



Carbon Markets for Wood Energy Projects

Wood energy: green, clean, renewable?

Wood is the most important source of energy for most poor households in developing countries. Globally, more than 2.5 billion people depend directly on wood-fuels to cover their daily energy needs: firewood and charcoal account for more than 80% of domestic energy consumption for cooking and heating. Demand for wood will increase further in the years to come. At the same time, wood supply is becoming scarce due to unsustainable forest management practices, land use changes, and resource depletion. This is reflected in high and continuous deforestation rates, increasing prices and distances travelled/time spent to gather wood.

Sustainable wood fuel production

In most least developed countries wood is currently used on an unsustainable basis. In order to meet the energy demand of poor households and reduce pressure on natural forests in the long term, sustainable wood fuel production on plantations is an option. Wood from sustainably managed plantations can constitute an affordable, climate-neutral and renewable source of energy.

Carbon markets for wood fuel plantations

Carbon funding can be used as a financing instrument for forest plantations, as newly planted trees on hitherto fallow lands absorb carbon dioxide from the atmosphere. Forest plantation projects belong to afforestation and reforestation (A/R) projects under the Kyoto Protocol, and are eligible under the framework of the Clean Development Mechanism (CDM). Forests are carbon sinks, storing huge quantities of carbon during their lifetime. Emission removals (ER) in forestry suffer from the uncertainty of non-permanence. If planted forests are depleted at some point in the future, the stored carbon will re-enter the atmosphere. For this reason forestry credits are valid for a specified

period only and need to be substituted in time to guarantee long lasting carbon removal. This is one of the reasons why the largest compliance market, the European Union Emission Trading Scheme (EU-ETS), does not accept forestry credits. This fact affects demand and market prices of credits from forestry carbon projects negatively. In particular small-scale A/R projects with a strong wood fuel component are scarce. Owing to long growing periods, A/R projects face high up-front investment costs and delayed credit revenues. Nonetheless, the pipeline for forestry CDM projects has been increasing in the last years.

A range of CDM methodologies for A/R projects is available, but so far only one small-scale and four large-scale methodologies have been used more widely (see Table 1).

Table 1: CDM A/R methodologies in use

Ref. Number	Name of Methodology
Small-Scale	
AR-AMS0001 v.6	A/R CDM project activities implemented on grasslands or croplands with limited displacement of pre-project activities
Large-Scale	
AR-AM0002 v.3	Restoration of degraded lands through A/R
AR-AM0004 v.4	A/R of land currently under agricultural use
AR-AM0005 v.4	A/R project activities implemented for industrial and/or commercial uses
AR-ACM0001 v.5	A/R of degraded land --- Version 5

Their main difference lies in the land use prior to the A/R activity and the carbon pools (above/below ground biomass, soil, etc.) taken into account, which has an impact on the baseline calculation and carbon fixation. Using default values (e.g. from IPCC) is recommended, as on-site surveying and monitoring is expensive and time consuming. The net anthropogenic ER are calculated as the difference be-



tween ER achieved by the project and ER which would have occurred in the absence of the project. Changes in carbon stocks are evaluated at fixed intervals (e.g. every 5 years) using several parameters (height, diameter, density of wood, etc.). CDM methodologies can also be applied by some of the voluntary carbon standards since they are regarded as conservative approaches with adequate additionality assessments.

Voluntary Carbon Standards

As a matter of fact, the voluntary carbon market is currently more lucrative for forestry ER. As A/R projects with strong community involvement have manifold advantages and go hand in hand with various side benefits (e.g. production of non-wood forestry products, high community participation, employment, income, fuel security, environmental benefits etc.), they are very attractive for voluntary compensation schemes. The additional values mentioned are very important to credit buyers who use voluntary credits for Corporate Social Responsibility and marketing activities. High development costs and time-consuming project design connected with sustainable A/R projects are likely to be rewarded with higher credit prices later.

Most voluntary standards have so far only been applied for a handful of projects. Nonetheless, A/R projects (including projects with a focus on wood fuel production) are increasingly becoming popular among credit buyers. The market price for voluntary A/R credits varies greatly, depending on the standard chosen. Furthermore, not every standard is suitable for every kind of project activity. Prior balancing of the pros and cons of each standard (e.g. regarding procedures, costs and time frame of validation, registration, verification and certification processes) is strongly recommended to avoid problems at a later stage.

The **Voluntary Carbon Standard (VCS)** is currently one of the most recognised voluntary market standards. It recently developed a standard for agriculture, forestry and other land use changes: www.v-c-s.org

The **Plan Vivo** System certifies forest management and agro-forestry project activities based on native or naturalised tree species. Projects under Plan Vivo have to support community-based forestation approaches that improve poor people's livelihoods by creating additional ecosystem services: www.planvivo.org

The **Carbon Fix Standard (CFS)** was developed for forestation projects, including plantations, and applies its own methodology: www.carbonfix.info

Other recently developed carbon standards and regimes for A/R projects which could become more interesting in the future include: Chicago Climate Exchange CCX Forestry Sequestration Protocol; TÜV SÜD VER+, California Climate Action Registry, Climate Action Reserve Protocols, Carbo Platinum Carbon Standard.

Beyond Carbon Standards

Schemes which can be used additionally in order to reach maximum project sustainability and above-average market prices:

The **Climate, Community and Biodiversity Standard (CCBS)** focuses on co-benefits for communities and biodiversity attributable to land-based mitigation activities. A great many CCBS projects are A/R projects: www.climate-standards.org

The **Forest Stewardship Council (FSC)** is one of the most recognised standards for social, economic and ecological forestry projects certifying sustainable forest management practices through labelling forest products. : www.fsc.org

Recommended Reading & Tools

IPCC (2007): Guidelines for National Greenhouse Gas Inventories on Agriculture, Forestry and Other Land, Vol. 4: AFOLU. IPCC. Geneva.
Lopes, P. (2009): Review of Forest Carbon Standards. London. Thesis.
Merger, E. (2008). A Comparison of leading Standards in the Voluntary Carbon Market & the State of Climate Forestation Projects. Carbon Pos.
Richards, M., Panfil, S. (2010): Manual for Social Impact Assessment of Land-Based Carbon Projects. Forest Trends, CCBA, FFI, Rainforest AL.
UNEP et al. (2010): Bringing carbon forestry projects to the market. ONFI
WWF (2010): Forest Carbon Standards. Frankfurt
www.forestcarbonindex.org, www.forestcarbonportal.com

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