

NSW Biodiversity Offsets Scheme

Removing the BOPC from public view

Assessing the intended and unintended consequences

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Preface

The Biodiversity Offsets Scheme (BOS) is a legislatively backed biodiversity scheme that applies on a mandatory basis to property development in NSW (above a threshold level) and is available on a voluntary basis for those wishing to undertake biodiversity actions for other reasons.

The policy intent of BOS was to ensure that biodiversity would be protected whilst:

- not unduly constraining development, and
- ensuring that biodiversity protection would have some competitive market forces applied to drive least-cost outcomes.

One feature of the BOS is that developers are not constrained from undertaking development if biodiversity credits are not available for purchase on the open market since a developer may elect instead to make a payment to the Biodiversity Conservation Trust (BCT). The BCT then accepts liability to source the required credits. The price that applies for the developer contributions to the BCT has been provided via the Biodiversity Offsets Payment Calculator (BOPC) which is an online tool developed and administered by the DPIE.

Following market feedback to the department that the BOPC was acting to provide benchmark pricing in the market (and hence it was feared preventing normal market price discovery mechanisms from operating) a suggestion was made to remove the BOPC from public view.

The department had concerns that taking down the online BOPC may raise further issues and may create unintended consequences, such as:

1. Reducing information available to developers to make financial decisions
2. Requiring an alternative means of providing developers a quote for payment to the BCT
3. How to provide this information without having the quote act to benchmark price discovery?
4. Providing developers with more pricing information than is available to landholders
5. How should BOAMS pricing information be treated?
6. How does the development of a trading algorithm (developed by Gary Stoneham and Charlie Plott) and the development of an online trading platform interact with, the decision to take down the online BOPC

The department has engaged Aton Consulting to review the above concerns and in particular to:

1. Identify (and provide an evidence rationale) the key issues, consequences and risks to be considered in the offsets market associated with taking down the online BOPC (including at least impacts on the market as a whole and individual market participants).
2. Identify mitigating actions or strategies that may best respond to the issues, consequences and risks.
3. Detail suggested next steps the NSW Government should take with respect to the BOPC.

This report has been prepared by Aton Consulting to that scope. As part of that work Aton Consulting has conducted telephone interviews with scheme participants identified by DPIE.

Part I

Market Context

1 Context of the NSW Biodiversity Offset Scheme

The scheme in its current guise commenced in August 2017, superseding the “Biodiversity Banking” scheme that had previously existed in NSW.

However in the 12 months from 1 June 2019 to 1 June 2020 there have only been 3 trades under the new arrangements (totaling \$6.02M in turnover¹), whilst in the same time period there were 47 trades (totaling \$76.9M in turnover²) using the BioBanking credits and operating under the transitional arrangements.

According to the 2018-19 BCT Annual Report³ (the most up-to-date public information available) received approximately \$20M in developer payments in 2018-19.

While payment to the BCT was originally intended as a (higher cost) last resort, this may not be how the market has in fact evolved. It is not clear that this automatically indicates a market dysfunction.

In 2018-19 the BCT also undertook tender rounds and direct purchasing totaling \$73.7M. If we assumed the same level of activity in 2019/20, then the total market volume in 2019/20 for all forms of NSW Biodiversity credit would be around \$150M, of which at least 50% is associated with the BCT.

On available data it thus appears that the BCT is by far the largest single participant in the NSW Biodiversity market.

The BOPC pricing methodology does not include the pricing that has been obtained in the BCT tender rounds, which is held by the BCT as “Commercial-in-confidence”.

¹Refer the BOS Transactions Register available at <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/biodiversity-offsets-scheme/public-registers>. Accessed 11 June 2020

²Refer the BioBanking Public Registers available at <https://www.environment.nsw.gov.au/bimsprapp/BiobankingPR.aspx>. Accessed 11 June 2020

³BCT (Sept. 2019). *Annual Report 2018-19*. Tech. rep. Biodiversity Conservation Trust, p. 95. URL: <https://www.bct.nsw.gov.au/publications> (visited on 06/01/2020).

2 Key market characteristics

A full set of 2019-20 data is not available⁴, however on the available data provided by the DPIE, and on reasonable assumptions, the following key statistics about the NSW BOS market appear to apply.

1. Over 90% of volume in 2019-20 (by turnover value) is under the previous BioBanking arrangements. There is limited data available for hard analysis of the performance of the “new” BOS.
 - (a) In the 12 months from 1 June 2019 to 1 June 2020 there have only been 3 trades under the new scheme (totaling \$6.02M in turnover⁵), whilst in the same time period there were 47 trades (totaling \$76.9M in turnover⁶) using the old style BioBanking credits and operating under the transitional arrangements.
 - (b) Total market volume recorded in the registries in 2019/20 directly in biodiversity “credits” however defined (BBAM + BAM) is thus around \$85M.
2. In the calendar year 2019 a BBAM trades analysis provided by the DPIE shows a total turnover of \$171M, of which \$39M (23%) was direct activity by the Biodiversity Conservation Trust (BCT).
3. The BCT transacts both directly in the BOS and via repeated tender rounds from land holders. No public information is available (including to the Department) about the bids received or results of the tender rounds, or the total quantum spent by the BCT.
 - (a) Accordingly pricing information from these BCT tender rounds is NOT included in the BOPC calculation.
 - i. This is particularly intriguing given that the BOPC is used to set the price at which the BCT must transact with developers.
 - (b) The historical experience in other markets (such as the Renewable Energy sector) is that significantly scaled tender rounds have almost always led to lower prices than being reported in the public market, and given that the BOPC is only based on self-reported public prices this effect would make it likely that the BOPC pricing would be higher than what the BCT is transacting at via the tender rounds to procure the credits.
 - i. However this effect must be set against the data issues on the public data that is used to prepare the BOPC (discussed later), which appear to provide a downward bias in the BOPC pricing.

⁴Although DPIE public registers are available, this does not include much of the activity by the BCT. There is also no data about the number of projects that have commenced establishment, or the number of developments that are under active consideration - that is - there is very little information publicly available about the overall likely market dynamics. Some comparison might be made to the Australian Energy Market where the market operator puts out an annual report providing information about applications to connect that have been made, and hence allows some estimate to be made about future supply/demand levels.

⁵Refer the BOS Transactions Register available at [https://www.environment.nsw.gov.au/topics/ animals-and-plants/biodiversity/biodiversity-offsets-scheme/public-registers](https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/biodiversity-offsets-scheme/public-registers). Accessed 11 June 2020

⁶Refer the BioBanking Public Registers available at <https://www.environment.nsw.gov.au/bimsprapp/BiobankingPR.aspx>. Accessed 11 June 2020

4. On reasonable assumptions based on the public annual reports provided by the BCT would seem the BCT activity via tender rounds is in the order of \$30-\$50M per annum.
5. On reasonable assumptions NSW Transport, as a major demand side participant in respect of land clearing for roads, will require in the order of \$50M - \$100M of credits over the next two years. This broad quantum was confirmed with NSW Transport during interview.
 - (a) This would make NSW Transport the second largest participant in the market, after the BCT.
6. Several market participants pointed out during interviews that the Western Sydney Airport Project will have a very large (\$50M +) demand for credits, and that on current market conditions this may well cause a "crunch" in the market, since there are not that many large biodiversity sites currently under establishment.
 - (a) It is outside the scope of work for this consultancy to assess if this is the case.
7. The total turnover in the NSW biodiversity "industry" ⁷ in 2019 would thus appear to be in the order of \$200M (That is, there is a \$171M turnover in BBAM and BAM "credits" and another \$30M in other similar activities by the BCT through tender rounds). Total BCT related activities is thus in the order of \$70M - \$90M out of the \$200M total market size.
 - (a) At least 25% and possibly up to 45% of all "biodiversity activity" in NSW would appear in some way to be related to the BCT.
 - (b) **The BCT is thus by far the largest single participant in the NSW bio- diversity "industry", with NSW Transport the second largest, and together representing a majority of turnover.**
8. The BOS is highly concentrated on both the supply and demand side, the "credits" come in a wide range of non-fungible "flavours", and for developers (the putative "demand" side of the industry) is understood by the DPIE to represent in the order of 1%-2% of the post-development value of a given development.⁸ Within the narrow boundaries of the scheme there are significant deviations from the economics 101 assumptions about market participants being "rational, willing but not anxious".
 - (a) In the period 1 June 2019 to 31 May 2020 there were 9,829 credits (all definitions) retired⁹ and 10,657 credits (all definitions) created. This makes the **primary:secondary trading ratio close to zero.**
 - i. That is, to a close approximation, credits are created, sold once to a developer, and retired for compliance. There is almost no banking or trading of the same credit repeatedly between multiple parties.)

⁷A form of shorthand to cover biodiversity actions that developers are mandated to perform either via the BioBanking or BioDiversity Offset Scheme, the core budget activities of the Biodiversity Conservation Trust, and any further actions undertaken for other reasons.

⁸Note 14 June 2020 AFR article indicating for \$30M asking price of undeveloped land in Western Sydney the vendor states they expect the biodiversity credits to be worth about \$4m.

⁹Department of Planning, Industry and Environment (June 2020). *Biodiversity Offset Credit Transaction Report*. Excel Spreadsheet. URL: <https://customer.lmbc.nsw.gov.au/application/BOAMCreditTransactionSaleRegisterExport> (visited on 06/05/2020).

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- ii. There is no data showing speculative trading / market making by any party.
9. A large part of the BCT activities ¹⁰ (circa \$30m-\$50m pa) is by way of the repeated tender rounds.
- (a) Tender rounds by a reverse auction are a well proven and market compatible means of procurement of public goods.
 - (b) It is highly relevant to note that the overwhelming experience in the Renewable Energy tenders run by various state/federal agencies in Australia over the past decade is that they have produced prices LOWER than the then prevailing public Renewable Energy Certificate price. (That is, faced with a significant scale tender, renewable developers "sharpened their pencils" and bid prices lower than the publicly traded market prices.) This had the dynamic of then resetting general market perception as to where the price point really was.
 - i. This consultant considers it highly likely that a similar dynamic will be at play in the BOS. That is, that BCT tenders will over time tend to lead prices down compared to the OTC market. However no public data is available upon which to confirm this suspicion.
 - A. Market analysis of the bids received for the BCT tenders, and the resulting credit pricing, and how this compared with the BOPC pricing at the time would be informative to this point.

¹⁰public data is not available, but based on BCT annual reports it would appear to be in the order of \$30m per annum

Part II

Consideration of the DPIE Questions

Under the conditions outlined in Part I, it is unreasonable to expect that the pricing put by the BCT into the market will do anything other than be a major influence in pricing expectations on the whole market and this will be the case regardless of if the BOPC is public or private or of how the BCT actually transacts.

In the absence of a public pricing quotes from the BCT, consultants, brokers and advisors will instead focus themselves on otherwise seeking to estimate/garner market intelligence about what the BCT is doing, and the results of tender rounds, and use that information to establish their pricing expectations.

It is recommended that the department focus on agreeing with BCT (and other major market participants should such emerge) about what public data they release, and how. Some thoughts points might be:

1. Appropriate release / inclusion of BCT tender data - either directly into price quotes provided by BCT, or into price indices prepared by BCT or the DPIE or others.
2. Secure the participation of the BCT into the proposed BOX platform, or a near variant Market Comparison system.
 - (a) This would imply moving control of developer contribution pricing (the function currently provided by the BOPC) to the BCT, giving them control of their own developer pricing, so that the BOPC (as replaced) is clearly seen as representing the BCT (as a particular market participant) providing a quote to transact.

As an overall comment, the author of this report found it took a surprising amount of review of departmental websites, BCT annual reports, and other documents before an outline of the core aspects of the scheme became clear.

Although much useful information was ultimately found, preparing an "analyst's brief" on the scheme took more effort than one would hope, and this acts both as a barrier for new entrants into the scheme and represents a cost of doing business on existing participants.

It is suggested that the Department prepare a regular "State of the Market" report, which puts in a single document a detailed review of the scheme and core market statistics, as well as links to the underlying data sources. The Australian Energy Regulator's "State of the Energy Market" report may be a good model. Providing some guidance about likely (where known or reasonably estimated) future demand would also assist participants conduct feasibility work on the viability of establishing new sites.

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Short form answers to the questions asked:

¹¹By way of example consider the (much more comprehensive) annual Australian Energy Regulator "State of the energy market" report, which is generally treated as the "first go-to" document by market participants. <https://www.aer.gov.au/publications/state-of-the-energy-market-reports>

DPIE-Question: Does removing the BOPC reducing information available to developers to make financial decisions?

Aton-Response: Removing the BOPC clearly removes a piece of information from the market. However it will be replaced - either explicitly or implicitly - by whatever alternative quote mechanism the BCT establishes to provide their price quotes to the market. The BCT is the largest single player in the Biodiversity "Industry" in NSW. NSW Transport is probably the second largest. Either implicitly or explicitly people will look to what they do to set pricing points, and this point was confirmed from the telephone interviews conducted.

DPIE-Thought: Removing the BOPC requires an alternative means of providing developers a quote for payment

Aton-Response: Based on discussion with DPIE it appears the department carries the commercial burden for BCT having to develop a quotation tool. However in conceptual terms having the BCT prepare and issue their own pricing/quote tool, whilst the DPIE takes the part of market supervision/regulator/central data provider is a more market compatible approach than the current case of the DPIE preparing a pricing tool at which BCT must transact, which has a series of principle/agent problems.

- In particular the DPIE doesn't receive data about the BCT tender rounds, which are clearly actually the best source of hard transactional data about the price faced by BCT to meet its obligations.
- The current arrangement would appear likely to be causing a pricing gap between the public data used by DPIE to set the BOPC and the actual subsequent tender rounds used by the BCT, which would one think is a risk better managed by BCT.

DPIE-Question: How to provide this information without having the quote act to benchmark price discovery?

Aton-Response: Given the size of the BCT in the market, and the lack of any other on-line quotation services it is probably unreasonable to expect that the BCT quotes will be anything other than price setting in the market, regardless of how they are done. However this can probably be ameliorated over time by providing a mechanism whereby a "price comparison website" can be operated by the DPIE (or other external party) that provides a mechanism for on-line automated quotes from multiple parties (including the BCT). This is discussed further in Chapter ?? on page ??.(Such a tool should also provide the DPIE held time series data from multiple parties, allowing a reasonably easy analysis to be done as to where BCT pricing is sitting in the market). Such a tool could also allow a participant to show a 2 way price if they wished to do so.

- Some consideration might also be given to monitoring the extent to which developers are actually paying into the BCT fund, and where this has occurred, specifically reviewing if the BOPC price should be increased. (That is, a significant increase in developers paying into the BCT is likely evidence that the BOPC price is too low.)

DPIE-Thought: Concerns that removing BOPC will providing developers with more pricing information than is available to landholders.

Aton-Response: Provided that some other form of on-line pricing tools exist, there doesn't seem to be any particular information asymmetry issue caused by removing the BOPC (beyond the clear issues that already exist in the BOS market). That said, it is clear from the interviews with market participants (see Part IV) that people are widely using the BOPC as a pricing guide for both the purpose of price setting and for doing feasibility studies in respect of possible establishment of new biodiversity offset sites.

DPIE-Question: How should BOAMS pricing information be treated?

Aton-Response: As a general rule pricing information is key information to be released into a market, and the default position should be that price/volume data on all transactions should be released. The difficulty does arise that (apart from BCT tender rounds) all transactions are conducted Over-The-Counter (ie: Bilaterally between participants), and hence all pricing data is inherently self reported. There is a long track history in other markets much larger and better developed than BOS of self reported pricing data being manipulated.¹²

DPIE-Question: How does the development of a trading algorithm (developed by Professor Gary Stoneham and Professor Charlie Plott) and the development of an online trading platform interact with, the decision to take down the online BOPC

Aton-Response: Please see section Chapter ?? on page ?? for a discussion of some of the issues here. More generally note that there is a very chequered history of platforms successfully displacing OTC trading (even where a very good platform has been developed), and the reasons for this history should be carefully considered by the Department before counting on a platform to solve some of the underlying market issues.

DPIE-Question: identify (and provide an evidence rationale) the key issues, consequences and risks to be considered in the offsets market associated with taking down the online BOPC (including at least impacts on the market as a whole and individual market participants).

Aton-Response: Several issues include:

- Given the central role played by BCT in a small market with significant differences in timing drivers on the demand and supply side, information about BCT pricing is critical information to the market.
- There are usability issues with the current BBAMS and BAMs registries, which make their pricing information not easily informative to a would be market participant.
- There is no public information about the pricing evolving from the BCT tenders, which is probably the single most robust source of data.
 - Pricing quoted in the BBAMS and BAMs registries is self-reported. It is not clear what the quality of this pricing data actually is, but given the history of such self reporting being abused (think the LIBOR scandals), and the issues reported by participants during interviews, one is well to be skeptical.

¹²At the extreme end, consider the UK LIBOR rate fixing scandal.
https://en.wikipedia.org/wiki/Libor_scandal.

It is worth considering that if a major market involving major corporations with compliance teams and close oversight is subject to OTC price manipulation, what is the likelihood that a small bilateral market run by a state government agency will be immune?

- This issue of self reported pricing data being misleading was raised by ALL market participants interviewed for this project.
- Some form of on-line “smart” pricing tool that either collates and presents relevant historical data and ecological data or obtains on-line instant quotes from multiple parties is going to be quite critical.

DPIE-Question identify mitigating actions or strategies that may best respond to the issues, consequences and risks {of removing the BOPC from public view}.

Aton-Response During interviews participants noted there to be a core lack of reliable pricing information in the market, as well as strong perceptions by market participants interviewed that the market is not fair and orderly. Many participants appear to be using the BOPC as a feasibility analysis tool when considering establishing new sites, for which the BOPC is not well suited. (Such feasibility work really requires estimates about future pricing looking ahead 12-48 months, not a backward looking “transact now” price, which is the inherent nature of the BOPC). Particular suggested actions would include:

- Move responsibility for providing on-line quotes for developer contributions to BCT, and take DPIE into more of a market regulator / market oversight role. This could include:
 - Establish a more formal set of processes for conducting consultations to the market, rule changes, etc. Model these upon the processes using by ASIC in respect of the ASX, or AEMC in respect of the energy markets.
 - Have DPIE publish a statistical “state of the market” report (say every 2 months), with a particular focus on it being **useful and relevant information** for developers and biodiversity site owners to understand the current state of the market.
 - * DPIE might also publish a much shorter weekly/monthly “events this week in the market” report. (Consider for example the short weekly “Certificate Report” provided by DemandManager in respect of the NSW ESC market. A copy is provided as Annexure B
 - * Model this upon the AEMO “State of the Market” reports, or the sorts of weekly “analysis reports” that are created by brokers in the NSW Greenhouse Market.
- Publish additional information about BCT activities, in particular the out- comes of tender rounds.
- Establish a “compare-the-market” service, which enables developers/landholders to obtain buy/sell prices from multiple parties, commencing with the BCT, but open to others to use.
 - This service could start with just prices being provided from BCT, but be open to participaton from others. It could be spun out of government once established. The BOX could provide the working skeleton for such a service, provided at least BCT is participating in providing pricing into the tool.

- Develop on-line historical pricing tool which acts in a similar way to BOPC, but provides what is clearly simply historical price data processed in a clear and known methodology.
 - Basically a “smart-analysis” tool that actually lets a developer / landholder extract information that is meaningful to their specific situation.

DPIE-Question suggested next steps the NSW Government should take with respect to the BOPC.

Aton-Response Further thoughts on next steps are in Part III.

Part III

Recommended Actions

This section extends upon the recommended actions/next steps discussed in the previous section.

1. The Department prepare a regular (bi-monthly as a minimum) "state of the market" report, which puts in a single document a detailed review of the scheme, and core market statistics, as well as links to the underlying data sources. The Australian Energy Regulator's "state of the market" re- port may provide a model, albeit that this is an annual publication and a much larger report than what would be required in the BOS.¹³
2. The Department seek from BCT to obtain the results of the tender rounds, including all offers received and the resulting successful tenderers, and to conduct some statistical review of this information particular against the self-reported pricing data that is currently being recorded.
 - (a) This analysis (in an anonymised form) would ideally also be published in the "state of the market" report.
3. Noting that most data available to the DPIE is on the basis of self reported pricing, it may be worth undertaking some spot check activity to check the accuracy of the reported pricing.
4. The Department have discussions with the following people/groups and in particular see if any might be interested in establishing a fund and providing two way pricing:
 - Existing BOS participants
 - BCT
 - The Nature Conservancy
 - A couple of major developers
 - Financial Market Participants who might have interest
 - Polinator (██████████) (<—Particularly likely to have an interest)
 - Adamantem Capital (██████████) (<—Particularly likely to have an interest)
 - CBA (██████████)
 - ANZ (██████████)
 - Macquarie Bank (██████████)
 - ICAP (Financial Markets Broker, active in Australia in green markets)¹⁴ (██████████)
 - GFI (Financial Markets Broker, active in Australia in green markets)¹⁵ (██████████)
 - Other groups who may have an interest:
 - Demand Manager (██████████).¹⁶
 - * Demand Manager currently provides 2 way pricing in the NSW Energy Saving Certificate market as well as other financial / consulting services to participants in that market.

¹³The annual Australian Energy Regulator "State of the energy market" report is generally treated as the "first go-to" document by market participants. <https://www.aer.gov.au/publications/state-of-the-energy-market-reports>

¹⁴<https://www.icap.com/what-we-do/our-markets-and-products.aspx>

¹⁵<http://www.gfigroup.com/about-the-group/contact-us/asia-pacific/sydney/>

¹⁶<http://www.demandmanager.com.au/>

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- Green Energy Markets (██████████).¹⁷
 - The Investor Group on Climate Change (██████████).
5. The Department consider providing an on-line "historical pricing" tool that basically does what the BOPC does, but makes it clear it is just giving his- torical based analysis, not a firm quote. Provide API access to it so that others (including the BCT) can easily attach to and use the tool to build their own enhancements to it.
 - (a) There is an expectation here that someone - perhaps BCT itself - needs to develop and run a firm quotation system for BCT's pricing to developers, and that whoever does this would find the current BOPC style tool a useful input to that process.
 6. The Department discuss with parties the concept of a "compare the mar- ket" service that a landholder / developer could use to automatically (ie: web and via API) obtain buy/sell prices from multiple parties.
 - (a) There is no inherent reason why the Department needs to develop this tool itself, since it is quite possible that a broker or other parties would be willing to develop this on fully commercial (or partially sub- subsidised) terms. (Demand Manager and Green Energy Markets in particular would seem potentially interested to develop such a service, which is aligned with their current activities in other green markets in Australia.)
 7. Work with BCT in respect of what data from the tender rounds can be released publicly. In particular to consider if a public pricing index can be generated from these tender rounds.

¹⁷<http://greenmarkets.com.au/>

Part IV

Interviews with participants

3 Persons Interviewed

Aton Consulting was provided with a list of possible contacts by the DPIE, and conducted telephone interviews with the following people in September 2020:

| Name | Nature of participant |
|-----------------|---|
| David Kirkland | Western Sydney Parks Trust (WSP). Owner and operator of 4 existing biobanking sites and has a new site being established. |
| ██████████ | Owner of 1 existing biobanking site, and has a new site being established. |
| Julie Ravallion | Transport NSW. (Major purchaser, and owner of various sites registered under the scheme) |
| ██████████ | Owner of a biobanking site |
| ██████████ | Owner of a biobanking site |
| ██████████ | Owner of a biobanking site and has new site being established |
| ██████████ | Brother of ██████████, above. |
| ██████████ | Consultant on the scheme, and also owner of a biobanking site |
| ██████████ | Consultant on the scheme, and also owner of a biobanking site |
| ██████████ | Consultant on the scheme, and also owner of a biobanking site |

Table 1. Persons interviewed

The interviews were framed by stating that Aton had been engaged to respond to submissions made to the DPIE about the desirability of removing the BOPC from public view, and that the scope of this work was:

- to identify the role being played by the BOPC in the context of how the market aspects of the scheme were performing more generally.
- to identify any likely consequences of the BOPC being removed from public view.

The interview also then covered participants general impressions regarding the current state of the BOS market, and any general comments they had about how the market was likely to evolve.

4 Summary of Interviews

- Most interviewees with existing sites (all commenced under the previous scheme) indicated they had proceeded with the development of further sites, however those with new sites under establishment **all expressed uncertainty as to if they would proceed**. Concerns raised by a number of interviewees in particular were:
 - The BOPC pricing was in some key cases surprising low, so low in some cases as to be below their cost of establishing new sites.
 - * Several specific examples by different interviewees of this were raised.
 - The cash flow impacts of the tax treatment of the sites was a major disincentive.
 - *"Change to new scheme caused a lot of confidence to be sucked out the market, killed investments."*
 - *"80% of the time the BOPC price is too low"*
- Most interviewees commented that the scheme was very complex and participation in it was slow and required significant outside specialist assistance at significant upfront expense.
- All interviewees commented that significant data issues exist with the data on the public registry, and that the prices being reported cannot be taken on face value.
 - Several interviewees noted that they had seen instances where a "suspect" price was entered into the registry, and caused a significant change in the BOPC pricing. (The examples quoted all involved the resulting BOPC pricing being lowered. There were no examples quoted where the BOPC rose.)
- Several interviewees indicated that the "new" scheme (noting that the scheme has been in its current form since 2016) is *"much more heavily environmentally focused"* and as such *"much more costly to develop sites"*. (Due to the need to conduct more environmental survey work with consultants).
- Several interviewees mentioned that the change in the number of credits issued between the "old" scheme and the "new" scheme appears to have not been reflected in the market pricing. (ie: If 1/3 the number of credits are issued, the price should go up 3x, and this has not occurred).
- Several interviewees mentioned that there is a significant difference between the market in the Sydney area (where the bulk of development is occurring) and elsewhere, and that outside of this area the market can be very thin, in some cases with zero sellers of the required credit types.
- Several interviewees mentioned that with the new Sydney Airport development and other actions in the Western Sydney region there will be a shortage of credits in this area, and that there simply *"aren't enough new biobanking sites being established"* to meet the demand.

- Most interviewees displayed considerable confusion about the respective roles of the BCT and the DPIE, and as to who prepared the BOPC and what actually went into it.
 - Several interviewees made allegations about market manipulation by either the BCT, or the BCT in collusion with the DPIE. This flowed into expressed concern about being unwilling to commit to new sites given the possibility of being taken advantage of in a government run market.
 - Several interviewees expressed frustration at the “customer service” aspects of the scheme - in particular the ability to find, contact and get response from the relevant government officials.
- Two interviewees expressed that they had seen directly persons put “misleading information” into the public registry with the sole purpose of seeking to manipulate the BOPC price.
 - Given that cost information is in part inherently subjective, it is not at all clear that quoting a low number is “misleading”, or that any breach of scheme rules would be involved. However it is clear that participants believe these kinds of things are happening, which comes directly to the perception of running a “fair and orderly” market.
- Two interviewees noted that it was “surprising” the extent to which developers were buying land and establishing their own biodiversity offset sites, since this implied that the market wasn’t working efficiently.
- Most interviewees did not express particular concern about the BOPC being removed from public view, noting that they considered the prices it was generating as being significantly flawed and hence the problem being that the BOPC was generating too low a price at which the BCT would transact, rather than as to if the price was public or not.
 - However a small number of interviewees expressed that in the absence of any better public price generating system that they felt the BOPC was “all there is” and as such it should remain available. NSW Transport in particular requested that their “*Strong preference for the BOPC to remain available*” be explicitly attributed and noted in this report.

4.1 A comment on the roles of the BCT, the DPIE, and the BOPC

It was clear from the interviews that there is a significant confusion about the respective roles of the BCT and the DPIE.

This then feeds into a perception that the BCT knows more than other market participants and is in a position to manipulate the market.

In any market confidence in the fairness and freedom of the market itself is important. Absence this all rational participants draw back, fearing that they will be taken advantage.

This consultant was surprised at the level of distrust displayed by some participants.

It may be worth the DPIE considering in particular the “market rule change” process used by AEMC, where any proposed change is subject to a public process of “proposal”, “submissions”, “consultation”, “determination” that is fully visible to all participants in its procedural steps.

Part V

Appendices

Appendix A: Some interesting media articles

A.1 Startup seeks to put BOS on the blockchain

Aton Consulting Pty Ltd Mail - AFR Article21 August...

<https://mail.google.com/mail/u/0?ik=b03d72c45a&...>



Karel Nolles (Aton Consulting Pty Ltd) <karel.nolles@aton.com.au>

AFR Article 21 August 2019

Karel Nolles (Aton Consulting Pty Ltd) <karel.nolles@aton.com.au>
Draft

15 June 2020 at 11:17

CBA to trade biodiversity credits



James Eyers Senior Reporter
Aug 21, 2019 – 12.00am

Port Macquarie-based BioDiversity Solutions Australia and the Commonwealth Bank have built a prototype platform to manage credits generated by the NSW government's Biodiversity Offsets Scheme.

BDS hopes the state government backs the new market, to help more developers find the credits they need. The NSW scheme was created in 2016 to offset flora and fauna lost because of development. It was broadened in 2017.

Under the program, developers proposing to clear native vegetation are required to buy biodiversity "offsets". These are created and sold by other landowners to fund the protection and management of biodiversity on their land.

It is understood more than \$300 million in credits have been traded since the scheme was set up. But some developers have struggled to identify landowners wishing to sell credits, because there has been no market to trade them. The lack of transparent pricing has also held back the number of property owners participating in the scheme.

CBA and BDS have developed a proof of concept for a "digital marketplace" using blockchain technology. The system creates "biotokens", or transferable digital tokens representing unique biodiversity assets.

"This platform allows users, through a web interface, to create, buy, sell, invest and retire these credits," said Sophie Gilder, head of blockchain and artificial intelligence at CBA.

"It allows the scheme to function in the way it was always intended: to balance supply and demand and to provide a price signal."

The NSW scheme is complex for the government and property developers to manage; there are 6000 types of credits relating to flora and fauna, and long rules about how credits should be exchanged.

The blockchain uses "smart contracts" to embed these rules into the digital "token", automating the process of matching developers with credits and trading.

Blockchain technology also enhances security, because the asset register cannot be altered, and offers to

A.2 Nature Conservancy part of consortium buying \$55M beef farm

<https://www.afr.com/property/commercial/tiverton-agriculture-the-nature-conservancy-buyer>

AFR Jan 23, 2019

Tiverton Agriculture, The Nature Conservancy buyers of NSW cattle stations

REPORTER: Larry Schlesinger Reporter

Victorian-based Tiverton Agriculture and not-for-profit conservation group The Nature Conservancy (TNC) have emerged as the \$55 million buyers of the Juanbung and Boyong cattle stations in western NSW

The Australian Financial Review revealed earlier this month that the two properties, which include 33,000 hectares of prime grazing land and the Great Cumbung Swamp wetlands, had been sold to local buyers by former Hutchinson Australia major shareholder Tim Roberts-Thomson.

The acquisition includes significant water entitlements. The two stations have 55-kilometre frontage to the Murrumbidgee River, and are backgrounding properties for up to 10,000 beef cattle heading to nearby feedlots every year.

The Great Cumbung is home to 131 bird species and more than 200 plant species

They are also home to one of the largest privately-owned river red gum forests and the Juanbung Mill.

Tiverton Ag is a subsidiary of Orana Agriculture, which last year spent almost \$20 million buying one of the country's biggest privately owned fruit growing operations, Sunland Fresh Fruit.

It also owns the 10,654-hectare Picardy cattle station, near Dysart in Central Queensland, which it acquired just over a year ago for \$27 million.

The agribusiness group, which now has more than \$100 million of assets under management, is led by Nigel Sharp, a director at water-focused rural fund manager Kilter Rural and Harry Youngman, a director at Melbourne-based investment firm Lyons Capital, who also runs beef producer Ardgartan Pastoral Company.

Tiverton will operate the property with the dual objectives of conservation and sustainable agriculture.

"We look forward to managing this outstanding property and exploring future sustainable land use options such as carbon, biodiversity offsets and stewardship, and ecotourism," said Mr Sharp.

The Great Cumbung will be managed in conjunction with the 87,000-hectare Gayini Nimmie Caira property, which was purchased for conservation by the

NSW Government in 2012 and is now managed by TNC and Nari Nari Tribal Council.

Appendix B: An extract of the weekly "DemandManager" report



CERTIFICATE REPORT

18/09/2020

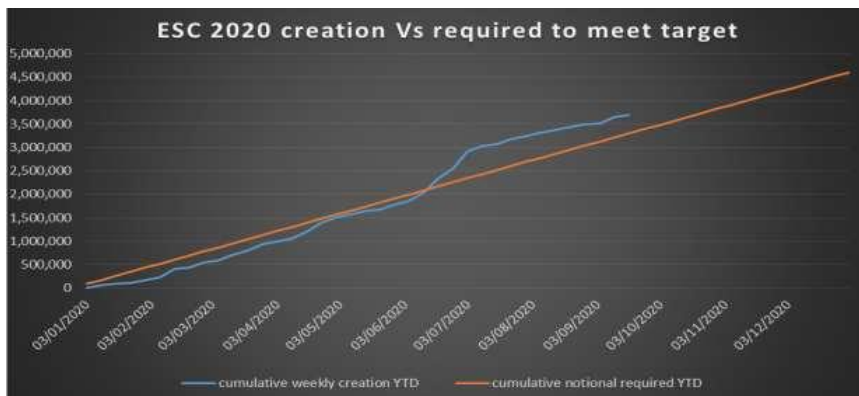
NSW ESCs

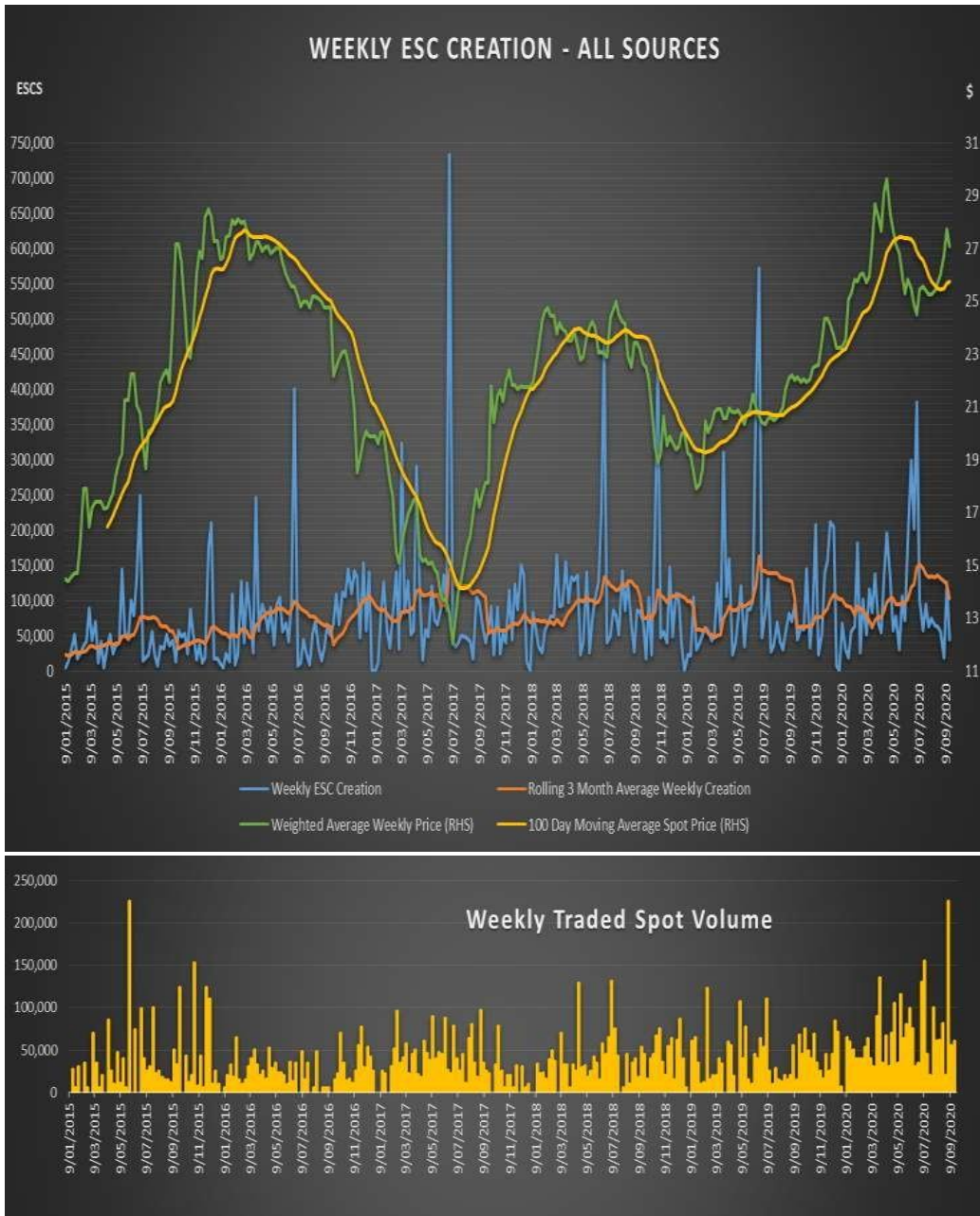
ESC creation fell back to earth while market prices did likewise, surrendering much of the recent gains.

The roller coaster nature of ESC registrations was evident again this week with new certificate supply increasing by only 44,700.

The spot price fell sharply out of the blocks with the first trade, at \$27.50, representing a 70 cent fall. The price continued to grind lower throughout the week, closing at \$27.00 on turnover of 60,000 ESCs.

In the forward market 89,000 certificates were contracted for delivery from October this year to November 2021. Deals settling this year traded flat to the prevailing spot price while those for 2021 attracted a premium of around 15 cents.





Appendix C: About Aton

Established in 1999, Aton Consulting undertakes a range of consulting, investment, research and advisory assignments related to markets, market design, fin-tech, energy and environmental markets, clean technology and "green tech".

Aton Consulting was founded by Dr Karel Nolles, who is the lead author of this report.

Karel holds a PhD in market design, experimental economics and electrical engineering from the University of New South Wales, and a Bachelor of Electrical Engineering from the University of Melbourne.



From 2004 to 2006 he was a Senior Research Fellow in the Faculty of Business at UNSW and a founding Director of the UNSW Center for Energy and Environmental Markets. Previously he had been a visiting researcher at the George Mason University Interdisciplinary Centre for Economic Science, where he worked with Professor Vernon Smith and his team. As an academic he conducted a wide range of research with a focus on global energy markets, including electricity markets and markets for renewable and carbon credits.

From 2007 to 2013 Karel held various director level positions with Macquarie Bank. He represented Macquarie as a Director on the boards of various companies, and was seconded from Macquarie to be the CEO of the NextGen energy / carbon brokerage business and of The WaterExchange.

Whilst working at Macquarie he also held a position as an Adjunct-Senior Lecturer in the school of Agricultural and Resource Economics at the University of Sydney, and taught in their Energy Economics program.

After leaving Macquarie Karel spent 2 years as Head of Market Design with SocietyOne, one of Australia's leading peer-to-peer lenders, where he was the lead designer of the robo-bidding Marketplace and auction system used by SocietyOne to allocate loans into investor portfolios. Over \$500M of loans have been funded using these systems.

Karel is a serial entrepreneur having been involved in 4 startup companies in various sectors, including being COO at a Ethereum based electricity smart-metering startup and being Head of Product and Strategy in an energy hedge fund.

In 2019 and 2020 he worked with Power and Water Corporation in Darwin Australia as Manager Electricity Reform, overseeing a project working on the implementation of the NT Electricity Market. He is currently employed as the Chief Investment Officer for Yamanah Investments, a venture capital subsidiary of the Indigenous Land and Sea Corporation.

Appendix: Bibliography

- BCT (Sept. 2019). *Annual Report 2018-19*. Tech. rep. Biodiversity Conservation Trust, p. 95. URL: <https://www.bct.nsw.gov.au/publications> (visited on 06/01/2020).
- Department of Planning, Industry and Environment (June 2020). *Biodiversity Offset Credit Transaction Report*. Excel Spreadsheet. URL: <https://customer.imbc.nsw.gov.au/application/BOAMCreditTransactionSaleRegisterExport> (visited on 06/05/2020).