

Final report

1.1 Project details

Project title	IEA cooperation on sustainable biomass for energy markets - Task 43 and 38
Project identification (program abbrev. and file)	EUDP , EUDP12-II (2013-2015), Journal no.: 64012-0256
Name of the programme which has funded the project	Det Energiteknologiske Udviklings- og Demonstrationsprogram , EUDP12-II (2013-2015)
Project managing company/institution (name and address)	Institut for Geovidenskab og Naturforvaltning (IGN), Det Natur- og Biovidenskabelige Fakultet, Københavns Universitet, Rørlighedsvej 23, 1958 Frederiksberg C
Project partners	-
CVR (central business register)	29979812
Date for submission	23. November 2017

1.2 Short description of project objective and results

English version

This project had as its objective to contribute to optimization of the collaboration between leading biomass producing and biomass consuming countries. To support the use of promising biomass fuels and provide documentation of biomass sustainability, the project sought to produce information materials to private and public decision makers in Denmark and internationally. The project was a network activity, which evolved around three work-packages:

- WP1: Monitoring of sustainability certification for biomass and bioenergy
- WP2: Mobilizing sustainable bioenergy supply chains
- WP3: Communication of other international results from IEA Bioenergy Task 43 and T38 to a Danish audience

Through participation in IEA Bioenergy Task 43 network meetings and workshop, and collaboration in IEA Bioenergy projects, Inge Stupak and Niclas Scott elaborated or contributed to knowledge that is disseminated in 23 international and national publications and opinion pieces, and to presentation of the results and discussions in international and national conferences, workshops, seminars and meetings. The work has especially been conducted in the context of two IEA Bioenergy inter-Task projects: "Monitoring Sustainability Certification of Bioenergy" and "Mobilizing Sustainable Bioenergy Supply Chains".

Through the first project, insights were gained on drivers and barriers for key actors to apply existing mechanisms and systems to ensure sustainability of the biomass production, and a number of recommendations were elaborated on how such systems could develop and obtain increased use in the future (Pelkmans et al. 2012, Task 4 report). Conclusions and recommendations were that "The main driver for companies to get certified was to comply with legislative requirements and maintain market access. On the other hand there were still various barriers due to administrative complexity and costs. The credibility of a scheme is a key selection criterion for companies to use it for their purposes. Credibility can be increased by use of Codes of good practice, as developed for example by the International Social and Environmental Accreditation and Labelling Alliance (ISEAL). However, real data on how much trade that is certified under which certification scheme is not publicly available, and there is a

need for a systematic and transparent registration at the global level. The advantages of certification is that it can serve as an on-the-ground tool for implementing higher-level legislative sustainability requirements, and it can be adapted faster than legislation and may serve to explore how continuous improvement of sustainability performance could be achieved. However, legislative requirements in response to internationally agreed standards are needed to enable market growth at a larger scale. Policies should take into account how markets work and evolve, and it is needed to have clear, transparent and stable policies. If changes need to be implemented because of new insights, this should be done through a transparent step-by-step approach. To tackle the proliferation of country/regional specific policies and requirements, it could be preferred to develop a common international framework of (minimum) standards. Certification schemes also can serve as alternative tool for ensuring the sustainability of biomass from regions where policies and governance structures are weak. Risk evaluation systems could be used to determine the need for certification in addition to the legislative systems.”

Through the second project, insights were gained on opportunities and barriers for mobilization of different types of biomass in different regions, and a number of recommendations were elaborated on how to move bioenergy deployment forward (Smith et al. 2017, WIRES opinion paper). The overall conclusions from the project were as follows “There are a number of opportunities to create a more conducive environment for the mobilization of sustainable bioenergy supply chains and also improve management of other renewable resources. These include the provision of various forms of incentives, such as feed-in tariffs, subsidies, and renewable energy credits; increased incentives, and regulatory control encouraging the better management of increasing land productivity and promoting the production of multiple products in landscapes that generate multiple ecosystem services and support biodiversity. For incentives to be effective, they must be placed within a supportive, stable policy framework, including cross-sectoral policy coordination; energy, forestry, agriculture, and environmental policies need to be coordinated at national and also multinational levels, where possible. Furthermore, attractive bioenergy solutions can arise from the development of a common agenda for agriculture and forestry, balancing demands for traditional products (e.g., food, wood products, fiber) with opportunities to produce bioenergy products. Novel institutional arrangements are required to increase coordination and efficiencies across society, including the creation of cooperative organizational structures along the supply chain from biomass suppliers to energy firms and trade centers; sustainability standards for bioenergy as well as other bio-based products; the use of decision support systems integrating biophysical and socioeconomic data to guide the sustainable mobilization of biomass, food, and other resources; and government support for research and development programs that lead to supply chain optimization, bioeconomy innovation, and sustainable development with clear climate change mitigation benefits.”

Danish version

Dette projekt havde til formål at bidrage til at optimere samarbejdet mellem førende biomassereproducerende og forbrugende lande. For at udbrede brugen af lovende former for bio-brændsler og sikre dokumentation for biomassens bæredygtighed søgte projektet at tilvejebringe informationsmateriale til private og offentlige beslutningstagere in Danmark og internationalt. Projektet er en netværksaktivitet, der er bygget om omkring tre arbejdsplaner:

- WP1: Undersøgelse af bæredygtigheds certificering for biomasse og bioenergi
- WP2: Mobilisering bæredygtige forsyningskæder for bioenergi
- WP3: Kommunikation af andre internationale T43 og T38 resultater til et dansk publikum

Gennem deltagelse i IEA Bioenergy Task 43 netværksmøder og workshops, og samarbejde I IEA Bioenergy projekter har Inge Stupak and Niclas Scott indsamlet og opbygget viden som er formidlet i 23 internationale og danske publikationer og debatindlæg, og gennem præsentation af resultater og input til diskussioner ved 15 internationale og danske konferencer, workshops, seminarer, og møder. Indsatsen har været fokuseret på aktiviteter omkring to IEA Bioenergy inter-Task projekter “Monitoring Sustainability Certification of Bioenergy” og “Mobilising Sustainable Bioenergy Supply Chains”.

Gennem det førstnævnte projekt er der opnået indsigt i forhold til incitamenter og barriere i forhold til anvendelsen af de eksisterende mekanismer og systemer, der er udviklet til at sikre biomasseproduktionens bæredygtighed, og der er udarbejdet en række anbefalinger til hvordan disse systemer kan udvikle sig og opnå øget tilslutning i fremtiden (Pelkmans et al. 2012, rapport fra Task 4 i projektet). Konklusioner og anbefalinger var at "det væsentligste incitament for certificering i virksomhederne er lovkrav og at bevare adgang til deres markeder. På den anden side er der stadig en række barrierer i forhold til certificering på grund af administrative kompleksitet og omkostninger. Systemets troværdighed er afgørende ved valg af certificeringssystem, og denne kan øges ved brug af "Codes of good practice", f.eks. som udarbejdet af International Social and Environmental Accreditation and Labelling Alliance (ISEAL). En barriere for yderligere indsigt er at offentligt tilgængelige data mangler for hvor stor en del af biomassehandlen, der er certificeret, og der er således et behov for systematisk og gennemsigtig registrering på et globalt niveau. En af fordelene ved certificering er, at dette tiltage kan fungere som et implementeringsredskab for lovgivningen, samtidig med at det hurtigere kan tilpasse sig til ændrede forhold, og det kan hjælpe til at udforske hvordan produktionssystemerne kan udvikles til at blive stadigt mere bæredygtige. Det ville dog være en fordel i forhold til en større vækst i markedet, hvis lovkrav reflekterede internationale bæredygtighedsstandarder. Politikker på området skal desuden tage hensyn til hvordan markederne fungerer og udvikler sig, og de skal være klare, gennemskelige og stabile. Hvis det er nødvendigt at implementere ændringer bør dette ske gennem en gennemskelig og gradvis proces. I forhold til at tackle de mange systemer der er udviklet af lande eller regioner, ville det også være en fordel med internationale fælles (minimums-)krav. Endelig kan certificeringssystemer også fungere som et redskab til at sikre biomassens bæredygtighed i regioner, hvor institutionerne og deres regulering, samt dennes implementering, er svage. Man kan med fordel anvende risikovurdering for at afgøre om der er behov for certificering.

Gennem det andet projekt er der opnået indsigt i hvilke barriere og muligheder, der eksisterer for at mobilisere forskellige typer af biomasse i forskellige regioner, og anbefalinger er udarbejdet hvordan man kan overvinde barrierer og realisere mulighederne for øget anvendelse af biomasse til energi (Smith et al. 2017, WIRES opinion paper). De overordnede konklusioner fra projektet er som følger: "Der er en række muligheder for at skabe et bedre fundament for en øget mobilisering af bæredygtige bioenergiforsyningskæder, og også for at forbedre forvaltningen af andre fornybare ressourcer. Blandt andet kan man indføre økonomiske incitamenter, så som feed-in tariffer, tilskud, og kreditter for produktion af vedvarende energi. Man bør også generelt øge incitamenterne og lovgivningsmæssig kontrol, I forhold til at forbedre landbrugsdriften og skovforvaltningen, gennem øget produktivitet, samtidig med at man sikrer diversitet i forhold produkter og produktion af miljøgoder fra hele landskabet. For at disse incitamenter skal være effektive, må de bakkes op af støttende og stabile politikker på området, og der bør i den henseende ske en koordinering mellem flere sektorer, f.eks. energi, skovbrug, landbrug, og miljø, både på det nationale og multinationale niveau, hvor det er muligt. Desuden kan attraktive løsninger opstå ved at man udvikler en fælles dagsorden for landbrug og skovbrug, som afvejer efterspørgslen efter traditionelle produkter (fødevarer, træprodukter, fibre) med mulighederne for at producere biomasse til energi. Nye former for institutionelle konstruktioner er nødvendige for at øge koordinering og effektiviteten i hele samfundet. Det gælder også samarbejder på tværs af organisatoriske strukturer langs hele forsyningskæden fra biomasse til energiproducent; bæredygtighedsstandarder for både bioenergi og bio-baserede produkter; anvendelse af beslutningsværktøjer som kan integrere biofysiske og socioøkonomiske data med det formål at understøtte beslutninger, der kan medvirke til at øge produktionen af biomasse, fødevarer og andre bio-baserede produkter; regeringers opbakning til forskning and udvikling af optimale forsyningskæder, en innovativ bioøkonomi, og bæredygtig udvikling med klare klimamæssige fordele."

1.3 Executive summary

This project had as its objective to contribute to optimization of the collaboration between leading biomass producing and biomass consuming countries. To support the use of promising biomass fuels and provide documentation of biomass sustainability, the project sought to produce information materials to private and public decision makers in Denmark and interna-

tionally. Through participation in IEA Bioenergy Task 43 network meetings and workshop, and collaboration in IEA Bioenergy projects, Inge Stupak and Niclas Scott elaborated or contributed to knowledge that is disseminated in 23 international and national publications and opinion pieces, and to presentation of the results and discussions in international and national conferences, workshops, seminars and meetings. The work has especially been conducted in the context of two IEA Bioenergy inter-Task projects: "Monitoring Sustainability Certification of Bioenergy" and "Mobilizing Sustainable Bioenergy Supply Chains". Through the first project, insights were gained on drivers and barriers for key actors to apply existing mechanisms and systems to ensure sustainability of the biomass production, and a number of recommendations were elaborated on how such systems could develop and obtain increased use in the future (Pelkmans et al. 2012, Task 4 report). It was concluded, among other, that main drivers for companies to get certified are compliance with legislative requirements and maintain market access, and that the advantages of certification is that it can serve as an on-the-ground tool for implementing higher-level legislative sustainability requirements, and it can be adapted faster than legislation and may serve to explore how continuous improvement of sustainability performance could be achieved. However, it is needed to have clear, transparent and stable policies supporting developments, and if changes are needed they should be implemented through a transparent step-by-step approach. It might also be preferable to develop a common international framework of (minimum) standards. Through the second project, insights were gained on opportunities and barriers for mobilization of different types of biomass in different regions, and a number of recommendations were elaborated on how to move bioenergy deployment forward (Smith et al. 2017, WIRES opinion paper). The overall conclusions from the project were that there are a number of opportunities to create a more conducive environment for the mobilization of sustainable bioenergy supply chains, for example through financial incentives, and incentives and regulatory control that encourage improved productivity that also support ecosystem services and biodiversity. For incentives to be effective they must be placed within a supportive, stable policy framework, including cross-sectoral policy coordination for exempling between energy, forestry, agriculture, and environmental sectors. Novel institutional arrangements are required to increase coordination and efficiencies across society. The project results are publicly available. The Danish participation in Task 43 for the triennium 2016-2018 will initiate new work and collaborations, taking off from what was achieved through this project.

1.4 Project objectives

This project had as its objective to contribute to optimization of the collaboration between leading biomass producing and biomass consuming countries. To support the use of promising biomass fuels and provide documentation of biomass sustainability, the project sought to produce information materials to private and public decision makers in Denmark and internationally.

1.5 Project results and dissemination of results

This project had 3 work-packages (WP) which each addressed the following topics:

WP1: Monitoring of sustainability certification for biomass and bioenergy

WP2: Mobilizing sustainable bioenergy supply chains

WP3: Communication of other international results from IEA Bioenergy Task 43 and T38 to a Danish audience

Through participation in IEA Bioenergy Task 43 network meetings and workshop, and collaboration in IEA Bioenergy projects, Inge Stupak and Niclas Scott elaborated or contributed to publications within these topics, and presentation of the results in international and national meetings.

WP1 international results

WP1 results arise from a collaboration project between Task 43, 40 and 38 ("Monitoring Sustainability Certification of Bioenergy"). The project was divided into 4 sub-tasks, from which results were disseminated with Danish participation (Inge Stupak) in four reports that are available from the [Task 40 website](#):

1. Pelkmans L, Goovaerts L, Stupak I, Smith CT, Goh CS, Junginger M, Chum H, Goss Eng A, Cowie A, Englund O, Joudrey J, Dahlman L. (2013). Monitoring Sustainability Certification of Bioenergy – Short summary. Strategic Inter-Task Study: Monitoring Sustainability Certification of Bioenergy.
2. Goovaert L, Pelkmans L, Goh CS, Junginger M, Joudrey J, Chum H, Smith CT, Stupak I, Cowie A, Dahlman, Englund O, Eng AG (2013) Task 1: Examining Sustainability Certification of Bioenergy. A cooperation between IEA Bioenergy Task 40, Task 43 and Task 38. Strategic Inter-Task Study: Monitoring Sustainability Certification of Bioenergy.
3. Stupak, I., J. Joudrey, C.T. Smith, L. Pelkmans, H. Chum, A. Cowie, I. Dahlman, O. Englund, C.S. Goh, A. Goss Eng, H.M. Junginger and L. Goovaerts. 2012. Task 2: Survey on governance and certification of sustainable biomass and bioenergy. Strategic Inter-task Study: Monitoring Sustainability Certification of Bioenergy. A joint project involving IEA Bioenergy Task 40, Task 43 and Task 38.
4. Goh CS, Junginger M, Joudrey J, Chum H, Pelkmans L, Smith CT, Stupak I, Cowie A, Dahlman L, Englund O, Eng AG Goovaerts L (2013) Task 3: Impacts of sustainability certification on bioenergy markets and trade. A cooperation between IEA Bioenergy Task 40, Task 43 and Task 38. Strategic Inter-Task Study: Monitoring Sustainability Certification of Bioenergy.
5. Pelkmans, P., L. Goovaerts, T. Smith, J. Joudrey, I. Stupak, O. Englund, M. Junginger, C.S. Goh, H. Chum, A. Cowie. 2012. Task 4: Recommendations for improvement of sustainability certified markets. Strategic Inter-task Study: Monitoring Sustainability Certification of Bioenergy. A cooperation between IEA Bioenergy Task 40, Task 43 and Task 38.

Based on these reports, a book chapter was elaborated:

6. Pelkmans L, Goovaerts L, Goh CS, Junginger M, van Dam J, Stupak I, Smith CT, Chum H, Englund O, Berndes G, Cowie A, Thiffault E, Fritsche U, Thrän D (2014) The role of sustainability requirements in international bioenergy markets. In: Junginger M, Goh CS, Faaij A (Eds.) International Bioenergy Trade: History, status & outlook on securing sustainable bioenergy supply, demand and markets. Springer, Dordrecht. Lecture Notes in Energy 17, p. 125-150.

Additionally, a peer review research paper was elaborated with in-depth analysis from the international survey carried out under Task 2, and a book chapter was accepted for publication as a spin-off (published later, in 2016):

7. Stupak I, Joudrey J, Smith CT, Pelkmans L, Chum H, Cowie A, Englund O, Goh CS, Junginger M (2015). A global survey of stakeholder views and experiences for systems needed to effectively and efficiently govern sustainability of bioenergy. WIREs Energy & Environment. DOI: 10.1002/wene.166.
8. Mansoor M, Stupak I, Smith CT (2016). Private governance in the bioenergy sector. In: Le Bouthillier, Yves, Annette Cowie, Paul Martin and Heather McLeod-Kilmurray (eds.). 'The Law and Policy of Biofuels'. Cheltenham, UK / Northampton, USA: Edward Elgar Publishing, Incorporated, p. 406-438.

A report on a related topic, economic sustainability criteria, was also elaborated with Danish participation (Inge Stupak) in the context of Task 43. The report is available from the [Task 43 website](#).

9. Ikonen T, Asikainen A, Prinz R, Stupak I, Smith T, Röser D. (2013) Economic Sustainability of Biomass Feedstock Supply. IEA Bioenergy Task43 Technical Report, TR2013:01.

International presentations of the work include:

- Stupak, Inge, C. Tattersall Smith, Jamie Joudrey (2013) Views of Stakeholder on Sustainability Governance (Survey Results). IEA Bioenergy Workshop 'How can sustainability certification support bioenergy markets?' 8th World Biofuel Markets, Rotterdam, the Netherlands, 12th March 2013.
- Bentsen, Niclas Scott: Carbon debt and climate neutrality of forest bioenergy. Adaptation and mitigation: strategies for management of forest ecosystems. April 23-24 2015. Latvian State Forest Research Institute Silava. Riga
- Inge Stupak, Tat Smith, Göran Berndes, Marilyn Buford, Virginia Dale, Gustaf Egnell, Oskar Englund, Jamie Joudrey, Keith Kline, Hans Langeveld, Brenna Lattimore, Maha Mansoor, Dan Neary, Jörg Schweinle, Evelyne Thiffault: Sustainability governance along bioenergy supply chains: experiences and outlook for the future. IEA Bioenergy Conference 2015, realising the world's sustainable bioenergy potential, 27-29. October 2015.

Inge Stupak furthermore participated as invited expert in international workshops:

- Joint Workshop on Developing a Binding Sustainability Scheme for Solid Biomass for Electricity & Heat under the RED, July 1-2, 2013 at Arona, Italy. A joint initiative by European Commission and IINAS.
- Joint Workshop on "Forests, bioenergy and climate change mitigation" 19-20 May 2014 at EEA, Kongens Nytorv 6, 1050 Copenhagen K, Denmark, co-organized by European Commission, European Environmental Agency, IEA Bioenergy and IINAS.

WP2 international results

WP2 results arise from a collaboration project between IEA Bioenergy Task 38, 39, 40, 42 and 43 "Mobilising Sustainable Bioenergy Supply Chains"). The project included five main case studies, each with sub-cases included:

- 'Forest': Mobilization of Forest Bioenergy Supply Chains in Boreal and Temperate Forests.
- 'Ag residues': Mobilizing agricultural residues for bioenergy and bio-refineries
- 'Biogas': Regional biogas production from organic residues.
- 'Grassland and pastures': Cultivation of grasslands and pastures - the sugarcane ethanol case.
- 'Ag landscapes': Integration of bioenergy crops into agriculture landscapes.

Niclas Scott Bentsen coordinated the study on mobilization of agricultural residues, which included a Danish sub-case, and two sub-cases from USA and Canada, respectively, on corn stover. The project resulted in several publications that are available from the [Task 43 website](#). The following reports and other dissemination were elaborated with inputs from Danish participants (Niclas Scott Bentsen, Inge Stupak):

10. Smith, C.T., B. Lattimore, G. Berndes, N.S. Bentsen, I. Dimitriou, J.W.A. Langeveld, E. Thiffault (2015) (Eds.). Mobilizing Sustainable Bioenergy Supply Chains. Inter-Task Project Synthesis Report. IEA Bioenergy ExCo: 2015:04. ISBN 978-1-910154-19-9 (printed paper edition), ISBN 978-1-10154-20-5 (eBook electronic edition). 170 pp.
11. Tat Smith (2016). Mobilizing Sustainable Bioenergy Supply Chains. International webinar med præsentation af rapport med større bidrag fra NSB, 25. februar 2016
12. Smith, C. Tattersall; Lattimore, Brenna; Berndes, Göran; Bentsen, Niclas Scott; Dimitriou, Ioannis; Langeveld, Hans; Thiffault, Evelyne (2017). Opportunities to encourage mobilization of sustainable bioenergy supply chains. Wiley Interdisciplinary Reviews: Energy and Environment, Vol. 6, No. 3, 237, 7 pp.
13. Bentsen, Niclas Scott; Nilsson, Daniel; Larsen, Søren; Stupak, Inge (2016). Agricultural residues for energy in Sweden and Denmark: differences and commonalities. IEA Bioenergy: Task 43: 2016:05, 35 pp.
14. Bentsen, Niclas Scott; Lamers, Patrick; Lalonde, Charles; Wellisch, Maria; Dale, Virginia H.; Bonner, Ian; Jacobson, Jacob; Stupak, Inge; Gan, Jian; Girouard, Patrick (2017). Mobilisation of agricultural residues for bioenergy and higher value bio-

products: Re-sources, barriers and sustainability. IEA Bioenergy: Task 43: 2017:01, 124 pp.

International presentations of the work include:

- Tat Smith, Brenna Lattimore, Göran Berndes, David Baxter, Niclas Scott Bentsen et al. (2015). Mobilising Sustainable Supply Chains. IEA Bioenergy Conference 2015, realising the world's sustainable bioenergy potential, 27-29. October 2015.
- Niclas Scott Bentsen, Inge Stupak, Johannes Jørgensen (2015). Sustainability evaluation of agricultural residues for energy in Denmark – based on the GBEP framework. IEA Bioenergy Conference 2015, realising the world's sustainable bioenergy potential, 27-29. October 2015.
- Inge Stupak (2014). Development and status of the use of agricultural residues for energy in Denmark - History and policy drivers. Invited presentation at joint workshop arranged by the EU Commission and the 'Bioenergy Association of Ukraine' (UABio) "Use of agricultural residues for bioenergy", Kiev, 23-24. September 2014.
- Niclas Scott Bentsen (2014). Sustainability issues related to straw use for energy in Denmark - Outcome of a GBEP evaluation. Invited presentation at joint workshop arranged by the EU Commission and the 'Bioenergy Association of Ukraine' (UABio) "Use of agricultural residues for bioenergy", Kiev, 23-24. September 2014.

WP3 Communication to a Danish audience

The knowledge generated through the international collaboration within Task 43 and in inter-Task collaborations formed the basis for a number of publications and dissemination activities in Denmark, including a set of memos elaborated for the Energy Agency under the leadership of Cowi consultancy. Niclas Scott Bentsen also wrote newspaper articles and contributed to debates in the media, on the topics biomass, carbon and sustainability.

15. Stupak I, Bentsen NS (2013). Bæredygtighedskriterier for biobrændsler til el og varme. *Vækst* 3:18-19.
16. Claus Felby, Palle Madsen, Niclas Scott Bentsen og Lars Graudal: [Kronik: Bioenergi-analyser er farete vild i skoven](#). *Ingeniøren*, 3. okt 2013.
17. Niclas Scott Bentsen og Inge Stupak (2013). [Bioenergi er vigtig for fossilfri fremtid](#). *Altinget, Energi og Klima*, 10. oktober 2013.
18. Niclas Scott Bentsen (2014): [CO2-neutral bioenergi? Der er intet nyt under solen](#). *Ingeniøren*, 20. jan 2014.
19. Bentsen, N.B. og Stupak, I. (2014). [Imported wood fuels. A regionalised review of potential sourcing and sustainability challenges](#). Department of Geoscience and Natural Resource Management, University of Copenhagen, 227 pp.
20. Energistyrelsen (2015). [Kulstofkredsløb, kulstofgæld og CO2 neutralitet](#) (elaborated by Niclas Scott Bentsen and Cowi).
21. Energistyrelsen (2015). [Biomassepotentialer i Danmark, EU og Globalt](#) (udarbejdet af Niclas Scott Bentsen and Cowi).
22. Energistyrelsen (2015). [Bæredygtighed og certificering af biomasse](#) (udarbejdet af Inge Stupak and Cowi).
23. Søren Larsen, Niclas Scott Bentsen (2015). [Brancheaftale om bæredygtig biomasse](#). Debatindlæg 25.12.2014, *Jyllandsposten*.

A number of national presentations of the work were given, and a series of seminar were arranged by Niclas Scott Bentsen on sustainability, certification and resources, for selected participants in the Energy Agency.

- Stupak, I (2015). Bæredygtighedskriterier i bioenergisystemerne internationale erfaringer og perspektiver for fremtiden. [ENERWOODS](#) temadag, Skovskolen, 25. Aug. 2015.
- Bentsen, N.B. (2015). Kulstofgæld og klimaneutralitet af bioenergi og andre skovprodukter. [ENERWOODS](#) temadag, Skovskolen, 25. Aug. 2015.

- Bentsen NS. Biomasseressourcerne i Danmark. IDA Energi: Det nordeuropæiske marked for energi og ressourcer. 5. februar 2015. København
- Bentsen NS. Hvordan ser en biomasseproducerende skov ud? WWF rundbordsseminar: Biomasseproduktion og beskyttelse af biodiversitet i de danske skove. 26.03.2015. København.

Niclas Scott Bentsen furthermore moderated the conference 'Sustainability of wood fuels' organized by the Danish Energy Association, at Christiansborg 5. December 2013. In this conference there was inputs from several 'first-movers' in relation to sustainability of biomass, including Martin Jünger, the Netherlands, and Gemma Torp, UK, and the North American pellet producer Enviva.

Finally, Vivian Kvist Johannsen, Niclas Scott Bentsen and Inge Stupak also participated in and contributed to a discussion meeting on the certification system "Sustainable Biomass Partnership" (now "Sustainable Biomass Program", arranged by the Danish Forestry Association, 5. February 2015 at Sorø Academy.

1.6 Utilization of project results

The project results are available for utilization by anyone interested. Furthermore, the Danish participation in Task 43 for the triennium 2016-2018 completed some for the work, and new work has been initiated based on what was achieved in this project. The collaboration continues in the project "[IEA Bioenergy Task 43 - internationalt samarbejde om biomasse til energi \(2016-2018\)](#)", which is also funded through EUDP.

1.7 Project conclusion and perspective

The project has contributed to strong networks, personal contacts, and comprehensive collaboration at both national and international levels. As these networks and collaborations are continuously consolidated and expanded over time, it is expected that this will lead to an even higher degree benefit for public and private actors within the relevant sectors in Denmark, also by having Danish perspectives included in international contexts. See also sections 1.2, 1.3 and 1.6.

Annex

Relevant links, see hyperlinks in the text.