

Assurance Audit of the Biodiversity Conservation Fund Charge System, June 2024

1.1 Executive summary

1.1.1 Summary Findings

Based on the evidence we obtained from our audits, we find the Biodiversity Conservation Fund Charge System (BCF Charge System) **compliant** with the requirements in the [Biodiversity Offsets Payment Calculator Order 2022](#) (BOPC Order 2022).

Two minor non-compliance issues were identified during the audit. As a result, two charge quotes were found to be slightly lower than they otherwise would have been. The BCT will seek to make improvements to address these issues for 2024-25.

Recommendations for further improvements to implementing the BCF Charge System are outlined at the end of this report.

1.1.2 Background

On 17 October 2022, the BCF Charge System commenced, which is the calculation assessment methodology that determines the amount that may be paid into the Biodiversity Conservation Fund (BCF) as an alternative to retiring biodiversity credits upon an applicant's request. The BCF Charge System is administered by the Biodiversity Conservation Trust (BCT), part of the NSW Government Department of Climate Change, Energy, the Environment and Water.

The BOPC Order 2022, made under the [Biodiversity Conservation Act 2016](#), establishes the method the BCT must apply when determining a charge. The BOPC Order also allows the Minister administering the Act to commission an independent assurance audit of the BCT's implementation of the BCF Charge System.

Marsden Jacob Associates (Marsden Jacob) was commissioned to develop an assurance audit method for the BCT's implementation of the BCF Charge System. Marsden Jacob undertook an initial assurance audit of the BCT's implementation in 2022. The assurance audit method identified each relevant aspect of the Charge System and the evidence required to consider whether it had been applied according to the BOPC Order 2022. The initial assurance audit was completed before any charges were issued under the BCF Charge System to provide greater confidence in the BCT's application of the new system.

This audit assessed whether the application of the Charge System throughout 2023-24 was consistent with the requirements of the BOPC Order 2022.

1.2 Relevant assurance audit evidence

The following table details relevant evidence that will be used to conduct the assurance audit assessment of the Trust's implementation of the Charge System for the past year and the Dataset audit for the coming year.

Table 1: Relevant assurance audit evidence

Documents	Assurance Audit (for past year)	Dataset audit (for coming year)
BOPC Order	✓	✓
BSA Size Rule	✓	
Credit Yield Rule	✓	
Econometric Model report	✓	
Land Value Report	✓	
Market Soundings Rule	✓	
Species Allocation rule	✓	
Transitional Price Cap Rule	✓	
Data		
Credit supply and demand spreadsheets	✓	
Credit yield spreadsheet and pivot tables	✓	✓
Documentation relevant to exercise of discretion (e.g. rationale and evidence from market soundings)	✓	
Example ecosystem credit profiles and worked prices	✓	
Indexation datasets from ABS		✓
Management cost index spreadsheets	✓	✓
Market transaction and tender data spreadsheets	✓	
Master Credit Price Register	✓	✓
Monte Carlo simulation outputs	✓	✓
Property size and land value data set from provider	✓	
Species allocation spreadsheet	✓	✓
Species pricing spreadsheet	✓	✓
TFD site data for management costs	✓	✓

1.2.1 Assurance audit assessment

BOPC Order Section	Assurance audit question	Assurance audit evidence	Assurance flag	Notes	Residual rating
2. Operation of the Biodiversity Conservation Fund Charge System					
2.1 Application of tools	<ul style="list-style-type: none"> Has the Trust applied the correct tool? 	<ul style="list-style-type: none"> Ecosystem and species credit profiles 	Compliant		Compliant
2.2 Application of Risk premium, Delivery cost and Indexation	<ul style="list-style-type: none"> See BOPC Order Section 7 for risk premium Section 8 for delivery costs Section 9 for indexation 	<ul style="list-style-type: none"> Assurance process is applied in BOPC Order Section: <ul style="list-style-type: none"> 7 for risk premium evidence 8 for delivery costs evidence 9 for indexation 	Not applicable		Not applicable
2.3 Final Charge formula	<ul style="list-style-type: none"> Has the Trust determined a Charge, which equals the sum of the Predicted credit price, the Risk premium, the Delivery cost and Indexation? Has the Trust correctly applied the Transitional price cap rules for the calculation of Charges for the Biodiversity Conservation Fund Charge System? 	<ul style="list-style-type: none"> Sum of the Predicted credit price, the Risk premium, the Delivery cost and Indexation with respect to the Transitional price cap rules for the calculation of Charges for the Biodiversity Conservation Fund Charge System published by the Trust from time to time. 	Compliant		Compliant
3.1 Process for estimating the Predicted credit price for an ecosystem offset trading group	<ul style="list-style-type: none"> Has the Trust followed the process for estimating the predicted credit price for an ecosystem offset trading group? 	<ul style="list-style-type: none"> Calculations of Cost structure variables for ecosystem credits (Section 3.2 - 3.8). Application of equation 1 in Tool 1 - Cost-structure tool for ecosystem credits. 	Compliant		Compliant

BOPC Order Section	Assurance audit question	Assurance audit evidence	Assurance flag	Notes	Residual rating
3.2 Estimating typical BSA size	<ul style="list-style-type: none"> Has the Trust correctly applied the Rules for Estimating Typical BSA size for the Biodiversity Conservation Fund Charge System when estimating the typical BSA size? 	<ul style="list-style-type: none"> The application of Rules for Estimating Typical BSA size for the Biodiversity Conservation Fund Charge System Dataset of property size and OTG area by IBRA subregion Assignment the most likely BSA size based on the criteria in Table 1. Decision on BSA size documented correctly 	Compliant		Compliant
3.3 Estimating average management costs	<ul style="list-style-type: none"> Has the Trust correctly applied the average management costs? 	<ul style="list-style-type: none"> Published average management cost value TFD site data for management costs Calculation of indexation and discount rate 	Compliant		Compliant
3.4 Estimating the management cost index	<ul style="list-style-type: none"> Has the Trust correctly applied the management cost index? 	<ul style="list-style-type: none"> Management cost index spreadsheets 	Compliant		Compliant
3.5 Estimating land value of an OTG (LV)	<ul style="list-style-type: none"> Has the Trust correctly estimated the land value of an OTG? 	<ul style="list-style-type: none"> Dataset of land value estimates for each OTG and IBRA subregion 	Compliant		Compliant
3.6 Estimating land value index	<ul style="list-style-type: none"> Has the Trust correctly estimated the land value index? 	<ul style="list-style-type: none"> Dataset of the long-term average annual increase in land value for relevant land Indexation datasets from ABS 	Compliant		Compliant
3.7 Estimating credit value per hectare constants	<ul style="list-style-type: none"> Has the Trust correctly estimated the credit value per hectare constants? 	<ul style="list-style-type: none"> Formula to estimate credit value per hectare ($CV/ha = C + MCa + LVy$) 	Compliant		Compliant
3.8 Estimating ecosystem credit yield	<ul style="list-style-type: none"> Has the Trust correctly applied the Rules for Estimating ecosystem credit yield for the Biodiversity Conservation Fund 	<ul style="list-style-type: none"> Dataset of credit yields for each OTG, Vegetation Class and Vegetation formation 	Minor non-compliance	A quote omitted some relevant subregions when estimating the land	Compliant

BOPC Order Section	Assurance audit question	Assurance audit evidence	Assurance flag	Notes	Residual rating
	Charge System when calculating typical ecosystem credit yield?			<p>value of an OTG, potentially resulting in a slightly lower quoted value than it would have been.</p> <p>Another quote used the incorrect statewide Credit Yield for an OTG value, resulting in a slightly lower quoted value than it would have been.</p>	
4.1 Calculating the predicted species credit price	<ul style="list-style-type: none"> Has the Trust correctly estimated the species credit price value? 	<ul style="list-style-type: none"> Species Credit Calculator dataset M1D1 price calculation and market transaction and tender data Charges for the remaining Species Credit pricing categories, either by ratio, or by equation, once the independent market transaction threshold has been reached. 	Compliant		Compliant
4.2 Allocation of species and dataset updates	<ul style="list-style-type: none"> Has the Trust correctly applied the Rules for Allocating Species to Categories in the Biodiversity Conservation Fund Charge System? 	<ul style="list-style-type: none"> Species allocation spreadsheet 	Compliant		Compliant
5. Tool 3 - Econometric model for ecosystem credits	<ul style="list-style-type: none"> Has the Trust correctly applied the econometric model for ecosystem credits? 	<ul style="list-style-type: none"> Econometric model outputs 	Compliant		Compliant

BOPC Order Section	Assurance audit question	Assurance audit evidence	Assurance flag	Notes	Residual rating
6.1 Supply and demand forecasting	<ul style="list-style-type: none"> Has the Trust correctly applied the Rules for application of market soundings in the Biodiversity Conservation Fund Charge System? 	<ul style="list-style-type: none"> Econometric model parameters Credit supply and demand spreadsheets Trade data and weighted average price calculations in OTG profiles Trust value-for-money credit tender prices Evidence from market soundings undertaken The rationale for using market soundings 	Compliant		Compliant
6.2 Market sounding input to cost-structure tools			Compliant		Compliant
6.3 Market sounding to estimate the Predicted credit price			Compliant		Compliant
7.1 Calculating the Risk premium	<ul style="list-style-type: none"> See BOPC Order Section: 7.2 for risk premium for credits priced via the econometric model 7.3 for risk premium for credits priced via the cost-structure tool and market soundings 	<ul style="list-style-type: none"> See 7.2 and 7.3 	Not applicable		Not applicable
7.2 Risk premium for credits priced via the econometric model	<ul style="list-style-type: none"> Has the Trust correctly applied the risk premium for credits priced via the econometric model? 	<ul style="list-style-type: none"> Econometric model outputs 	Compliant		Compliant
7.3 Risk premium for credits priced via the cost-structure tool and market soundings	<ul style="list-style-type: none"> Has the Trust correctly applied the risk premium for credits priced via the cost-structure tool and market soundings? 	<ul style="list-style-type: none"> Monte Carlo simulation outputs and correct calculation for the approved percentile level. Credit calculation spreadsheets for ecosystem and species credits applied correctly for risk premium. 	Compliant		Compliant

BOPC Order Section	Assurance audit question	Assurance audit evidence	Assurance flag	Notes	Residual rating
8. Delivery Costs	<ul style="list-style-type: none"> Has the Trust correctly calculated the delivery costs for each offset trading group or species in a Charge issued for a particular project proposal? 	<ul style="list-style-type: none"> Credit calculation spreadsheets for ecosystem and species credits applied correctly for delivery costs. 	Compliant		Compliant
9.1 Monthly Indexation rate in the econometric model	<ul style="list-style-type: none"> Has the Trust correctly applied the monthly indexation rate where the econometric model is given full weight to determine the Predicted credit price? 	<ul style="list-style-type: none"> Credit calculation spreadsheets for ecosystem and species credits applied correctly for delivery costs. Management cost index spreadsheets 	Compliant		Compliant
9.2 Monthly Indexation rate in the cost-structure tools and market soundings	<ul style="list-style-type: none"> Has the Trust correctly applied the monthly indexation rate where a cost structure tool or market soundings are used to determine the Predicted credit price? 		Compliant		Compliant
9.3 Monthly Indexation rate if multiple tools used to predict credit price	<ul style="list-style-type: none"> Has the Trust correctly applied the monthly indexation rate where the econometric model tool and one or more other tools are used to determine the Predicted credit price? 		Compliant		Compliant

1.2.2 Summary comments and actions

Below is a summary of Marden Jacob's findings from the assurance audit, along with recommendations for improvement for BCT.

Comments

- The document [*Rules for Estimation Ecosystem Credit Yield for the BCF Charge System \(Rule 2\)*](#), and Section 3.8 in the BOPC Order outline the process for calculating typical ecosystem credit yields. Rule 2 states that credit yields are sometimes calculated using data in relevant (filtered) subregions. One quote missed some relevant subregions when calculating the Land Value (LV). This discrepancy resulted in a potentially slightly lower quoted value than it would have been. The BCT will seek to make improvements to address this issue for 2024-25.
- The document [*Rules for Estimation Ecosystem Credit Yield for the BCF Charge System \(Rule 2\)*](#) also defines the typical credit yield from existing and potential BSA sites that have a finalised Biodiversity Stewardship Site Assessment Report (BSSAR) to estimate typical credit yield at the Offset Trading Group (OTG) level. For one quote an incorrect Statewide Weighted Average Yield resulted in a potentially slightly lower quoted value than it would have been. The BCT will seek to make improvements to address this issue for 2024-25.
- The BOPC order states the Trust will give weight to setting the Charge from market sounding information in circumstances where there is "strong current evidence of a market price" from various source options. We found that some quotes used only one trade as part of market sounding information. Although the BOPC does not specify the number of trades, any future reviews of the BCF Charge System should consider defining "strong current evidence".
- Data traceability could be updated, including linking across databases, to ensure more efficient audits and reconciliation of inputs to generate predicted credit prices. A number of datasets have hard-coded results that limit tracing their original source.

Recommended actions

We recommend the following actions to improve processes:

- We recommend conducting an appropriate evaluation and review process on the BOPC Order 2022 to check if any process improvements can be made.
- Better documentation of any judgements made throughout the generation of credits.
- Explore providing data sources or using linked data across databases where possible.

Table 2: Dataset audit

BOPC Order Section	Dataset audit question	Dataset audit evidence	Assurance flag	Notes	Residual rating
3. Tool 1 – Cost structure tool for ecosystem credits					
3.1 Process for estimating the predicted credit price for an ecosystem offset trading group	<ul style="list-style-type: none"> In the Master Credit Price Register, are the correct variables used for each ecosystem category's Indexation and risk premium? In the Ecosystem Credit Template, are the correct variables used to calculate the predicted credit price? 	<ul style="list-style-type: none"> Master Credit Price Register input variables Ecosystem Credit Template fixed constants (C, a, and y) and TFD values by BSA size category 	Compliant		Compliant
3.3 Estimating the average management costs	<ul style="list-style-type: none"> Has the Trust correctly calculated the management costs of BSA size categories based on the TFD dataset? 	<ul style="list-style-type: none"> TFD dataset TFD calculation by BSA size category 	Compliant		Compliant
3.4 Estimating the management cost index (i)	<ul style="list-style-type: none"> Has the Trust correctly calculated the management cost index (i) as part of the Indexation (9)? 	<ul style="list-style-type: none"> Indexation datasets from ABS: Quarterly material and wage cost indices 10-year average calculated as an average annual percentage change 1-year calculated as a percentage change. Land value index Management cost index spreadsheets 	Compliant		Compliant
4. Tool 2 – Cost structure tool for species credits					

BOPC Order Section	Dataset audit question	Dataset audit evidence	Assurance flag	Notes	Residual rating
4.1 Calculating the predicted species credit price	<ul style="list-style-type: none"> • Has the Trust correctly calculated each applicable category's species credit price value? e.g. where sufficient trade enables calculating M1D1, M1D2, etc. • In the Species Credit Calculator, are the correct variables used to calculate each applicable category, the Indexation, and risk premium? 	<ul style="list-style-type: none"> • Species Credit Calculator input variables • Species Credit Trades are used to calculate applicable categories. 	Compliant		Compliant
7. Risk Premium					
7.1 Calculating the Risk premium	<ul style="list-style-type: none"> • See BOPC Order Section: • 7.2 for risk premium for credits priced via the econometric model • 7.3 for risk premium for credits priced via the cost-structure tool and market soundings 	<ul style="list-style-type: none"> • Risk premium percentile distributions are documented in the simulation report. • BCT have documented which risk premiums they will use for each credit category. 	Compliant		Compliant