

GHG Emissions

This section will appear once at organisational level, and will include any operated facilities, terminals, new developments and added abatement reduction projects.

If you think there are any errors with allocation please contact

stewardshipsurvey@nstauthority.co.uk

UKSS 2024 Changes

The following changes are being implemented in the Emissions GHG section of the survey:

- 1. Flare and venting profiles have now been split into routine and non-routine Flare and Vent.
- 2. Emissions abatement projects will now be asked in a new way. An abatement project is an activity that an operator intends to undertake on a facility/terminal that will reduce the emissions produced by the facility/terminal e.g. electrification of a platform. Any project with emissions abatement of more than 5,000 tonnes CO₂e per annum should now be added separately. Each submitted project will now have its own subsection where the operator will be asked for: the facility the plan is linked to; abatement type; plan status; probability of proceeding; expected FID; expected completion date; yearly profiles of abated greenhouse gases; yearly profiles of CAPEX, OPEX and overall abatement cost per tonne of CO₂e saved. Full guidance notes will be on screen and additional offscreen guidance.

Organisation Level

Manage Assets and Abatement Projects



Facilities

Facility name	Туре
Andrew Platform	Facility
Boka Topaz	Facility

Terminals

Facility name	Туре
Andrew Platform	Facility
Boka Topaz	Facility

Guidance

The NSTA is collecting data on future greenhouse gas (GHG) emissions which will facilitate the estimation of carbon costs to be included in the assessment of economic recoverability of existing and future oil and gas developments. The NSTA is also collecting these data to supplement emissions performance benchmarking to assist in Asset Stewardship engagements and also to monitor the industry's progress in reducing its GHG emissions.

Where applicable, you will be asked to provide GHG emission profiles for each operated facility, terminal or unsanctioned project (which requires NSTA consent)

Facilities, terminals and new field developments (FDP prior to NSTA consent) will appear automatically in this section. Please manually add on the Manage Assets page any new incremental projects associated with fields that are already approved (FDPA prior to NSTA consent).

These new development projects should be reported separately by the operator of the project until consent has been granted by the NSTA. Once this occurs, the emissions profile should then be incorporated into the host facility's profile and submitted by the host facility operator.

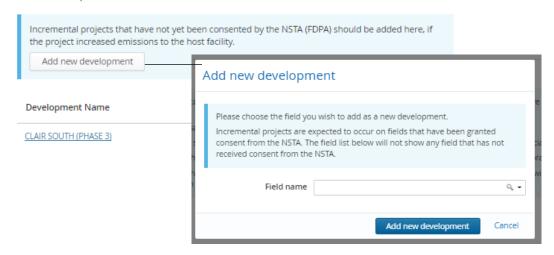
You will now be asked to manually input any GHG Emissions Abatement Projects on the Manage Assets page which have an average GHG emissions abatement of greater than 5000 tonnes CO₂e/yr. All projects added in the current survey will be copied forward into future surveys.

Please note it is expected that any project greater than £5 million should also be entered into the Activity section of the UK Stewardship Survey as an incremental project for the facility's host field

Manage Assets and Abatement Projects

North Sea Transition Authority

New Developments



New Development

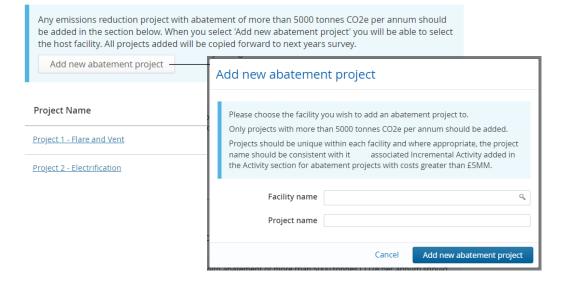
Incremental projects that have not yet been consented by the NSTA (FDPA) should be added here, if the project increased emissions to the host facility.

Add new development

Please choose the field you wish to add as a new development

Incremental projects are expected to occur on fields that have been granted consent from the NSTA. The field list below will not show any field that has not received consent from the NSTA.

Emissions Abatement Projects



Abatement Project

Any emissions reduction project with abatement of more than 5000 tonnes CO₂e per annum should be added in section below. When you select 'Add new abatement project' you will be able to select the host facility. All projects added will be copied forward to next years survey.

Add new abatement project

Please choose the facility you wish to add an abatement project to.

Only plans with greater than 5000 tonnes CO₂e per annum should be added.

Project name should be consistent with any Incremental activities added in the Activity section and should be unique within the facility..

Definitions and general guidance

Definitions

CO₂ within UK ETS scope (tonnes): Carbon Dioxide

Within scope of the UK ETS, i.e. CO₂ emissions resulting from the combustion of liquid fuels, gaseous fuels and flared gas from installations with combustion capacity greater than 20 MW thermal input.

Total CO₂ (tonnes): Carbon Dioxide

Within scope of UK ETS (as above) in addition to CO₂ emissions out with scope of the UK ETS e.g. vented CO₂ and CO₂ emissions from installations with combustion capacity less than 20 MW thermal input.

CH₄ (tonnes): Methane

Please report methane from all sources, for instance from venting, flaring and fugitives. The scope is equal to that of EEMS.

Other GHGs (tonnes)

Nitrous oxide (N2O), hydro-fluorocarbons (HFC), perfluorocarbons (PFC), nitrogen trifluoride (NF3), and sulphur hexafluoride (SF6) using the 100 year time horizon global warming potential (GWP) factors reported in the IPCC's AR5 report (inclusive of climate carbon feedbacks): https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5 Chapter08 FINAL.pdf

CO₂e (tonnes)

Carbon Dioxide Equivalent

Cold Flare: Gas passing through the flare without ignition

Effectively venting of gas through the flare system. This refers to a period of time where there is no combustion (or zero combustion efficiency) i.e. it is not the non-combusted component of a flare gas stream where combustion efficiency less than 100% but greater than 0%.

Under execution:

The Project execution has commenced and is in progress on the offshore asset/ onshore terminal, with the planned (i.e. expected) emission reduction impact embedded in the asset's latest carbon forecast/ UKSS pending any actual reduction adjustments.

Completed:

The Project activity has been completed on the offshore asset/ onshore terminal, and the actual emission reduction impact is embedded in the assets latest GHG emissions forecast.

Planned:

The Project is committed in the assets business plan (i.e. activity is in the LTP or 8Q schedule, costs allocated in budget and onshore/offshore resources committed to deliver); site execution not yet commenced, with the planned emission reduction impact embedded in the asset's latest GHG emissions forecast.



Form Guidance

Form Guidance

- · Please fill in as much detail as you can
- Once data has been entered it is mandatory within each table to fill in the rest of the data for that year even if Zero please enter "0"
- The Total Emissions page contains values which are calculated automatically. These values will appear in the greyed out boxes when all required data has been input
- We expect profiles will not be influenced by economic CoP and should align to the mid-case technical profile of the facility's oil and/or gas production (i.e. run beyond the Company CoP date). It is mandatory to complete GHG emissions profiles for at least the next 10 years; if there are zero emission in year, please enter "0".
- The profile should be based on production continuing in line with the mid case technical profile. i.e. it should not reflect a change in operating modes at the point of company CoP. At this time the survey does not collect data on post CoP emissions projections.



Facility/Terminal Emissions

Please report your best current estimate of forecasted GHG emissions per operated facility. This forecast profile should include:

- Your forecasted current baseline GHG emissions estimate.
 - This should include both GHG emissions associated with the installation's base case and direct incremental GHG emissions associated with any additional activities on the installation which do not require an FDPA (e.g. additional production from infill drilling, well intervention, enhanced recovery etc) with a greater than 50% chance of occurring.
- This should also be net of any applicable reductions in GHG emissions from emissions abatement projects that have a greater than 50% chance of occurring.

Therefore, please subtract emissions avoided via abatement projects from the baseline profile to give your current estimate for forecasted GHGs.

Please note, any new development projects should be reported separately by the operator of the project until consent has been granted by the NSTA. Once this occurs, the emissions profile should then be incorporated into the host facility's profile and submitted by the host facility operator.

Direct Emission profiles should be split into the 3 categories:

Fuel combustion (emissions resulting from the in-situ combustion of fuel gas, diesel or fuel oil). This will be split into Diesel Combustion and Fuel Gas Combustion.

Flare (emissions from the combustion of waste gas at the flare stack)

Vent (emissions from the controlled release of waste gas, includes gas vented via cold flaring (unignited flare)).

The data on the total emissions tab will be automatically summed from the fuel, flare and vent tabs.

Indirect Energy Supply Emissions should be provided when you expect the facility will begin to import electricity. Emissions in this category should not include any generated during the construction or commissioning phase of an electrification project, rather, just the emissions generated to produce the electricity during the production phase of the electrification project.



You can paste values into table directly from Excel:

- The page will map your pasted cell values to the table cells, ignoring any overflowing rows or columns
- Input fields which have been pasted to will be highlighted green to allow a visual check.

Direct Emissions - Total Indirect Energy Supply Emissions

Note for Indirect Energy Supply Emissions:

If Operators do not have their own project specific assumptions for emissions factors, the DESNZ electricity emissions factors can be used as shown in Table 1, Column E: 'Long-run marginal', consumption based, industrial which can be accessed via the following link. (Note, factors are provided in kgCO2e/kWh so conversion to total CO2e annual tonnes is required.)

DESNZ Electricity Emissions Factors



Direct Emissions – Fuel combustion

Emissions resulting from diesel combustion and fuel gas combustion

Please report your best current estimate of forecasted GHG emissions per operated facility. This forecast profile should include:

- Your forecasted current baseline GHG emissions estimate.
 - This should include both GHG emissions associated with the installation's base case and direct incremental GHG emissions associated with any additional activities on the installation which do not require an FDPA (e.g. additional production from infill drilling, well intervention, enhanced recovery etc) with a greater than 50% chance of occurring.
- This should also be net of any applicable reductions in GHG emissions from emissions abatement projects that have a greater than 50% chance of occurring.

Therefore, please subtract emissions avoided via abatement projects from the baseline profile to give your current estimate for forecasted GHGs.

	Direct Emissions - Fuel Combustion								
	Diesel Combustion					Fuel Gas Combustion			
Year	CO ₂ Within ETS scope (tonnes)	Total CO ₂ (tonnes)	CH ₄ (tonnes)	Other GHG (tonnes CO ₂ e)	CO ₂ Within ETS scope (tonnes)	Total CO ₂ (tonnes)	CH ₄ (tonnes)	Other GHG (tonnes CO ₂ e)	
2025									
2026									
2027									
2028									
2029									
2030									

	Direct Emissions - Flaring							
		Rou	tine		Non-Routine			
Year	CO ₂ Within ETS scope (tonnes)	Total CO ₂	CH ₄ (tonnes)	Other GHG (tonnes CO ₂ e)	CO ₂ Within ETS scope (tonnes)	Total CO ₂	CH ₄ (tonnes)	Other GHG (tonnes CO ₂ e)
2025								
2026								
2027								
2028								
2029								
2030								

Direct Emissions - Flaring

Routine flaring is equivalent to Category A, non-routine is equivalent to Category B+C. Please find definitions of these in the external guidance link.

UKSS 2024 Change: we are now asking for Flaring to be split into Routine and non-routine.

Direct Emissions - Venting Routine Non-Routine CO_2 Total CO₂ CH_4 Other GHG CO_2 Total CO₂ CH_4 Other GHG Within ETS scope (tonnes) Within ETS scope (tonnes) (tonnes) 2025 2027 2028

Direct Emissions - Venting

Routine venting is equivalent to Category A, non-routine is equivalent to Category B+C. Please find definitions of these in the <u>external guidance link</u>.

UKSS 2024 Change: we are now asking for Venting to be split into Routine and non-routine.

Direct Emissions - Total							
Year	CO ₂ Within ETS scope (tonnes)	Total CO ₂ (tonnes)	CH ₄ (tonnes)	Other GHG (tonnes CO ₂ e)			
2025	0	0	0	0			
2026	0	0	0	0			
2027	0	0	0	0			
2028	0	0	0	0			

Do you anticipate this facility to have indirect ene	rgy supply emissions (e.g. purchased electricity) in
	the future?

•	Yes
0	No

Indirect Energy Supply Emissions						
Year	Total CO ₂ (tonnes)	CH ₄ (tonnes)	Other GHG (tonnes CO ₂ e)			
2025						
2026						
2027						
2028						



Direct Emissions - Total

Emissions resulting from fuel combustion, flaring, and venting.

Previously, the NSTA asked operators to report abatement plans in this section.

Abatement projects should now be added to the manage assets page if over 5000 tonnes CO₂e abated per annum

Operators should use this page as a general QC of summed emissions from combustion, flaring and venting.

Indirect Energy Supply Emissions

Indirect Energy Supply Emissions should be provided when you expect the facility will begin to import electricity. Emissions in this category should not include any generated during the construction or commissioning phase of an electrification project, rather, just the emissions generated to produce the electricity during the production phase of the electrification project.

If it is expected a facility will begin to import electricity during its future, please select 'Yes', this will allow you to populate the GHG emissions forecast. By selecting 'No', you will not have to populate any forecast for this tab.



New Development Emissions

Please provide emissions profiles only for any new developments that need consent from the NSTA (FDP/FDPA) and results in a GHG emission increase either outright or to the host installation.

A new field will appear automatically in this section. This normally occurs when a Concept Select Report has been approved by the NSTA.

Any incremental projects involving fields that are already online (FDPA) should be added on the Manage Asset page.

These projects should be reported separately by the operator of the project until consent has been granted by the NSTA. Once this occurs, the emissions profile should then be included in the host facility's profile and submitted by the host facility operator.

Note, projects consented during survey live period should still complete a separate profile and be combined with the host facility profile in the next survey.

For each new development, please report the most likely host facility of the new development via a drop-down selection and provide a % probability of proceedings for each new development.

By reporting 100% probability of proceedings, this indicates the project has been consented by the NSTA and therefore should be included in the host facility profile. Only exception is if the project was consented during the survey open period.

0% indicates the project is cancelled and is no longer a viable project.

	Probability of proc	eeding	30-39% 🗸				
Once online, where will the en	nissions associated with th development be gene		New OffshoreExisting Offsh	•			
Do you k	now the most likely host f	acility?	Yes	Wh	at is the likely host facility?	Q	
			○ No				
	·						
Direct Emissions - Fuel Combustion	Direct Emissions - Flaring	Direct E	missions - Venting	Direct Emissions - Total	Indirect Energy Supply Emissions		
Do you anticipate this new de	evelopment to have indired	t energy		(e.g. purchased O Yes y) in the future? N			



Direct Emissions – Fuel combustion

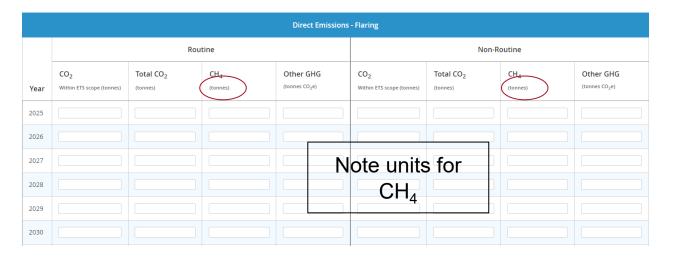
Emissions resulting from diesel combustion and fuel gas combustion

Please report your best current estimate of forecasted GHG emissions per operated facility. This forecast profile should include:

- Your forecasted current baseline GHG emissions estimate.
 - This should include both GHG emissions associated with the installation's base case and direct incremental GHG emissions associated with any additional activities on the installation which do not require an FDPA (e.g. additional production from infill drilling, well intervention, enhanced recovery etc) with a greater than 50% chance of occurring.
- This should also be net of any applicable reductions in GHG emissions from emissions abatement projects that have a greater than 50% chance of occurring.

Therefore, please subtract emissions avoided via abatement projects from the baseline profile to give your current estimate for forecasted GHGs.

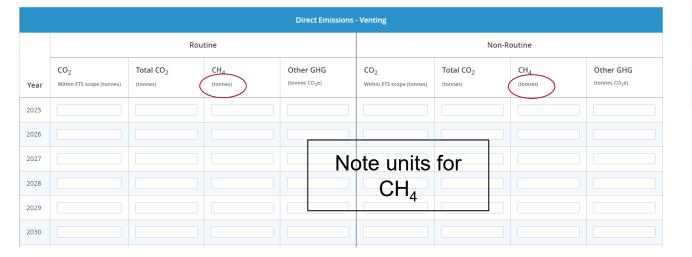
	Direct Emissions - Fuel Combustion								
	Diesel Combustion					Fuel Gas Combustion			
Year	CO ₂ Within ETS scope (tonnes)	Total CO ₂ (tonnes)	CH ₄ (tonnes)	Other GHG (tonnes CO ₂ e)	CO ₂ Within ETS scope (tonnes)	Total CO ₂ (tonnes)	CH ₄ (tonnes)	Other GHG (tonnes CO ₂ e)	
2025									
2026				Note	inits for				
2027					H ₄				
2028									
2029									
2030									



Direct Emissions - Flaring

Routine flaring is equivalent to Category A, non-routine is equivalent to Category B+C. Please find definitions of these in the external guidance link.

UKSS 2024 Change: we are now asking for Flaring to be split into Routine and non-routine.



Direct Emissions - Venting

Routine venting is equivalent to Category A, non-routine is equivalent to Category B+C. Please find definitions of these in the <u>external guidance link</u>.

UKSS 2024 Change: we are now asking for Venting to be split into Routine and non-routine.

	Direct Emissions - Total							
Year	CO ₂ Within ETS scope (tonnes)	Total CO ₂ (tonnes)	CH ₄ (tonnes)	Other GHG (tonnes CO ₂ e)				
2025	0	0	0	0				
2026	0	0	0	0				
2027	0	0	0	0				
2028	0	0	0	0				

Do you anticipate this facility to have indirect energy supply emissions (e.g. purchased electricity) in the future?

	Indirect Energy Supply Emissions							
Year	Total CO ₂ (tonnes)	CH ₄ (tonnes)	Other GHG (tonnes CO ₂ e)					
2025								
2026								
2027								
2028								

Direct Emissions - Total

Emissions resulting from fuel combustion, flaring, and venting.

Previously, the NSTA asked operators to report abatement plans in this section.

Abatement projects should now be added to the manage assets page if over 5000 tonnes CO₂e abated per annum

Operators should use this page as a general QC of summed emissions from combustion, flaring and venting.

Indirect Energy Supply Emissions

Indirect Energy Supply Emissions should be provided when you expect the facility will begin to import electricity. Emissions in this category should not include any generated during the construction or commissioning phase of an electrification project, rather, just the emissions generated to produce the electricity during the production phase of the electrification project.

If it is expected a facility will begin to import electricity during its future, please select 'Yes', this will allow you to populate the GHG emissions forecast.

By selecting 'No', you will not have to populate any forecast for this tab.

Note for Indirect Energy Supply Emissions:

O No

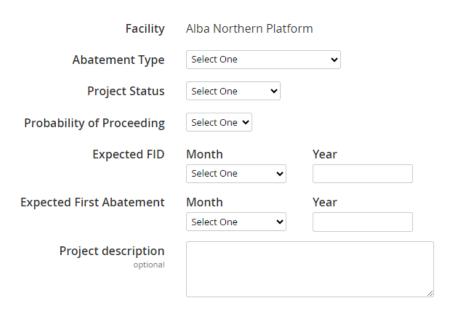
If Operators do not have their own project specific assumptions for emissions factors, the DESNZ electricity emissions factors can be used as shown in Table 1, Column E: 'Long-run marginal', consumption based, industrial which can be accessed via the following link. (Note, factors are provided in kgCO2e/kWh so conversion to total CO2e annual tonnes is required.)

DESNZ Electricity Emissions Factors

New Abatement Project GHG Emissions



New Abatement project



Abatement type:

Partial electrification; Full Electrification; Reduced Flaring Technology; Reduced Venting Technology; Increased Equipment Efficiency; Other

Plan Status:

Completed; Under execution; Planned; Under evaluation; Under scoping

Abatement plan data should only be provided for any emissions reduction plans that exceed 5000 tonnes CO₂e per annum.

Please provide the % probability of proceeding. It is expected that any plan that is set to 100% has been completed, under execution or planned, 99-50% is under evaluation and 49-1% is under scoping. Any plan set to 0% is assumed cancelled and will not be copied forward to the next survey.

It is expected that any abatement plan greater than £5 million CAPEX should also be entered into the Activity section as an incremental project for the facility's host field.

Plan Status definitions

Completed: the Project has been completed on the offshore asset/onshore terminal, and the actual emission reduction impact is embedded in the assets latest carbon forecast.

Under Execution: the Projects execution has commenced and is in progress on the offshore asset/onshore terminal, with the planned (i.e. expected) emission reduction impact embedded in the assets latest carbon forecast pending any actual reduction adjustments.

Planned: the Project is included in the assets business plan (i.e. activity in the 8Q schedule, costs allocated in budget and onshore/offshore resources committed to deliver); site execution not yet commenced, with the planned emission reduction impact embedded in the assets latest carbon forecast.

Under Evaluation: the identified opportunity maybe a formally defined early-stage Project however further technical/economic work is required in order to decide inclusion in the asset business plan. Not currently included in the assets business plan and the emission reduction impact not embedded in the carbon forecast.

Under Scoping: the identified opportunity is at idea/immature stage of definition

New Abatement Project GHG Emissions

Direct Emissions Abated - Total					
Year	CO ₂ Within ETS scope (tonnes)	Total CO ₂ (tonnes)	CH ₄ (tonnes)	Other GHG (tonnes CO ₂ e)	
2025	1	2	3	4	
2026	5	6	7	8	
2027					
2028					
2029					



Direct Emissions Abated - Total

Profile of emissions saved. It is expected all figures would be positive.

Reminder – anything over 50% likelihood of going ahead should also be reflected in the forward emissions profile entered into the survey.

New Abatement Project – Overlapping emissions and / or costs

It is recognised that for some abatement projects there will be an overlap in the emissions that will be abated and/or project costs.

e.g. the emissions abated by a project that reduces power consumption may be the same emissions that would ultimately be abated by electrification.

The costs and emissions abatement profiles should be entered for each project in it's own right.

It is recognised that this introduces the potential for double counting, and that the sum of all the abatement projects identified therefore will not reflect the maximum emissions abatement potential for an asset.

It is also recognised that there are project options where only one out of two (or more) projects will be progressed, particularly in the earlier screening phases. Where these projects meet the threshold for the survey, they should all be included in the survey return with an appropriate project phase and likelihood of progression.

Where there are areas of overlap, this should be identified in the 'Project description' box for the relevant projects,



New Abatement Project GHG Emissions

Abatement cost	
(£/tonne)	See next slide

Direct Emissions Abated - Costs					
Year	CAPEX (£MM)	OPEX (£MM)			
2025					
2026					
2027					
2028					
2029					

Direct Emissions Abated - Costs

Not all abatement projects will have an associated cost, though where possible please split into CAPEX and OPEX It is expected that reported CAPEX will be positive; however it is possible for reported OPEX to be negative.

It is expected the OPEX entered is the total incremental change in the OPEX including the ETS savings for the relevant project.

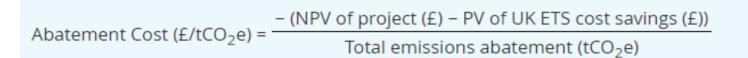
Total CAPEX is greater than £5MM

It is expected that any abatement plan greater than £5MM CAPEX (e.g. electrification) should also be entered into the Activity section as an incremental project for the host field of the facility.

Okay

It is expected that any abatement plan greater than £5 million CAPEX should also be entered into the Activity section as an incremental project for the facility's host field.

Abatement Cost Calculation Explained



Purpose: The abatement cost calculation is intended to provide comparable data to the NSTA. We recognise there will be different approaches used across industry to calculate abatement cost.

Calculation components explained:

Negative signage

• A positive abatement cost represents a net cost per tonne whilst a negative cost represents a net benefit.

NPV of Project (£)

- Net Present Value (NPV) of the project is the incremental decarbonisation project net value. This will include any incremental revenue offset by the incremental costs of the project.
- A Real terms 10% discount rate to be applied (consistent with the OGA Strategy)

PV of UK ETS cost savings (£)

- Deduct the discounted savings of UK ETS expected as a result of the decarbonisation project, thus removing this saving from the project NPV above.
- A Real terms 10% discount rate to be applied (consistent with the OGA Strategy)

Total emissions abatement (tCO₂e)

- The total expected emissions avoided as a result of the decarbonisation project.
- No discounting to be applied.

Time period

• All data in determining the abatement cost should be truncated at the estimated CoP date.



Example : Asset A plans to optimise gas compressor processes

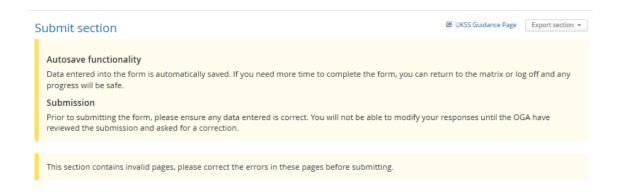
NPV of project: -£5 million (discounted capex and opex increment) **PV of UK ETS savings:** £1 million (discounted UK ETS savings) **Emissions abatement:** 50,000 tCO₂e (lifetime abatement to CoP)

Abatement cost: $\frac{-(-£5MM - £1MM)}{50,000}$ = £120/tonne CO₂e

General Comments



Submit section





General Comments

Please use this area to provide us with any information you think is important, or clarifies any data entered in the rest of the section.

Submit Section

Autosave functionality

Data entered into the form is automatically saved. If you need more time to complete the form, you can return to the matrix or log off and any progress will be safe.

Submission

Prior to submitting the form, please ensure any data entered is correct. You will not be able to modify your responses until the NSTA have reviewed the submission and asked for a correction.

The link 'UKSS Guidance Page' will take you to the NSTA webpage where all the guidance notes can be found.

The section can be exported either via spreadsheet or PDF at any time during the survey live period.