MARSDEN JACOB ASSOCIATES

Aaron Walker
Biodiversity Offsets Scheme (BOS) Branch
Environment and Heritage Group
Department of Planning and Environment
4 Parramatta Square, 12 Darcy St, Parramatta, NSW 2150

3 November 2022

Dear Aaron,

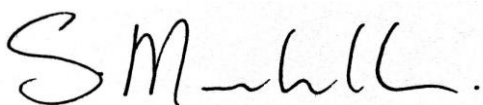**Re: Assurance Audit of the Biodiversity Conservation Fund Charge System**

Marsden Jacob Associates conducted an Assurance Audit of the Biodiversity Conservation Fund Charge System in October 2022, before the commencement of the new system and any charges being issued.

Based on the evidence we obtained from the procedures performed, we are unaware of any residual material errors in the Biodiversity Conservation Fund Charge System application.

A number of suggested actions have been provided to improve processes in addition to the corrective actions taken to ensure compliance.

An audit report accompanies this letter outlining the procedure and assessment.

Yours sincerely,

Stuart Maclachlan
Principal
Marsden Jacob Associates

Assurance Audit of the Biodiversity Conservation Fund Charge System, October 2022

1.1 Executive summary

1.1.1 Summary Findings

Based on the evidence we obtained from our initial audit, 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). One issue of 'minor non-compliance' was identified due to an incorrect formula entered. BCT responded by adjusting all relevant credit price calculations. The outcome resulted in correct predicted credit prices issued prior to the commencement of the BCF Charge System. Further detail is available in the assurance audit assessment in section 1.1.3.

1.1.2 Background

On 17 October 2022, the BCF Charge System commenced. The BCF Charge System is administered by the Biodiversity Conservation Trust (BCT). It determines the cost of meeting biodiversity offset obligations for proponents who pay into the Biodiversity Conservation Fund (BCF).

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 (MJA) was commissioned to develop an assurance audit method and undertake an initial assurance audit of the BCT's implementation of the BCF Charge System. The assurance audit method identifies each relevant aspect of the charge system and the evidence required to consider whether it has 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.

1.1.3 Assurance audit assessment

BOPC Order Section	Assurance audit evidence	Assurance flag	Notes	Residual rating
2. Operation of the Biodiversity Conservation Fund Charge System				
2.1 Application of tools	• Ecosystem and species credit profiles	**Compliant**		**Compliant**
2.2 Application of Risk premium, Delivery cost and Indexation	• Assurance process is applied in BOPC Order Section: – 7 for risk premium evidence – 8 for delivery costs evidence – 9 for indexation	**Not applicable**	• No rating required as section 2.2 references further sections in relation to actions the BCT will follow.	**Not applicable**
2.3 Final Charge formula	• 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. Tool 1 - Cost-structure tool for ecosystem credits				
3.1 Process for estimating the Predicted credit price for an ecosystem offset trading group	• 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.	**Minor non-compliance**	• Two variables used to determine the predicted credit price for an ecosystem offset trading group were incorrectly referenced in the credit profiles. The error was rectified prior to the commencement of the charge system resulting in no material or residual issues.	**Compliant**
3.2 Estimating typical BSA size	• 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	**Compliant**		**Compliant**

BOPC Order Section	Assurance audit evidence	Assurance flag	Notes	Residual rating
	• Assignment of the most likely BSA size based on the criteria in Table 1 • Decision on BSA size documented correctly			
3.3 Estimating average management costs	• 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	• Australian Bureau of Statistics quarterly updates on indices in Table 3 • Indexation datasets	**Compliant**		**Compliant**
3.5 Estimating land value of an OTG (LV)	• Dataset of land value estimates for each OTG and IBRA subregion	**Compliant**		**Compliant**
3.6 Estimating land value index	• Dataset of the long-term average annual increase in land value for the relevant land • Indexation datasets from ABS	**Compliant**		**Compliant**
3.7 Estimating credit value per hectare constants	• Formula to estimate credit value per hectare (CV/ha = C + MCa + LVy)	**Compliant**		**Compliant**
3.8 Estimating ecosystem credit yield	• Dataset of credit yields for each OTG, Vegetation Class and Vegetation formation	**Compliant**		**Compliant**
4. Tool 2 - Cost structure tool for species credits				

BOPC Order Section	Assurance audit evidence	Assurance flag	Notes	Residual rating
4.1 Calculating the predicted species credit price	- 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	Species allocation spreadsheet	**Compliant**		**Compliant**
5. Tool 3 - Econometric model for ecosystem credits				
5.1 Tool 3 - Econometric model for ecosystem credits	Econometric model outputs	**Not applicable**	As part of this Assurance Audit process, the econometric model was not used to calculate an offset obligation cost during this audit period.	**Not applicable**
6. Tool 4 - Market soundings				
6.1 Supply and demand forecasting	- 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				
6.3 Market sounding to estimate the Predicted credit price				
7. Risk premium				

BOPC Order Section	Assurance audit evidence	Assurance flag	Notes	Residual rating
7.1 Calculating the Risk premium	• See 7.2 and 7.3	**Not applicable**	• See 7.2 and 7.3	**Not applicable**
7.2 Risk premium for credits priced via the econometric model	• Econometric model outputs	**Not applicable**	• As part of this Assurance Audit process, the econometric model was not used to calculate an offset obligation cost during this audit period.	**Not applicable**
7.3 Risk premium for credits priced via the cost-structure tool and market soundings	• 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**
8. Delivery Costs				
8.1 Delivery Costs	• Credit calculation spreadsheets for ecosystem and species credits applied correctly for delivery costs.	**Compliant**		**Compliant**
9. Indexation				
9.1 Monthly Indexation rate in the econometric model	• Credit calculation spreadsheets for ecosystem and species credits applied correctly for delivery costs. • Indexation calculation	**Not applicable**	• As part of this Assurance Audit process, the econometric model was not used to calculate an offset obligation cost during this audit period.	**Not applicable**
9.2 Monthly Indexation rate in the cost-structure tools and market soundings		**Compliant**		**Compliant**

BOPC Order Section	Assurance audit evidence	Assurance flag	Notes	Residual rating
9.3 Monthly Indexation rate if multiple tools used to predict credit price		**Compliant**		**Compliant**

1.1.4   Summary comments and actions

Comments

- A minor non-compliance was determined as part of reviewing a random sample of predicted ecosystem credit prices. Two values used in the cost-structure tool for ecosystems credits were incorrectly entered, leading to an incorrect predicted credit price. The BCT rectified the error before the commencement of the BCF Charge System resulting in a compliant residual rating

- There are a number of areas where human error could result in potential non-compliance from transferring information between sources. Where possible, data entry, tabulations and calculations should be conducted using scripts and formulas for ease of repetition and accuracy.

- Data traceability could be updated to ensure more efficient audits and reconciliation of inputs to generate predicted credit prices. There are a number of datasets with hard-coded results that limit tracing their original source.

Recommended actions

In addition to corrective actions for assurance compliance, we recommend additional actions to improve processes:

- Explore updating templates and databases with formulas and scripts to limit human error

- Explore providing data sources or using linked data where possible across databases.