body made in delivering the policies and proposals referenced N1, N2, N3, B1, B2, B3, S1, S2 and S3 in the Scottish Climate Change Adaptation Programme(a) ("the Programme")?</b>	<p>The Institute is a Major Research Provider for the Scottish Government's portfolio of strategic research on Environment, Agriculture and Food (2016-2021). This includes research both in the main programme of work and within the centres of expertise on climate (ClimateXChange) and water (CREW). Details available here: <a href="https://www2.gov.scot/Topics/Research/About/EBAR/StrategicResearch">https://www2.gov.scot/Topics/Research/About/EBAR/StrategicResearch</a></p> <p>(Also see Question 4h for more information)</p> <p>[Same answer copy-pasted into the rows for Objectives N1, B1 and S1:]</p> <p>N1: Understand the effects of climate change and their impacts on the natural environment.</p> <p>B1: Understand the effects of climate change and their impacts on buildings and infrastructure networks.</p> <p>S1: Understand the effects of climate change and their impacts on people, homes and communities.]</p>
<b>4e</b>	<b>What arrangements does the body have in place to review current and future climate risks?</b>	None as of March 2020.
<b>4f</b>	<b>What arrangements does the body have in place to monitor and evaluate the impact of the adaptation actions?</b>	<p>The James Hutton Institute does not have a structured programme for evaluating the adaptation actions listed in 4c and 4d.</p> <p>The actions taken on the farms are monitored by the farm managers.</p> <p>The research projects undertaken are subject to their own monitoring and evaluation, usually as part of the funding contract.</p>
<b>4g</b>	<b>What are the body's top 5 priorities for the year ahead in relation to climate change adaptation?</b>	<ol style="list-style-type: none"> <li>1. Ensure that the Hutton Corporate plan 2021-2026 includes an assessment of the risks posed to the Institute by climate change.</li> <li>2. Ensure that the Hutton Corporate plan 2021-2026 and associated strategies include actions to address the risks identified above.</li> <li>3. Review and publicise the adaptation work that is already ongoing on the Institute's estate. [ongoing action]</li> <li>4. Review and publicise the work the Institute is doing to contribute to the SCCAP. [ongoing action]</li> </ol>
<b>4h</b>	<b>Supporting information and best practice</b>	Our research work is mainly included in the Scottish Climate Change Adaptation Programme (SCCAP) as the very broad objective N1-11 related to continuing the Strategic Research Programme. However, there are more references to ClimateXChange (CXC), the Centre for Expertise for Waters (CREW) and research work in Objectives N1, B1, S1 and elsewhere throughout the SCCAP.



		<p>Of specific relevance to climate change adaptation in the financial year 2019/20, are many research projects carried out under the umbrella of the Centre of Expertise for Waters (CREW), which is hosted at the James Hutton Institute. More generally, our research in the 2016-2021 strategic research programme directly addresses many of the climate risks listed on pp. 109-110 of the SCCAP:</p> <ul style="list-style-type: none"> <li>• Changes in wheat yield</li> <li>• Changes in potato yield</li> <li>• Changes in spring barley yield</li> <li>• Changes in winter barley yield</li> <li>• Risk of crop pests and diseases</li> <li>• Drier soils</li> <li>• Changes in grassland productivity</li> <li>• Increase in [soil] greenhouse gas emissions</li> <li>• Soil erosion and leaching</li> <li>• Waterlogging effects</li> <li>• Agricultural land classification and crop suitability</li> <li>• Human food supply from domestic agriculture</li> <li>• Environmental effects of climate change mitigation measures [e.g. environmental effects of renewable energy developments]</li> <li>• Changes in soil organic carbon</li> <li>• Agricultural intensification</li> </ul>
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## Section 5 - Procurement

5a	<p><b>How have procurement policies contributed to compliance with climate change duties?</b></p>	<p>The Institute approved a new procurement strategy in February 2016. This new strategy is a significant improvement on the previous procurement policy in terms of addressing our climate change duties. Indeed, one of the explicitly stated overall aims of the new strategy is to “Back the Institute’s commitment to sustainable development and corporate social responsibility”.</p> <p>The strategy is based on 6 key procurement principles, the last 3 of which are relevant to our climate change duties:</p> <ul style="list-style-type: none"> <li>• Value for Money</li> <li>• Transparency and Accountability</li> <li>• Efficiency</li> <li>• Sustainability</li> <li>• Compliance</li> <li>• Social Responsibility</li> </ul> <p>In terms of implementing these principles, the strategy sets out some objectives. Objective 2 is to “Maximise the delivery of responsible procurement”, including specifically “adopt the Scottish Government Sustainable Procurement Action Plan”.</p>
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		<p>In December 2018, the Institute adopted a <a href="#">Sustainable Procurement Policy</a>, which states a high-level commitment to consider a broad range of sustainability aspects throughout the lifecycle of every product and service used.</p> <p>“Specifically, we aim to:</p> <ul style="list-style-type: none"> <li>• Reduce, Re-Use, Repair or Share before making any commitment to purchase goods or services.</li> <li>• Include sustainability criteria in every contract specification and evaluation.</li> <li>• Assess the potential for new technologies or innovative working practices through our procurement process to reduce our overall environmental impact.</li> <li>• Purchase items which can be recycled or will have least impact on the environment at end of life.</li> <li>• Use our spending power to work with our suppliers to promote and implement socio-economic and environmental sustainability throughout our supply chain.</li> <li>• Continually seek to purchase low energy products and services wherever these are available.</li> <li>• Collaborate with other Organisations to reduce our environmental impact by means of sharing products and services.”</li> </ul>
<b>5b</b>	<b>How has procurement activity contributed to compliance with climate change duties?</b>	From April 2019, our electricity supply has been fully backed by Renewable Energy Generation Obligation (REGO) certificates. While this does not directly create more low-carbon electricity in the UK, it increases the demand for REGOs, driving up their market price and indirectly increases the revenue of renewable electricity generators. As such, it is a step in the right direction.
<b>5c</b>	<b>Supporting information and best practice</b>	n/a

## Section 6 – Validation and Declaration

<b>6a</b>	<b>Internal validation process</b>	<p>An early version of this report was circulated to the Environmental Review Committee for discussion at the July 2020 meeting and a full draft presented at the November 2020 meeting.</p> <p>The report was finalised after the November meeting, taking on board feedback from the committee and from the peer validation exercise (see 6b). It was then circulated to the Environmental Review Committee a second time for information and to the Director of Operations for final revisions before submission.</p>
<b>6b</b>	<b>Peer validation process</b>	As in previous years, this submission has been shared with colleagues at Robert Gordon University, the University of Aberdeen and the University of Dundee. This was disrupted by some contacts being on furlough, but where possible, we provided feedback on their submissions in return.
<b>6c</b>	<b>External validation process</b>	The emissions data reported in 3b has also been included in our Streamlined and Energy Carbon Reporting (SECR). This is included in our annual trustee’s report and group financial statements, which are externally audited. The financial report will be available here: <a href="https://www.hutton.ac.uk/about/documents">https://www.hutton.ac.uk/about/documents</a>

		For the other sections of this report, we feel that the internal and peer validation process are highlighting enough areas of potential improvement at this stage and that an external audit or assessment would not add much value.
<b>6d</b>	<b>No Validation Process</b>	n/a
<b>6e</b>	<b>Declaration</b>	Joshua Msika, Sustainability Co-ordinator, The James Hutton Institute