#### Peatland Code



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#### Peatland Code

- A voluntary certification standard for UK peatland projects
- Enables the marketing of the climate benefits of peatland restoration by emission reductions
- Provides assurances to voluntary carbon market buyers
- CO2 units sold are real, quantifiable, additional and permanent



#### The Peatland Code

- Support's the restoration of UK peatlands
- A project can be entirely funded through carbon finance or blended with public funding sources
- Generate new income streams for peatland restoration through the sale of carbon units
- The additional funding can be used to restore, manage, and maintain peatlands





#### Peatland Code



- It sets out a series of best practice requirements
- Includes a standard method for quantification of CO2 emissions
- Independent validation to this standard provides assurance
- Ensures the carbon benefit will be monitored over the lifetime of the project (30-100 years)

#### Selling Peatland Carbon Units

- Peatland Carbon Units can only be sold in the UK on the voluntary carbon market
- A project can sell carbon units directly to a business
- or the project may wish to employ a broker to find a buyer
- Peatland Carbon Units can be sold at any point, and need not all be sold at once
- The financial market is largely unregulated
- buyers can purchase carbon units through the UK Land Carbon Registry



- Peatland Carbon Units are only available to purchase from Peatland Code projects in the UK
- the Peatland Code Registry on IHS Markit, now a part of S&P Global, displays all projects and available carbon units.
- A contract between the buyer and a project details the number and price of units in the transaction, as well as other T&Cs
- IUCN Peatland Programme has no involvement in the sale of carbon units

#### Peatland Code Governance

- Set up by the International Union for Conservation of Nature UK National Committee
- Managed by an Executive Board
- Supported by a Peatland Code Technical Advisory Board
- Made up of environmental NGOs, government and devolved agencies, research bodies and regional peatland partnerships



# Eligibility



- Blanket bogs
- Raised bogs
- Fens
- Minimum peat depth of 30cm
- No legal requirement to restore a site (i.e. planning permission)
- Does not conflict with other land management
- There has been no drainage, peat cutting or similar removal of vegetation since 2015
- The project cannot take place without private finance

# PC project approval

- Approval against the Peatland Code standards follows a threestage process:
  - Pre-Restoration ValidationPost-Restoration ValidationVerification
- Submit documents 6 months prior to restoration works

#### **Overview of the Validation process:**

1. Pre-Restoration Validation Project plan and predicted GHG emission reductions evaluated.



2. Implementation of the Restoration Plan Restoration work takes places.

#### **3.** Post-Restoration Validation

Restoration work evaluated against the validated documents.

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#### Documentation

- Emissions calculator
- Additionality calculator
- Proof of any other income
- Risk assessment
- Project maps
- Management plan
- Monitoring plan
- Peat depths at each survey point
- Evidence that peat with a depth between 30-50 cm used to be deep peat in bogs
- Water table data for fens
- Baseline evidence
- Landowner and Project Developer commitments
- Land ownership evidence



# Other useful documents

- Proof of any stakeholder consultation outcomes:
  - Prior notification
     Archaeology
     Protected species/sites
- Georeferenced photographs and aerial photography showing baseline condition
- Additional maps
- Shapefiles
- Feasibility studies
- Herbivore pressure & Herbivore Impact Assessments





- A lot of paperwork and mapping required
- Appoint an Agent or PC Project Developer likely to be easiest

# Peatland Code mapping



- PC Field Protocol version
   2.0
- Map the features using aerial imagery using GIS package such as QGIS
- Erosion gullies, hags, drains and bare peat

#### Create assessment units from mapping work



#### Field work

- Peat depth survey
- Peatland Condition assessment
- Photography & drones
- Habitat mapping



#### **Project Map**



#### Emissions Calculator

Peatland Code Emissions Calculator (Version 1.2, November 2020)

Table 1

• Assessment units (ha)

- Pre & Post condition
- Project duration
- Emission savings

2	Beinn Vean P1	Assessment Unit	Area (ha)	Pre-Restoration (Baseline) Condition Cate	gory Post-Restoration Condition Cat
leting calculation	Stephen Corcoran	AU1	0.4	Actively Eroding: Flat Bare	Drained: Re-vegetated AE
lion completed	03/06/2021	AU2	8.52	Actively Eroding: Hagg/Gully	Drained: Re-vegetated AE
t date (end of restoration & start of carb	oon				
	30 March 2022	AU3	32.28	Dramed: Artificial	Modified
ation (yrs)	95	AU4	60.85	Drained: Hagg/Gully	Modified
O2e/yr)	0	AU5			
		AU6			
		AU7			
		AU8			
		AU9			
		AU10			
		Tota	102.05		Claimable
Verification			Net Emi	sions Rick Buffor	Emissions
vears since start			reductio	on ner Contribution ner	Reduction per
date	Vintage Start Date	Vintage End Date	vintage (	tCO2e) vintage (tCO2e)	vintage (tCO2e)
Total				30645 4597	26048
ivtai					20040

Table 2

#### Current emission factors in V2.0 of PC

AE: hag/gully	A linear feature of bare peat (hag or gully bottom) that is <mark>actively eroding</mark> within hag/gully	17.72
-	Artificial drains which have opened so they are bare and actively eroding	17.72
AE: bare peat	Bare peat (e.g. bare peat pan or former peat extraction site)	17.72
Artificial (drain)	Within 30m of an active artificial drain (grip)	3.32
Artificial (bag/gully)	Within 20m of an actively eroding hag/gully drainage system	2 51
Artificial (flag/gully)	within som of an actively crouing hag/guily dramage system	2.31
	Within 30m of a vegetated hag/gully drainage system	2.51
Modified	Evidence present that it is still a degraded system	2.51

#### Post restoration emission categories

- Revegetated (3.42 tCO2e)
- Modified (2.51 tCO2e)
- Re-wetted modified bog (0.32 tCO2e)
  - Within 30m of a rewetted artificial drainage or hag/gully system (active flow interrupted by restoration activities)
  - Sphagnum in parts or scattered patches of Calluna vulgaris & extent of bare peat limited to small patches
- Near natural (0.32 tCO2e)

#### Prepare all documents



 Field work & mapping enables rest of documents to be completed for the Code

#### Future proof documentation



- Are the management & monitoring plans robust to last 95+ years?
- Contain relevant details to aid future project developers

#### Role of the Validation Auditor

- The Validator has to ensure that each requirement of the Code is met
- Are the Greenhouse Gas (GHG) emissions reduction asserted?
- Liaise with the Project Developer to provide evidence that is compliance to the Standards
- Request supporting evidence



#### Completion of Audit

- Once the Validator is happy, the Key Project Documents go to an independent Reviewer
- They double check the documents and raise any issues
- Key Project Documents then sent by SA to the IUCN to conduct a second review
- Once the IUCN approves them, the SA uploads the documents to the UK Land Carbon registry



#### Validation Statement

- If Soil Association is satisfied that it complies with the Code requirements a Validation Statement is issued
- The project will be listed on the UK Land Carbon Registry as Validated
- The Validation Statement will expire three years from the date of issue
- Restoration work can now start



#### Post-Restoration



- Validating body will arrange the Post-Restoration Validation
- A review of documentation and a site visit to determine if Peatland Code requirements have been met
- Remedial work maybe required
- A Restoration Validation Statement will be issued if site condition meets requirement

#### Post validation

- Periodic verification is required (year 5, 15 then every 10 years)
- To ensure that the emission reductions have occurred
- Confirm the site condition is maintained
- At each periodic review PIUs are verified to Peatland Carbon Units indicating emission reductions achieved





#### Typical Shetland peatland erosion

High CO2 emission value: 17.72 tCO2e/ha/yr

Potentially bring in the most PC income



High risk, some of most difficult features to restore, will require additional cash inputs in first 5-15 years



#### Peat slides



- Catastrophic loss of peat from a slide will not result in a cancellation of the Peatland Carbon Units
- The PC has a 15% buffer reducing emissions from every project to cover risks like this
- Project will need to show that peat slide risks were assessed and restoration work modified appropriately
- Land owner pays for any remedial work

#### Herbivore pressure

- A factor causing degraded peatland
- Recommended livestock density for blanket bogs is 0.02 livestock units per hectare
- An example Shetland common grazing has 180 ewes (27LUs) over 244 ha
- Equivalent of 0.11LUs/ha or over 5 times the recommended density
- What level of grazing is possible, reduce to 33 ewes??
- Important part of Shetland's culture



#### Herbivores, restoration & Peatland Code



- To ensure restoration success and compliance with Code will require stock reduction or stock exclusions on peatlands
- Probably need a >60% reduction in ewes?
- Fencing (real & virtual) possible options and costs included in project
- Factor in loss of income in Peatland Code finances (Additionality calculator)
- Rules on keeping land under cultivation?
- Future farm payment structure?
- Herbivore impact assessment monitoring vital

#### Herbivore impacts research

- Need to better understand grazing impacts on peatland
- Opportunity to trial different grazing densities
- Use of electronic collars
- Fencing
- Monitoring impacts
- Financed through PC



# On going project costs

- Validation costs by auditors
- Monitoring costs (minimum prior to each validation visit)
- Maintenance cost
- Agent costs
- Broker costs
- All can be included within the project finances
- Required over the whole project timescale (30 100 years)



Colondor Voor		Total	2022	2024	2025	2026	2027	2020	2020	2020	2021	2022	2022	Additionality
Project Duration (years)		10tai 0-99	2023	2024	2025	2028	2027	2028	2029	2030	2031	2032	2033	
roject bulation (years)		0.55		-	_	J		<u> </u>			J	<b>J</b>	10	spreadsheet
Costs														
	Item 1 Site assessment and wor	r 2500	2500											
	Item 2 Drain zipping and damm	i 16022.3	16022.3											
	Item 3 Gully blocking and re-pro	o 46440.6	46440.6											<ul> <li>Droject duration</li> </ul>
	Item 4 Timber dams	20400	20400											· FIOJECT UUTATION
Restoration,	Item 5 Hag re-profiling	32891.8	32891.8											· <b>F</b>
Management and	Item 6 Mobilisation to and from	r 2500	2500											<ul> <li>Emissions</li> </ul>
Maintenance Costs:	Item 7 Welfare cabin	1080	1080											- · ·
	Item 9 Project management cla	10000 a 5760	5760											<ul> <li>Capital costs</li> </ul>
	Item 10 Mileage (agent costs)	151.2	151.2											
	Item 11 Asset monitoring	25500		1700	1700	1700	1700	1700					1700	Maintenance
	Item 12 Asset maintenance	21750			7250		7250						7250	Mannenance
Subtotal		191795.9	144546	1700	8950	1700	8950	1700	0	0	0	0	8950	• Monitoring
														Womtoring
	Validation	5000	2500	2500				2500						. Draigat
Destland Code Coste	Verification	25000	1216 25					2500						• Project
Peatiand Code Costs:		1310.25	1310.25											
	PCU conversion fee	1310.23	1310.23											management
Subtotal		32632.5	5132.5	2500	0	0	0	2500	0	0	0	0	0	
		010010	0101.0		· ·	· ·	, , , , , , , , , , , , , , , , , , ,	2000	· ·	· ·	Ŭ	Ū	Ū	PC fees
	Item 1 e.g. Insurance	0												
Other Costs:	Item 2 i.e. broker fee	0												<ul> <li>&gt;15% private</li> </ul>
	Item 3	0												
Subtotal		0	0	0	0	0	0	0	0	0	0	0	0	financo
Tatal Casta		224420 4	140679.4	4200	8050	1700	9050	4200	0	0	0		0050	IIIaiice
TOTAL COSTS		224428.4	1490/8.4	4200	8920	1/00	8920	4200	U	U	U	U	8950	

# Example project income 1

Project duration			95		8.52	Ac	tively Eroding:	На	gg/Gully		
Restoration Costs (c	apital)	£	144,546		32.28	Dr	ained: Artificia	al			
PA grant		£	144,546		60.85	Dr	ained: Hagg/G	ully			
					26048	B En	nission reducti	on			
Site management co	sts	£	25,500								
Monitoring costs		£	21,750	95 yea	ars			50	years		
PC fees		£	32,633		26048	B PI	Js		15081	PIU	S
Total carbon finance	needed	£	79,883	Total	Profit	Pro	ofit per year	Тс	otal Profit	Prof	it per year
Carbon at £20/PIU		£	520,960	£	441,078	£	4,643	£	237,738	£	4,755
Carbon at £50/PIU		£	1,302,400	£	1,222,518	£	12,869	£	690,168	£	13,803
Carbon at £70/PIU		£	1,823,360	£	1,743,478	£	18,352	£	991,788	£	19,836
Carbon at £120/PIU		£	3,125,760	£	3,045,878	£	32,062	£	1,745,838	£	34,917

- A site with high emissions = severe erosion
- Low costs for restoration work
- Minimal costs for maintenance work
- Very high risk of failure requiring additional finance from land owner to achieve emission savings

Calendar Year		Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	
Project Duration	n (years)	0-99	0	1	2	3	4	5	6	7	8	9	10	
Costs														
	Peat Dams	13744	13744											Drainet 2
	Ditch Re-Profiling	11650	11650											FIUJELL Z
	Plastic Piling Dams	1850	1850											5
	Hagg Re-profiling	23440	23440											cost
	Mineral core Dams	1124	1124											CUSL
	Mobilisation	8500	8500											
	Transport of fuel & personnel	14500	14500											
	Bog Mat purchase	6720	6720											
Restoration.	Irrecoverable VAT	716	716											
Management	Project Officer Delivering Project	14870	14870											
and	Supporting Staff Time - Planning	g 8077	8077											
Maintenance														
Costs:	Brown and Shepherd bird survey	10080		480			480					480		
	Aerial photogrametery survey (i	r 6840					342					342		
	Vegetation scorecard survey	2520		120				120					120	
	Condition Assessment	4800					240					240		
	Annual restoration feature chec	47520		480	480	480	480	480	480	480	480	480	480	
	Fixed-point photography	11880		120	120	120	120	120	120	120	120	120	120	
	Project Officer Collating Information	a 35640		360	360	360	360	360	360	360	360	360	360	
		64.602						40007					64.60	
	Naintenance work	61683						12337					6168	
Subtatal	Delivery of Contract by Project	206054	105101	1560	060	060	2022	2160	060	060	060	2022	1080	
Sublolui		290954	105191	1500	960	960	2022	155//	960	960	900	2022	8328	
	Validation	2000	2000											
Peatland Code	Verification	22500		2500				2500						
Costs:	PC Levy	346		346										
	PCU Conversion Fee	277						35						
Subtotal		25122	2000	2846	0	0	0	2535	0	0	0	0	0	
Other Costs	Insurance	3000	3000											
other costs.		0												
		0												
Subtotal		3000	3000	0	0	0	0	0	0	0	0	0	0	
Total Costs		325076	110191	4406	960	960	2022	18111	960	960	960	2022	8328	

#### Project 2 – income

Project duration		100		52.44		Drain	ed: Artific	ial			
Capital Costs	£	105,191		9.32	2	Drain	ed: Hagg/0	Gully			
Monitoring costs	£	119,280		1.4	- /	Active	ely Eroding	g: Ha	gg/Gully		
Maintainence costs	£	75 <i>,</i> 483		11517	7	Emiss	ion reduct	tions			
PC validation costs	£	25,122	100	) years				50 y	ears		
PA grant income	£	97,114		11517	7	PIUs			6334	PIL	Js
Total carbon finance	£	227,962	Tot	al Profit		Profit	per year	Tot	al Profit	Pro	fit per yea
Carbon at £20/PIU	£	230,340	£	2,378		£	25	-£	20,391	-£	408
Carbon at £50/PIU	£	575 <i>,</i> 850	£	347 <i>,</i> 888		£	3,662	£	169,629	£	3 <i>,</i> 393
Carbon at £70/PIU	£	806,190	£	578,228		£	6,087	£	296,309	£	5,926
Carbon at £120/PIU	£ 1	1,382,040	£	1,154,078		£	12,148	£	613,009	£	12,260

- High monitoring & maintenance costs
- Full cost recovery of staff time
- Low risk of failure

project duration		70		1.88		Activ	ely Erodir	ng: Hagg/Gu
Capital costs	£	220,801		1.25		Activ	ely Erodir	ng: Flat Bare
Maintainence costs	£	72,606		61.7		Drai	ned: Hagg	/Gully
Monitoring Costs	£	54,324		983	39	Emis	sion redu	ctions
sheep reduction	£	137,200						
PC validation fees	£	13,116	70 y	vears				
PA grant income	£	220,802		983	39	PIUs		
Total Carbon finance	£	277,245	Tota	al Profit		Prof	it per year	
Carbon at £20/PIU	£	196,780	-£	80,46	5	-£	847	
Carbon at £50/PIU	£	491,950	£	214,70	5	£	2,260	
Carbon at £70/PIU	£	688,730	£	411,48	5	£	4,331	
Carbon at £120/PIU	£	1,180,680	£	903,43	5	£	9,510	

- Adequate restoration & management costs
- Herbivore pressure possibly too high
- Mix of erosion features
- Medium risk

## Challenges for small crofts and tenants

- Land owner agreement to share units/profits
- A lot of paper work required
- Up front costs for registration, surveys etc
- Possible costs to pay a project developer to apply
- On-going monitoring
- Passing on project to future tenants
- Profits possible only if high value for Peatland Carbon Units (+£70/unit)

#### Land owner – Tenant responsibilities

- Who pays for initial site surveys, mapping, documents?
- Who is responsible for site monitoring & validation fees?
- Who is responsible for site maintenance and any remedial work?
- Who looks after documentation, reports, etc.
- How long should a project be (30-100 years)
- Transfer of income to future tenants/owners
- How is income shared?
- 50/50 split
- Legal agreements & costs

# Don't be fooled by the cold call offering to make you Millions£££

- Probably better to sell Peatland Carbon Units over time, tranche every 3-5 years?
- But might get lower price as smaller
- Need to decide who to sell units to?
- Develop relationship with the buyer
- Potential income very uncertain (very new market)
- Risks associated with restoration, price, buyers, landownership & tenure

# Pilot of good practice?

- Shetland Council large land owner & have a legal team
- It provides a coordinating role in Peatland Code for its tenants
- Sorts out legal issues
- Oversees project registration, site survey/mapping, project documentation preparation, project validation, on-going monitoring
- Staff & costs paid from Peat Code income to provide this service
- Tenants responsible for site maintenance and on-going management (supported by PC income)
- Remaining profits then split 50/50 between Council & tenants
- Could mean each party, for say a 30ha croft, bringing in £2-3K/year after costs (at low end of price per unit)
- Registering say 3000ha of land could bring in £200,000-£300,000 per year (low end of unit price) to the Council to support rural communities, biodiversity and climate crisis?

#### Peatland Code Developers

- Council could for example contract the Shetland Amenity Trust to be the Shetland Code developers supporting their tenants
- Provide local jobs and expertise
- Bring in income to support Trust
- Be an exemplar of good practice to other land owners
- Develop a relationship with buyers
- Market a brand for "Shetland Carbon"

#### Peatland restoration is vital



- Don't have to chase a golden goose or maybe a lame duck
- Take advantage now of 100% capital funding from Peatland ACTION to restore your peatland
- Possibility of future payment for "farming" carbon??

# Thank you



• New bridge to Yell part funded by Peatland Code!