



ESTABLISHMENT OF CARBON FORESTS ON CROWN LAND

NSW Guidelines for Local
Government as Trust Managers



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Contact us

Regarding these guidelines

Contact your local LPMA Crown Lands office.

http://www.lpma.nsw.gov.au/about_us/LPMA_offices/other_lpma_offices

Regarding Regenesis

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1. About these guidelines

These guidelines outline the requirements for carbon forest planting and describe additional steps required for plantings to occur on Crown land. They facilitate the partnership of Land and Property Management Authority (LPMA) and local ‘trust manager’ agencies, such as local councils, to plant vegetation that enhances biodiversity and local environmental outcomes while also meeting the international and Australian Government requirements for carbon trading through reforestation. This model enables carbon trading through recognised carbon trading schemes. It can be used in urban and rural settings.

Blacktown City Council and LPMA developed these guidelines to assist land managers interested in establishing a carbon forest on Crown land under their care and/or control. The guidelines are based on the innovative Regenesis project conducted in a partnership between Blacktown City Council and its Sister City Liverpool Plains Shire Council from 2007 to 2010. During this period, the Regenesis project planted more than 169,000 native plants in establishing 33 carbon forests on urban and rural Council owned land, urban and rural Crown land and privately owned rural land. The Regenesis project was funded through a \$2 million grant from the NSW Environmental Trust’s Urban Sustainability Program. The project developed the Regenesis model of establishing carbon forests that enhance biodiversity and local environmental outcomes, such as improved water quality in creeks. While the grant-funded period concluded on 31 December 2010, Regenesis continues as an aspect of Blacktown City Council’s ongoing revegetation work and as a model for interested organisations.

In NSW Crown land is managed in accordance with the objectives and principles of the *Crown Lands Act 1989*. Crown land can be land reserved for a public purpose or tenured Crown land held under lease, licence or permit.

Crown reserves are land set aside on behalf of the community for a wide range of public purposes including environmental and heritage protection, recreation and sport, open space, community halls and showgrounds. Crown reserves are created to protect and manage important community resources and are administered under the *Crown Lands Act 1989*. There are over 35,000 Crown reserves with a total area of 2.5 million hectares across NSW – about three percent of the land area of the state.

Crown reserves are generally managed by either reserve trust boards, local councils (as the trust manager), State government departments or LPMA. Approximately 105,500 hectares of Crown reserve is managed by local government.

These guidelines are not prescriptive in regard to species or plant types and are therefore useful throughout NSW. Neither are they prescriptive in the manner of sharing of costs and carbon trading income. It is envisaged

that LPMA and each trust manager would negotiate a contractual arrangement suitable for the individual project.

A word of caution

These guidelines outline the principles underlying the international and Australian carbon trading requirements for reforestation projects and some examples. It should be noted that the rules of various carbon trading schemes are different and that the rules for each can change. In general, at the time of writing these guidelines in December 2010, the Regenes model is flexible enough to enable participation in a range of carbon-related schemes and mechanisms, including, but not limited to:

- NSW Greenhouse Gas Abatement Scheme (renamed Greenhouse Gas Reduction Scheme)
- National Carbon Offsetting Standard (NCOS)
- Carbon Farming Initiative (the rules for which are still being developed)
- Voluntary Carbon Standard.

However, proponents of any given reforestation project should check with those administering a particular carbon trading scheme to ensure that their proposal would meet the relevant requirements. Carbon trading is generally governed by guiding principles and these principles should be considered at all times during the development of a carbon forest proposal. The principles are:

- **Additionality** - that activities are above and beyond business as usual and would not be considered a part of normal activities
- **Permanence** - that the abatement activity results in a permanent reduction of carbon in the atmosphere
- **Avoidance of leakage** - that the activity does not result in an increase in emissions from another location
- **Measureable and verifiable** - that the abatements are able to be measured and verified by another party
- **Conservative** - that calculations used to determine abatements are of a conservative nature so that the amount of carbon abatement is often more than credits issued
- **Internationally consistent** - that the activity is internationally consistent in design and implementation with international conventions and regulations
- **Supported by peer reviewed science** - that any science used to underpin the abatement project has been peer reviewed following the conventions of the peer review process.

2. Why establish mixed species environmental plantings on Crown land?

Crown land management seeks to balance environmental, social and economic objectives for the benefit of the people of New South Wales (in accordance with the principles of Crown land management as set out in s11 of the *Crown Lands Act 1989*). In line with LPMA's commitment to sustainability, mixed species environmental plantings can sequester considerable levels of carbon, enable carbon trading, and simultaneously enhance biodiversity, salinity and water quality outcomes. The carbon trading income stream can be used to help recover the costs of establishing the forests, address ongoing maintenance costs and recover the costs associated with accrediting and administering carbon forests.

Selecting sites

Site selection should include due consideration of social, economic and environmental objectives including the long term sequestration of atmospheric CO₂. Once you have made a preliminary site selection (based on the broad objectives such as regional spatial data analysis and local knowledge) the following steps will allow you to determine if the site is viable for biodiversity and/or carbon sequestration planting.

Also check guidelines provided in the Reserve Trust Handbook (Section 14.8):

http://www.lpma.nsw.gov.au/trusts/trust_handbook

3. Considerations for enhancing biodiversity and water quality outcomes

While not necessary for carbon trading relating to reforestation projects, the following considerations are important for their ability to provide local environmental enhancements that meet LPMA's commitment to the sustainable management of Crown land, as outlined above. However, many schemes and regulating bodies require that abatement projects show not only abatement but also positive social and environmental outcomes. These social and environmental outcomes must be quantified and reported.

3.1 Selection of locally native species to enhance biodiversity and habitat corridors

For carbon sequestration purposes only, the most effective option might be a single species plantation of fast growing trees. However this provides no significant improvement in biodiversity and is generally not as aesthetically pleasing for recreational users or adjoining

landholders. In order to meet a range of objectives, especially biodiversity enhancements, plantings should be a mixture of species and also have structural diversity (i.e. contain a mix of trees and understorey and ground cover plants). Local species are adapted to local climatic and landscape characteristics. They are more likely to be successfully established, have lower long term maintenance requirements and are more resilient to local pests, diseases and local climatic variations.

Locally native mixed species environmental plantings are more likely to provide important social and additional environmental outcomes such as biodiversity, water quality and soil conditioning than commercial forestry plantings.

The ability of species to move between habitat areas and the importance of vegetation corridors to form links between habitat areas has long been recognised as ecologically important. The importance of these linkages is now also being highlighted as a means of building resilience and adaptive capacity to help protect biodiversity in the face of climate change impacts. The completion of vegetation corridors is therefore an important area to target for biodiversity and carbon planting projects. The Catchment Management Authority will be able to advise on the selection of locally appropriate species.

In some instances linking vegetation and habitat corridors may require coordination across land held under different tenure types (freehold, leasehold, Crown reserve, council community land etc).

3.2 Guiding documents and plans

Most schemes or regulators would require that projects demonstrate that they do not breach any local, state or federal planning requirements or any other statutory regulation or planning provisions. Some councils will have a biodiversity strategy or a similar document that may identify priority areas for protection and/or rehabilitation. There are 13 Catchment Management Authorities (CMAs) in NSW and each CMA has a Catchment Action Plan (CAP) to set management objectives over a five year period. CAPs and associated CMA documents and data sets are a useful guide to the selection of priority areas for biodiversity enhancement. At a State level, the NSW Biodiversity Strategy 2010-2015 (available as a draft at time of writing) can assist to guide decision making and to identify priority areas for conservation.

3.3 Planting methods

The chosen planting method should be determined through the consideration of the prevailing climatic and landscape characteristics of the area. Localised and specialised knowledge should be sought. In more remote locations where watering is labour intensive the planting of long-stem native tube stock may be a good option. With long-stem tube stock initial planting costs are higher, but ongoing maintenance is significantly cheaper and the success rate higher. To date, there

have not been any scientific studies to compare carbon sequestration rates of conventional planting versus long-stem tube stock planting, but trials in the Hunter have indicated a significantly greater growth rate for long-stem plantings after the first two years. This should translate to significantly faster carbon sequestration rates. See the following web links for more detail on long-stem native tube stock planting.

<http://asgap.org.au/APOL29/mar03-6.html>

http://www.hcr.cma.nsw.gov.au/uploads/res/Publications/long_stem.pdf

http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0020/315533/Planting-trees-for-biodiversity.pdf

3.4 Plantation maintenance

Consideration should be given to the ongoing maintenance of the project. In particular the first 3-5 years are of critical importance for the development of forests. Project Managers should monitor the establishment of forests and pay particular attention to species of plant and animal pests in the early years. Maintenance of the project should be considered in budgets. Due to the permanence requirements of carbon forests, consideration should be given to the long term maintenance.

4. Kyoto Protocol & Australian Government carbon trading requirements for reforestation

Minimum compliance requirements for the site and its reforestation

These requirements must be met in order for a project to comply with the international Kyoto Protocol & Australian Government carbon trading requirements for reforestation.

The Kyoto Protocol requires that:

- The site must have been deforested (i.e. with less than 20% canopy cover) as at 31 December 1989
- The reforestation planting must be human-induced
- The reforestation dominant tree-species must reach at least 2 metres in height at maturity
- The reforestation must have a minimum canopy cover of at least 20% of the site.

Additionally, the Australian Government requires that:

- The reforestation site must be at least 0.2 hectares (2,000 square metres or ½ acre) in area.

5. Principles addressed by the Kyoto Protocol and included in carbon trading schemes

The principles outlined below are addressed in various ways in different carbon trading schemes. It is important to consider them when planning a planting project and when deciding which scheme is most appropriate for your circumstances.

Measurable and verifiable

Abatement must be measured or estimated accurately, so that each carbon offset certificate or credit represents one tonne of carbon dioxide equivalent (CO₂-e). The Australian Government's Department of Climate Change and Energy Efficiency (DCCEE) administers the National Carbon Accounting Toolbox (NCAT) to enable the measuring of carbon sequestration through reforestation. This system assists with ensuring that measurement methods are consistent over time and enable abatement estimates to be audited by a qualified, independent third party.

<http://www.climatechange.gov.au/government/initiatives/ncat.aspx>

Avoidance of leakage

The reforestation project must not cause material increase of carbon emissions elsewhere, as these would nullify the project benefits. Changes in land use that result in a shift in emission to another land parcel are not considered to have addressed leakage as the net effect on the atmosphere is compromised by new emissions elsewhere.

Additionality

The principle of additionality aligns with the objective of carbon trading to financially reward projects that reduce levels of atmospheric carbon-based greenhouse gases, such as carbon dioxide (CO₂) and methane (CH₄). Reforestation projects do this because the growing trees absorb CO₂ as part of photosynthesis and sequester (or store) carbon in their stems, branches, leaves and roots.

Additionality requires that the removal of carbon from the atmosphere is additional to what would have occurred through 'business as usual' practices. Rules of additionality vary within different carbon trading schemes, however, they have one or more of the following three main components:

- financial additionality where the project needs to go beyond business as usual practice e.g., the planting project took place specifically to sequester carbon to enable carbon trading and it would not have proceeded without the inclusion of the financial benefit of carbon trading
- regulatory additionality where the project needs to go beyond existing legal requirements e.g., the planting project must not have been a regulated requirement of development
- Environmental additionality where the emission reductions are not being counted toward another emission reduction scheme or commitment e.g. sequestration from the project cannot be 'double-counted'. [NB: It may be possible to claim credits for different types of "ecological services" such as biodiversity enhancement and carbon sequestration under different credit trading schemes; depending on the rules of each scheme.]

Permanence

Carbon trading schemes often have 'risk of reversal' strategies to cope with situations causing the forest carbon to be released (sometimes referred to as "depletion events"), e.g. bushfire. For example, a scheme might issue certificates for only 95% of carbon sequestered, retaining the remaining 5% as a buffer in case of a forest depletion event such as fire or disease. Another way of coping with forest depletion events is the refusal to issue further carbon certificates until a forest has recovered to the growth stage it reached prior to the depletion event. For example, if a fire burned out a forest after 10 years of growth, the scheme might not issue further carbon offset certificates until the forest had grown for 10 years after the fire occurred.

The principle of permanence requires that removal of atmospheric carbon (in this case carbon sequestration through reforestation) is permanent. To address this principle, some carbon trading schemes require a carbon forest landowner to place a legal note or covenant on the land title outlining the obligation to manage the nominated portion of the land as a carbon forest for 100 years. Those who subsequently inherit or buy the land will be alerted to their land management obligations by this legal note on the title. They may also benefit from associated carbon trading income.

6. Steps to establishing a carbon forest on Crown land

STEP 1: Determine site compliance

See also earlier section: *Kyoto Protocol & Australian Government carbon trading requirements for reforestation.*

Eligibility test

- Does the project contain over-storey vegetation with a minimum height of between 2 and 5 metres?
- Will the over-storey vegetation achieve a canopy closure of greater than 20% at maturity?
- Will the project be established on land that was predominantly clear of forest (i.e. with less than 20% canopy cover) on 31st December 1989?
- Will the project be established after the 1st of January 1990?
- Will the project be established by human induced methods such as planting or seeding?
- Will the project be of size greater than 0.2 ha?
- Can the project demonstrate that it is additional to business as usual?

STEP 2: Develop a project proposal

The project proposal needs to determine and fully address the following issues:

- A. Site Ownership, Land Use & Management
- B. Site and proposed planting details
- C. Estimation of carbon income over the presumed 100 years of the project
- D. Responsibilities and benefits in the contractual agreement between LPMA and the Trust Manager.

Each of these issues and ways to address them are outlined below.

A. Site Ownership, Land Use & Management

To be eligible for carbon trading, the site needs to be registered by the landowner with the carbon trading scheme. It is likely that in order to register with one of the recognised schemes, the landowner must agree to, and be in a position to agree to, adding a legal instrument to the relevant land title to protect the forest for 100 years, to ensure that the carbon sequestration project meets the permanence requirements of the target scheme.

The longevity of the arrangements means that land use and management issues need to be considered and all relevant stakeholders need to be consulted.

The project proposal should address the following questions:

- Is the site owned by the party proposing the planting or does it come under their care and control? Confirm care, control and ownership conditions and that these can be demonstrated through provision of documentary evidence.
- Is the planting area free of any encumbrance such as easement, service corridor, heritage listing? NB: The project area (i.e. the land parcel covered by the land title) may have these encumbrances but the planted area itself must be free of such encumbrances.
- Is the site currently used for any other purpose that may conflict with the establishment of a long-term carbon forest (e.g. drainage channel)?
- Is the site identified for any other future purpose that may conflict with the establishment of a long-term carbon forest (e.g. development)?
- Is the site suitable for the reforestation activity, in that the activity will not affect other land based services such as flood mitigation, retention basins, wetlands, fire buffer zones or other activities that would be hampered by the establishment of long term forests?
- Is the site located next to a site that has a current or proposed use that may conflict with the establishment of a long-term carbon forest (e.g. rezoning, development)?
- Have adjacent landowners and parties with vested interest in the land been consulted regarding the proposed planting (e.g. Rural Fire Service, local Catchment Management Authorities, utilities provider)?
- Is the proposed planting consistent with the site's management plan (e.g. Plan of Management, Vegetation Management Plan, Revegetation or Biodiversity Strategy)?
- Is the site actively managed by Bushcare, Landcare or similar group? Have they been consulted regarding the proposal?
- Would the proposed planting lead to unacceptable risks to adjacent or nearby assets or ecosystem services, such as hydrology, that the nearby assets depend upon?
- Is the proposed planting subject to any land management agreement or requirement? If the answer is 'yes', this may affect the project's 'additionality'.
- Where appropriate, advertise proposed actions and consult with stakeholders on the project development.

B. Site details and proposed planting details

As the landowner, LPMA will also require the following information detailed in the project proposal:

- Property location, Lot & Deposit Plan number [NB: Where a Torrens title has not yet been created, the local LPMA office may first need to have the title issued.]
- Size and location of proposed planting area on property
- Proposed species for planting including canopy, mid and under-storey
- Proposed density of planting
- Proposed maintenance regime.

C. Estimation of carbon income over the presumed 100 years of the project

Carbon income is dependent on a range of variables, most notably:

- The location, climate, rainfall and soil type, all of which influence plant growth and sequestration rates
- The size of the carbon forest
- The vegetation community, species mix and density of planting
- The market price of carbon at given times
- The methods used for carbon accounting – usually undertaken using the National Carbon Accounting Toolbox

<http://www.climatechange.gov.au/government/initiatives/ncat.aspx>

Project developers must be mindful of the rules and regulations of target schemes and pay particular attention to regulations that affect the calculation of sequestration rates such as uncertainty analysis and risk of reversal buffers, crediting periods and credit issuance processes.

On the other hand, trees typically demonstrate their main growth (and hence sequestration period) 5-20 years after planting. Using this and the National Carbon Accounting Toolbox, and likely projections for carbon pricing, projections can be made for carbon trading income.

D. Responsibilities and benefits in the contractual agreement between LPMA and the trust manager

For those trust managers proposing a revegetation project, the likely responsibilities include:

- Identifying a relevant site
- Assessing the site to ensure compliance
- Where the site complies with carbon forest requirements:
 - o Development of a proposal that addresses all issues mentioned in these guidelines
 - o Negotiation and agreement on terms and conditions for the contractual agreement, including the cost-sharing and income-sharing arrangements
 - o Planting and maintaining the site
 - o Ongoing compliance with the contractual agreement
 - o Participating in a joint five-yearly review of the contractual agreement with LPMA.

Likely responsibilities for LPMA include:

- Assessment of proposal
- Negotiation and agreement on terms and conditions for the contractual agreement, including the cost-sharing and income-sharing arrangements
- Sharing previous business models for the contractual agreement when these relate to projects similar to those being proposed
- Where a proposal is approved by LPMA:
 - o Registration of the site with the agreed carbon trading scheme and/or providing the documentation to enable the registration
 - o Including the site in any LPMA aggregation of sites
 - o Ongoing compliance with the contractual agreement
 - o Periodic review of the contractual agreement.

Periodic reviews are recommended as they offer both parties a chance to regularly evaluate the project outcomes and address any problems. These should align with any periodic review requirements of the given scheme.



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Important Note: This document does not constitute legal advice. Users are advised to seek professional advice and refer to the relevant legislation, as necessary, before taking action in relation to any matters covered by these guidelines.

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