IEA Bioenergy Task 38 “Climate change effects of biomass and bioenergy systems”

Highlights 2016

IEA Bioenergy Task 38 is a network of experts that develops methods to quantify climate effects of bioenergy, biomaterials and land management, and provides input to climate and energy policy at national and international levels. Task 38 is led by Annette Cowie, NSW Department of Primary Industries, and has 6 participating countries.

Task Meetings

• Task 38 joined Task 43 in a study tour of the bioenergy industry in the South Eastern USA, 10-14/4/2016 Knoxville to Savannah, to gain first-hand experience of the wood pellet industry, that is producing pellets that are shipped to Europe for bioenergy.

• Prior to the study tour Annette attended the 30th Annual Conference of the U.S. Regional Association of the International Association for Landscape Ecology (US-IALE), 4 - 7/4/2016, Asheville, North Carolina where she presented “How emission accounting and reporting influence perceptions of bioenergy” in the session “Opportunities and Barriers for Sustainable Bioenergy”. Annette also visited Appalachian State University, Boone, Tennessee, 8-9/4/2016, where she met with Prof Gregg Marland and Prof Eric Marland to discuss collaboration on GHG accounting for bioenergy and presented a lecture “Quantifying the impacts of greenhouse gases” and a seminar “Is bioenergy good for the climate?”

• Annette chaired the Task 38 business meeting 14-15/4/2016 Savannah. Items covered included update on progress of current scientific papers under development, on reference system and metrics; discussion of recent controversial papers; presentation of commissioned report comparing decomposition models; presentations from national team leaders on recently published research; planning for new intertask project “Measuring, governing and gaining support for sustainable bioenergy supply chains”.

• Annette chaired the online meeting of Task 38 25 October 2015. Major agenda item was planning for upcoming meeting in meeting which will be held in Växjö Sweden 9-11 January 2017, which will focus on comparison of models of forest-based bioenergy systems.

Task presentations


• Annette presented a summary of the work of Task 38 at the Bioenergy Australia conference.

Task outputs


Key findings: “Carbon neutrality” is a complex issue that can distract from understanding the full climate consequences of using forest biomass for energy, The report outlines the many factors that determine the climate impacts of bioenergy.

• Several members of Task 38 and Task 43, under leadership of Annette Cowie, submitted a response to a misleading paper on climate impacts of bioenergy policy published in the high-profile journal Nature Climate Change:
Cowie et al. (2016) Reply to “Rethinking forest carbon assessments to account for policy institutions”, by Andrew Macintosh, Heather Keith and David Lindenmayer. Published Online: 29 June 2015 / DOI: 10.1038/Nclimate2695 (2015), Nature Climate Change.

**Key lessons**: These researchers used biased assumptions and inappropriate system boundaries to contrive a result that was detrimental to production forestry, including bioenergy.

- Task 38 has been working for several years on a paper that provides guidance on choosing the reference system against which a bioenergy system should be compared, in order to quantify its impacts. The major focus is on choosing the appropriate land reference, to match the purpose of the study. The paper has now been submitted to Renewable & Sustainable Energy Reviews, and is currently undergoing peer review.

- Task 38 and Task 43 jointly commissioned a report on the influence of albedo on the climate change effects of bioenergy systems, and another comparing two forest litter decomposition models. These two reports have been reviewed and are currently being revised by the authors prior to publication by the Tasks.

- Task 38 was invited to contribute a chapter to Elsevier’s Encyclopaedia of Sustainable Technologies, so prepared a short paper providing guidance on conducting consequential life cycle assessment. The chapter focuses on bioenergy systems to demonstrate the method. The chapter is currently under review.

**Implications for Australia**

1. Involvement in Task 38 provides opportunities to promote Australian expertise, to learn from international experts, and to influence the outcomes of policy development.

2. Supply of biomass for bioenergy could be a viable enterprise for Australian agricultural producers, delivering multiple benefits for agricultural production and the environment, however it is challenged by negative perceptions of bioenergy. IEA Bioenergy Task 38 is collaborating with other IEA Bioenergy tasks (43 and 40) to counter this perception.

3. Bioenergy is anticipated to be critical to meeting the climate change mitigation targets of the Paris Agreement. Yet there is widespread misunderstanding about bioenergy amongst the community, and scepticism amongst environmentalists, scientists and policy-makers over the true climate impacts of bioenergy. It is critical that policy for promotion of bioenergy distinguishes and supports bioenergy systems that give greatest net benefit. Task 38 is developing new methods for assessing climate effects of bioenergy, and facilitating dialogue with policy-makers to enhance understanding of the legitimate role of bioenergy in climate change mitigation.