

**Proposal for a new Task within the
IEA Bioenergy Agreement**

on

**Sustainable International Bio Energy Trade:
securing supply and demand**

Working period 2004 – 2006

**Written for:
Executive Committee meeting of the IEA Bioenergy Agreement**

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Prepared by:

**Andre Faaij,
Copernicus Institute for Sustainable Development
Department of Science, Technology & Society
Utrecht University, the Netherlands**

&

Rob Remmers/Martijn Wagener

**Essent Sustainable Energy (task leader)
The Netherlands**

**In collaboration with: NOVEM (Netherlands Organisation for Energy and
Environment) and the Ministry of Economic Affairs of the Netherlands.**

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1	Aims & Objectives	3
1.1	Rationale	3
1.1.1	Current status bio energy trade.....	3
1.1.2	Drivers for Bio energy trade: supply and demand	4
1.1.3	Feedback stakeholders.....	5
1.2	Aim: securing supply and demand of bio energy	7
1.3	Objectives	7
1.3.1	Short term objectives (1-3 year).....	7
1.3.2	Medium term objectives (4-10 year).....	8
2	Work scope and work programme.....	8
2.1	Work scope	8
2.2	Work programme, period 2004 – 2006:.....	9
3	Interlinkages with other IEA tasks and networks.....	10
4	Deliverables	10
5	Strategic Advise.....	10
6	Schedule and milestones.....	11
7	Annual Budget.....	12
8	Management	13
9	Appendix:	14

1 Aims & Objectives

1.1 Rationale

1.1.1 Current status bio energy trade

Remarkably, biomass has long been considered an energy source to be used on the local or regional level (e.g. because of limited availability and the assumed prohibitive energy use and costs for long distance transport). This is remarkable from the perspective that basically any energy commodity is traded on a global scale (e.g. fossil fuels). Relatively recent, the international debate on the role of bio energy is taking a different direction and international biomass trade is not only discussed but also actually picked up by the market.

International biomass trade only in Europe now amounts some 50 PJ per year (mainly wood pellets, forest residues and a growing interest in agricultural residues). In the Netherlands Essent is the major player with regard to bio-energy production. To cover the need for biomass, a few years ago they started importing biomass from all over the world. Brazil considers export of biomass-derived ethanol to Japan and the US. Also on more modest levels examples emerge of (cross-border) bio energy trade. The Millennium Gel fuel (bio-ethanol based fuel units used for cooking) scheme supported by the World Bank has opened markets throughout Southern Africa.

It is noted that there are several stages that can be observed in biomass utilisation and market developments in biomass supplies. Different countries and regions seem to follow these stages over time, but clearly differ in the stage of development. Below, a division of such stages is given

- a) Waste treatment (e.g. MSW and use of process residues (paper industry, food industry) 'on site' of production facilities is generally the starting phase of a developing bio energy system. Resources are available and often have a negative value, making utilization profitable. Utilization is usually required to solve waste management problems.
- b) Local utilization of resources from forest management and agriculture is generally next. Such resources are more expensive to collect and transport, but usually still economically attractive. Infrastructure development is needed.
- c) Biomass market development on regional scale; larger scale conversion units with increasing fuel flexibility are deployed; increasing average transport distances further improved economies of scale. Increasing costs of biomass supplies make more energy efficient conversion facilities necessary as well as feasible. Policy support measures such as feed-in tariffs are usually already needed to develop into this stage.
- d) Development of national markets with increasing number of suppliers and buyers; creation of a market place; increasingly complex logistics. Often increased availability due to improved supply systems and access to markets.
- e) Increasing scale of markets and transport distances, including cross border transport of bio fuels; international trade of biomass resources (and energy carriers derived from biomass). Growing role for dedicated fuel supply systems (biomass production largely or only for energy purposes). However, consisting from bilateral activities between companies.
- f) A global commodity market: complex interlinkages with existing markets (e.g. pulp, timber and construction wood, use of crops, agricultural residues and waste streams). The existence of financial "products" (e.g. derivatives swap, futures, options and forward prices) on the traded products. Global pricing, reference prices etc.

This final stage can be described as a “commodity-market”. However, the current markets are not developed to a “commodity-market”. The current trade activities are bilateral activities between companies (stage e). There are several “commodity-markets” that are an example for the bio energy “commodity-market” e.g.: food market (soy-oil, agricultural fodder, palm kernel), forestry/wood market (pulp and timber), fossil fuel market (oil, coal). These experiences can be used in developing a commodity market for bio-energy.

1.1.2 Drivers for Bio energy trade: supply and demand

A reliable supply of bio energy and a reliable demand for bio energy is vital to develop stable market activities, aimed at bio energy trade.

Given the high expectations for bio energy demand on a global scale and for many nations, the pressure on available biomass resources will increase. Without the development of biomass resources (e.g. through energy crops) and a well functioning biomass market that can assure a reliable and lasting supply, those ambitions may not be met. The development of truly international markets for bio energy may become an essential driver to develop bio energy potentials, which are currently under-utilised in many world regions. This is true for both (available) residues as well as possibilities for dedicated biomass production (through energy crops or multifunctional systems such as agro-forestry). The possibilities to export biomass derived commodities for the world’s energy market can provide a stable and reliable demand for rural communities in many (developing) countries, thus creating an important incentive and market access that is much needed in many areas in the world.

For market parties such as utilities, companies providing transport fuels, as well as parties involved in biomass production and supply (such as forestry companies), high quality knowledge, clear criteria and identification of promising possibilities and areas are of key interest. Investments in infrastructure and conversion capacity rely on minimisation of risks of supply disruptions (in terms of volume, quality as well as in price).

In relation to the demand for bio energy, the GHG emission reduction potential is important. More important for a reliable demand is the guarantee that biomass produced in other parts of the world is supplied on a truly sustainable basis. This requires the development of criteria, project guidelines and a certification system which are supported by international bodies. This is particularly relevant for those markets that are highly depending on consumer-opinions, as they are present in Western Europe.

The above-mentioned key drivers towards and arguments pleading for sustainable international bio-energy can be short listed as follows:

- a) Cost effective GHG emission reduction
- b) Socio-economic development
- c) Fuel supply security
- d) Sustainable management of natural resources

The reason for initiating international bio energy trade is the result of combination of these drivers and the regional diversity (climate, availability of water, soil conditions, population density, stage of development, agricultural production methods) in possibilities to provide in biomass resources. They all are necessary components that contribute to long-term security of supply and demand.

Ad a) *cost effective GHG emission reduction.*

At present, the demand for biomass is especially growing due to climate policies of various countries. In situations where indigenous resources are insufficient (or better; the amount of resources available with specific qualities and costs) import is currently sometimes more attractive than exploiting local biomass potentials. On longer term, several world regions would have inherent advantages in producing lower cost bio fuels than other parts of the world.

Ad b) *Socio-economic development.*

Many institutions and much research have indicated the potential strong positive link between developing bio energy use and local (rural) development. Furthermore, for various countries that may export bio energy in the future, doing so may provide substantial benefits for their trade balances.

Ad c) *fuel supply security.*

Biomass may diversify the total portfolio of fuels used and imported by countries and thereby reduce risks of (energy) supply disruptions both in terms of quantity and in price. This argument is particularly strong when bio fuels for the transport sector are concerned, since they would replace oil imports.

Ad d) *sustainable management and use of natural resources.*

Large-scale production and use of biomass for energy will involve use of (additional) land. When biomass production can be combined with better agricultural methods, restoration of degraded and marginal lands and in that way provide a sustainable source of income for rural communities, a global biomass commodity market can be the trigger for exactly obtaining such benefits.

1.1.3 **Feedback stakeholders**

Governmental bodies, NGO's and industrial parties

Various tasks active within the IEA already raised the issue of international bio energy trade and related subjects before. It proves to be an essential area for bio energy as a whole.

Within several international organisations (FAO, World Bank, UNECE, UNDP, UNFCCC, WTO, SGS, NGO's (Greenpeace, WWF), Solidaridad) the interest for the concept of international bio energy trade is growing. Also industrial parties (Shell, Cargill, Nedalco, Vattenfall, Essent, Reliant) are currently strongly involved or interested in biomass trade.

The workshop at the beginning of 2003 in Amsterdam organised by IHDP-IT (Inter-Human Dimensions Programme - Industrial Transformation), the University of Utrecht and Novem is a good example of this growing interest. The summary of the report¹ states:

It is recognized that there are opportunities of developing international bio-energy markets for rural development and poverty alleviation, which increase the economic efficiency and the total use of bio-energy use worldwide.

Still, there was no real consensus on how such schemes should be pursued. First of all, there are no clear sustainability criteria available yet for bio trade schemes. These

¹ A. Faaij, A. Wieczorek, M. Minnesma, International debate on international bio trade; Published by NOVEM, report number 2GAVE-03.06, April 2003. pp. 65

should be developed. There are also potential (or real) opposing interests in the arena around bio-energy trading schemes: the private versus public sectors, environmental focus versus a market focus and a regulatory approach versus the market oriented approach. Partly, the lack of consensus may also be caused by the different backgrounds and availability of information (both scientific and from ongoing activities).

One of the conclusions was:

Structure and institutionalise this debate for a longer period of time, involving all key stakeholders. This does include the international institutions, NGO's, industry, national bodies and the scientific community alike

On the 8 July 2003 a meeting on this topic was held at Schiphol Airport (the Netherlands) requested on by the ExCo meeting 51, Sydney, Australia. The initiative concerning a new task on sustainable international bio energy trade was discussed with several industrial parties. The main suggestions of topics for such a task done during this meeting and deducted from returned questionnaires and other feedback covered:

- With respect to policy
 - Rules and regulations; Because of the absence of a level playing field regarding production and use of biomass, insight in drivers and barriers, connected to the policy regimes in general, is extremely relevant.
 - Sustainability, combined with certification, verification and control are key elements in developing bio energy resources and markets
- With respect to market development
 - Develop models that increase the understanding of the dynamics of biomass market demand and supply for different scale levels (regional, global). This work should include:
 - Natural fluctuation in biomass production and supply
 - Market imperfections and distortions (e.g. through different taxation systems, subsidies and environmental standards
 - Relations between biomass commodity prices, the availability of biomass for energy and currency fluctuations
 - Impacts bio energy trade can have on existing markets (interlinked markets: paper, food, timber) and lesson to be learned from them
- With respect to communication
 - Communication to raise public awareness and provide good quality information on bio energy trading
 - Updates on biomass market development over time (monitoring task)
- With respect to economics
 - Long-term certainty is necessary for industries to get high investments approved.
- With respect to technology
 - Focus on existing technological options (pre-processing, logistics, conversion) with an open eye for future developments
 - Relation between performance and requirements of different technologies and biomass quality. Also in relation to a future standardisation of biomass fuels

The main conclusions to draw from this meeting were:

- There is a clear need for these activities and the information at governmental bodies, NGO's as well as industries
- The drivers for different actors to have an interest in bio energy trade differ widely
- Understanding the real mechanisms of trade should be a centrepiece of the work

1.2 Aim: securing supply and demand of bio energy

The future vision on global bio energy trade is that it develops over time into a real “commodity market” which will secure supply and demand in a sustainable way; sustainability brings a key factor for long-term security.

This proposal for a new Task under the IEA Bioenergy Agreement aims to investigate what is needed to create a “commodity market” for bio-energy. By means of the international platform of IEA combined with industrial parties, governmental bodies and NGO's, this task will contribute to the development of sustainable bio-energy markets on short and on long term and on different scale levels (from regional to global). In its intended activities, the task programme will take the several stages of development, as mentioned in 1.1.1, in different regions of the world into account.

Furthermore, the ambition is that this platform can set the agenda and initiate a host of new activities relevant for developing biomass potentials worldwide.

1.3 Objectives

Developing the sustainable bio energy market is a long-term process. Therefore it is necessary to structure the path towards it. This task aims in its first working period (1-3 year) on results that will create insights in information, decision factors and preconditions for the medium-term (4-10 year) results.

1.3.1 Short term objectives (1-3 year)

1. Agreement on the emphasis on specific objectives and deliverables to be fixed together with participating countries and their stakeholders (especially interested industrial parties).
2. Overview of available information, work, insights, modelling tools and their possibilities and limitations for evaluating biomass markets (resources and utilisation) on different scale levels (global, national, regional).
3. Improvement on insights in influencing factors on the supply and demand of biomass for the short, medium and long term
4. Overview of development of biomass markets in various parts of the world and generic lessons to be deducted
5. Synthesis of existing trade experiences (i.e. Sweden, Finland, Brazil, the Netherlands) and survey on the possible effects towards existing markets (e.g. pulp wood, forestry and agricultural products and residues) on bio energy trade
6. Synthesis of existing barriers, hampering development of a (global) commodity market (policy framework, ecology, economics)
7. Identification of strategies to overcome “barriers”

8. Identification of sustainability criteria and their local influence on the biomass market (e.g. development of best practice guidelines)
9. Increasing public awareness of international bio energy trade (i.e. within IEA and other international organisations)
10. Exchange of information on bio energy experiences between parties with a different stage of market development

1.3.2 Medium term objectives (4-10 year)

1. International platform (representatives from all kind of relevant stakeholders) for bio energy trade (e.g. supply and demand, sustainability, financial products etc.), required for the necessary dialogue.
2. Dynamic demand and supply models of bio energy, that takes influencing factors (pricing, actual demand, stocks, energy use for long distance transport) into account
3. Identification and analysis of options for integrating the production of biomass for energy and subsequent export into agricultural and agro-forestry systems especially in developing countries and countries in transition.
4. Evaluation of the political, social, economic and ecological impact of biomass production and trade in these systems for the local people, for food production; also in relation to specific sustainability criteria.

2 Work scope and work programme

2.1 Work scope

The work will be carried out in two parts:

- Gathering and combining information in participating countries to achieve a unique view on the working field (experiences and knowledge)
- Expand the focus to a global level, develop best practice guidelines and test them regarding their ability to support the long-term objectives.

Industrial parties (forestry, energy, agricultural, food, pulp and paper, timber industries) will be the major players on the commodity market. Therefore the first activity of the new task will be fine-tuning of the work scope in a way the results will better suit to the needs of the stakeholders in the participating countries.

However the main activities within the task will concentrate on gathering and combining information and bringing together key experience from all kind of stakeholders with different agenda's regarding international bio-energy trade. The work will provide necessary information on building best practice guidelines. These guidelines should be of assistance in upgrading the market from bilateral actions into a commodity market.

It is very likely that the overview obtained of already available approaches and studies will also identify gaps in knowledge. Part of the task activities could therefore aim for identification and subsequent advising of the Executive Committee for the need for one (or more) special project(s) linked to the task.

The task could therefore also be involved in identifying possibilities to get such work done, e.g. through the IEA itself, combinations of national activities or support from bodies as the EC, foundations and the like.

2.2 Work programme, period 2004 – 2006:

It is estimated 2 high level events per year for this task are possible. These meetings will normally be a combination of an open event for stakeholders and a meeting of the task members.

The most important first activity will be the fixing of the objectives and deliverables of the task. At the moment the participating countries are known, a first step will be to find interested and to the subject related industries to cooperate. Next step will be to find out what other stakeholders are interested in joining (NGO's, governmental bodies). It is the intention to finalise the scope with support of all in the beginning of 2004 during the first joint meeting. Participants will come from the participating countries and active participation from international bodies like FAO, WTO, UN and Worldbank will be encouraged.

All participants shall be asked to contribute to create the overview of:

- Available information, work, insights, modelling tools
- Influencing factors on the supply and demand of biomass for the short, medium and long term
- Development of biomass markets in various parts of the world and generic lessons to be deducted
- Existing trade experiences (i.e. Sweden, Finland, Brazil, the Netherlands)
- Possible effects towards existing markets (e.g. pulp wood, forestry and agricultural products and residues) of bio energy trade
- Existing barriers (policy framework, ecology, economics)

Task management together with various experts involved are to prepare key material out of the gathered information.

The key material will be used to discuss within the task and with stakeholders on:

- Certification systems
- Sustainability criteria
- Influencing factors on existing markets
- Strategies on handling of drivers and barriers

The material will also be used for maintaining the website and creating leaflets and/or newsletters.

Working sessions together with existing Tasks will be organised to create the utmost synergy and to prevent duplication.

At the end of the three-year working period the task management will use the information to draft, together with the task members, the final task report that contains:

- Best practice guidelines on bio energy market development
- Recommendations and action plan
- Decision on effort for prolongation of the task.

During the three year period the task management will give, every time when applicable, strategic advice to the Executive Committee of the IEA Bioenergy Agreement on topics like policies, contribution to local and regional socio-economic development, cooperation with agencies like FAO, World Bank and UN to implement global policy in bio energy development and collaboration with industrial parties.

3 Interlinkages with other IEA tasks and networks

The topics addressed in this task are typically of an integrating nature. This implies that collaboration with various other IEA tasks and networks outside the IEA is crucial. Typically, during the task period, a number of joint events (such as workshops) can be organized with the other tasks.

Joint activities are discussed with the following tasks on topics mentioned:

- With Task 31 (Short Rotation Coppice systems; *positive response to this proposal*) and Task 30 (Forestry systems; *positive response to this proposal*): working on guidelines for sustainable production aimed for export in different contexts.
- With Task 29 (Socio-economic drivers in implementing bio energy projects; *positive response to this proposal*); optimising socio-economic benefits of biomass production for export; development of the “Fair-Trade concept”.
- With Task 38 (Greenhouse Gas Balances; *positive response to this proposal*) on accounting rules, net and optimisation of GHG impacts of trading schemes, the importance of international frameworks as CDM for trading schemes, e.g. compared to emission or certificate trading.
- With Task 35 (Techno-economic Analysis) on analysis and optimisation of (parts of) international trading schemes.

4 Deliverables

Since this is a proposal for a new task, the emphasis on specific objectives and deliverables, such as preferences for case studies, can only be fixed once there is certainty about participating countries and their stakeholders (especially interested industrial parties). The main deliverables will be:

- Strategic advise to IEA Bioenergy ExCo
- Proposal “Best practice guidelines” for developing a commodity bio energy market
- Inventory on development of biomass markets over time (national, interregional; analyses of price development, support mechanisms deployed, key explanatory factors, barriers resolved and success factors)
- Website, newsletter and leaflets for different type of stakeholders published by the task (includes FAQ-list)
- Workshop/report/internet forum
 - On handling barriers and drivers
 - On sustainability criteria and their influence on the bio-energy market
 - On trading experiences and possible effects towards existing markets
- Communication plan to increase public awareness

5 Strategic Advise

Referring to the strategic plan 2003-2006 of the IEA Bioenergy the task will:

- Advise the IEA Bioenergy Executive Committee about the need of putting task related topics on the international political agenda

- Pay special attention to identify possibilities where the task activities can contribute to local and regional socio-economic development
- Cooperate with agencies like FAO, World Bank and UN to implement global policy in bio energy development.
- Emphasise the collaboration with industrial parties within participating countries, to achieve that results fit to industrial needs

6 Schedule and milestones

Below an outline of possible key events are mentioned over the task period:

2004

- Begin 2004: Working session with task participants on the work programme (deliverables and objectives, overview of material and approaches and drafting of overview reports)
- Setting up the website of the task, provision of bibliography and position paper on international biomass trade.
-
- Autumn 2004: Workshop supply and demand: drivers and barriers
- Strategic advice to Executive Committee
- Communication plan

2005

- Begin 2005: Joint meeting with Task 30 and 31 on developing sustainable biomass production systems in different contexts
- Summer 2005: Joint meeting with Task 29 on criteria on socio-economic development for biomass production and export systems and strategies to maximize socio economic benefits for rural areas
- Autumn 2005: Internal working session on discussing certification systems, sustainability criteria, the influencing factors on existing markets and the handling of drivers and barriers
- Leaflets
- Strategic advice to Executive Committee

2006 (2007)

- Begin 2006: Joint meeting with Task 38, UN delegates (CDM) and relevant experts from e.g. IPCC on accounting rules for biomass trading schemes and maximizing GHG benefits from biomass production schemes for export.
- Autumn 2006: Closing working session of the task; drafting of the final task report, deriving best practice guidelines on bio energy market development, recommendations and action plan on the topics mentioned; decision on effort for prolongation of the task.
- Strategic advice to Executive Committee

End 2006/begin 2007: presentation of task results and recommendations at open event (possibly combined with a major conference).

7 Annual Budget

The annual budget is estimated on 12.5 kU\$ per participant per year and 8 countries that will participate (**100 kU\$/year (ex. VAT)**); with more or less parties participating, the budget should be adjusted accordingly. This is principally to be paid through the IEA Executive Committee.

The, potential, participation of international bodies is planned to be supported through those respective organizations.

Estimated cost factors per year:

Cost component	US\$/year
Staff costs (person hours)	45
Accommodation and consumables for meetings	10
Travel Dutch (coordinating) parties and invited experts being non-task members	15
Travel International Bodies (PM)	
Consultancy tasks for non-task members	10
Secretariat (invitations, meetings, newsletter distribution, etc.)	5
Integrating documentation (publications, reports, papers, CD's, flyers)	5
Website & internet forum	10
Contribution to annual report (IEA) and newsletters	

Other contributions (mainly in-kind):

- Essent Sustainable Energy (person hours in-kind)
- (Available) research budgets in the Netherlands (through running projects funded by NOVEM (FairBioTrade), the EU (VIEWLS), NWO; the Netherlands Organisation for Scientific Research)
- Required national co-funding of national delegates; various projects/activities.
- Inputs from the international institutions; part of the costs could be covered in kind or possibly through funds of the World Bank, FAO and UN, e.g. for specific seminars and workshops to be organized.

8 Management

Two parties will take care of Task management: the Copernicus Institute for Sustainable Development of the Utrecht University and Essent Sustainable Energy.

Essent, being a key market party active in international bio energy trade, will be responsible for the financial management and communication matters (such as the website).

The Copernicus Institute of Utrecht University will, supported by it's running bio energy research programme (with some 10 research staff involved) coordinate the scientific content of the task and be responsible for reporting, synthesis and integration work.

Essent and Utrecht University have a strong ongoing collaboration in the field of international bio energy trade and combine the best of both worlds (market and science) to turn this task into a success. Furthermore, both parties will work closely together with NOVEM to ensure high quality management and embedding of the work in the IEA Bioenergy Agreement as a whole.

9 Appendix:

Background coordinating parties

Copernicus Institute - Utrecht University; Dept. of Science, Technology & Society.

STS is a department of the faculty of chemistry of the Utrecht University and integral part of the COPERNICUS Institute for Sustainable Development (~80 research staff). The research covers: Energy System Analysis, Energy & Material Efficiency, PV and Wind and Biomass Energy, Fossil fuel decarbonisation, Land Use and Biodiversity, Climate Change, Risk Management and Assessment, Energy Technology Development and Implementation, energy consumption and economic growth and energy RD&D policies towards a sustainable future. The Energy Supply & System Studies work (~20 research staff; including bio energy) has an excellent international reputation with collaboration worldwide. Work covers EU-research programmes, national government, private sector, the IEA (PVPS, Greenhouse Gas R&D programme and the Bio energy Agreement), the UN, WEC, IPCC, WWF and FAO. Key activities in the research on biomass & waste are:

- Studying and modelling of conversion technologies, e.g. with flow sheeting models.
- Biomass resource assessment studies from global to regional and including wastes, residues and dedicated biomass production systems.
- Economic and external cost analyses.
- Life Cycle Analysis and Environmental Impact Analyses.
- Models for micro- and macroeconomic analyses, cropping systems yield models and LP-modelling for optimisation of bio energy systems.
- Scenario studies.
- Studying non-technical barriers, policy, RD&D and implementation strategies.

Short CV Dr. André P.C. Faaij. André Faaij (1969) is appointed as associate professor at the Copernicus Institute for Sustainable Development and Innovation of the Utrecht University. He has a background in chemistry and environmental studies and holds a Ph.D. on energy production from biomass and wastes. He worked, amongst others, at the Centre for Energy and Environmental Studies - Princeton University and at King's College - London University.

He coordinates the research on energy supply options (~20 research staff involved), including bio energy, energy system studies, intermittent energy sources and sustainable use of fossil fuels. Related to the research work, he supervises a variety of Ph.D.-projects and acts as course coordinator and supervisor in the Msc.- programmes for several faculties. He is in particular experienced in multidisciplinary, beta-gamma, research and management of multidisciplinary teams. He is a member of several expert panels in the bio energy and energy-planning field and works as an advisor for NOVEM, various Ministries, the EC, utilities, Shell, IEA, FAO and others. Examples of recent work are contributions to the World Energy Assessment of the United Nations, representative in tasks of the Bio energy Agreement of the IEA, coordination of a number of multi-disciplinary NWO (Netherlands Organisation for Scientific Research) research programmes and editorial board member of the journal Biomass & Bio energy. He published over 180 titles in scientific journals, reports, books and proceedings and is lecturing frequently on topics mentioned.

Short description Essent Energy/Sustainable Energy

Essent, based in the Netherlands, is active in the fields of energy, waste treatment, cable and telecommunication in the Netherlands, Germany and Belgium. It is a leading multi-utility providing power, gas and heat to over 2.5 million customers. The company with its 12,000 employees and installed capacity of over 4,000 MW produced in 2001 an annual turnover of 7 billion Euros and a profit of 250 million Euros. Essent is forerunner in renewable energy, being the inventor of 'green energy' as a product, being the first to operate large-scale wind farms as well as being the first in co-firing clean biomass and bio-oil in coal and gas power stations. Within the Essent organisation the business unit (Duurzame Energie) Sustainable Energy is responsible for directing all production, deployment, marketing and development activities with respect to sustainable energy and emission reduction.

Both Rob Remmers and Martijn Wagener are working already several years in the field of (commercial) bio energy conversion and trade.

Task coordination

Name 1: Andre Faaij

Organisation: Copernicus Institute for Sustainable Development, Utrecht University

Address: Padualaan 14, 3584 CH, Utrecht, the Netherlands

Phone: +31-30-2537643

Fax: +31-30-2537601

E-mail: A.Faaij@chem.uu.nl

Name 2: Rob Remmers / Martijn Wagener

Organisation: Essent Sustainable Energy

Address: Zutphenseweg 51006, 7418 AJ Deventer, PO Box: 2088, 7420 AB Deventer, The Netherlands.

Phone: +31-38-8518540

Fax: +31-38-8524900

E-mail: Rob.Remmers@essent.nl / Martijn.Wagener@essent.nl

Market experience

Obtain an overview of current trading experiences and markets as well as potential future markets.

Following issues should be covered:

- Monitor the development of biomass markets and trade over time.
- Market assessment of different biofuels forest products, intermediates, vegetal oils, other transport fuels over some 5-10 years influenced by current policies (like Kyoto), all within reason.
- Outline trading opportunities, including potential future markets and demand.
- Provide forecasts/projections of biomass trading, possibly with price projections and production costs.
- Use clear definitions of commodities.

Responsible partners:

Sweden, support from all T40 members

Deliverables:

- Country reports (all members)
- Business Forum
- Edited final synthesis report based on the country reports.

Country Report Norway

These reports are presented at the IEA T40 Business Forum Rome, October 2004

The country report of Norway by Enova:

The document can be downloaded from here:

A presentation about the country report of Norway by Enova:

The document can be downloaded from here:

Strategic advice

On barriers, opportunities and strategy:

Compile a strategic document that covers:

- Inventory of barriers (technical, logistic, economic, organisation, regulatory) and opportunities for developing working biomass and bio-energy markets and (international) trade.
- A distinction should be made between direct biomass imports for energy and indirect imports (e.g. biomaterials)
- Linkages to (emerging) carbon markets should be incorporated (such as the European Emission Trading System).
- Formulate strategies to cope with those barriers.

Responsible partner:

The Netherlands (supported by all partners).

Deliverables:

- A Strategic review document, which also serves as input for strategic advice to IEA Bio-energy (and other bodies)
- Strategic advice on how to develop and support bio-energy trade, e.g. for the EC, IEA Exco, FAO, etc. Largely a compilation of the results from various deliverables; to be delivered over 2005 – 2006.

Modelling markets

This activity should Provide insight in the development of biomass resources and supplies in relation to market demand; e.g. by applying various (modelling) tools. The analyses should evaluate the importance of different developments for international bio-energy trade.

The key of such an analysis could consist of a combination of modelling approaches and compile an integrated model that could do the job on different levels of detail.

Responsible partners:

Norway (Risnes, Solberg a.o.), **Netherlands** (Faaij) and **Finland** (Ranta, Heinimo) pursue funding possibilities (national) for research activities.

Deliverables:

One or more project proposals (EU, combined national funds) coordinated by T40 members. For the EC, one of the coming calls will be considered. Different funding options are to be discussed with e.g. Maniatis of DG-TREN and/or the expected EC representative in Task 40 (Faaij et al.).

Supply chain analysis (including forestry chains)

This work covers performance evaluations (techno-economic) and further development/optimization of long distance bio-energy supply chains, in particular sea transport. This could especially be approached by doing concrete case studies of chains and transport systems. Following suggestions and considerations are raised:

- It is to be recognized that more efficient transport chain designs will involve different actors with different viewpoints and priorities. Optimisation can therefore mean different things for each individual actor.
- A model from Utrecht University on techno-economic logistic chains is available for analyses. Canada has a key interest to explore the needs/possibilities for new transport and shipping concepts and optimising supply chains for such concepts.
- Finland has one ongoing project in this area that can deliver results to the task
- Sweden suggests that there should be room for ad hoc case studies the coming years.

Responsible partners:

Canada, Finland, Norway (coordination group); (supported by Sweden, Netherlands).

Deliverables:

- Case studies
- Various tools for chain analysis
- Report

Certification systems

Certification, standardization and terminology for sustainable bio-energy trade. Following remarks/additions are made to this field:

- The EC has ongoing efforts to formulate normalisation and standardisation procedures for biomass. This material should be made available to the task (via EC).

Sweden: make clear what rules of conduct are, the needs for providing information and monitoring activities needed for certification.

- The importance (and experience of WTO regulations for agriculture and other sectors should be addressed. The potential role of WTO for bio-energy trade should be included in this work. *[It is indeed the intention to keep close contact with WTO and invite representatives to T40 events. Only due to a busy schedule WTO was not represented at the business forum in Rome].*

- FAO has considerable experience with certification. An example is the Codex Alimentaris for food products and other experiences with food commodities. FAO is planning work on certification on project level for bio-energy projects (e.g. linked to CDM). It will be difficult for FAO to coordinate work in T40, but it will be strongly supported from their side.

- It is agreed that efficient use should be made of developed criteria and indicators from other bodies (like UNEP, OECD; the environmental indicator work). Different levels of certification and markets can be perceived.

- In the UK there are major concerns about the transaction costs of certification. It is recommended to make a distinction between coherent frameworks and communication to consumers. Some bilateral/multilateral efforts are already ongoing.

- For the Netherlands, certification is a key priority in the national debate. A review of certification systems is available and regional case studies on impacts and possible criteria for biomass production for export. Follow-up work is being scheduled.

This activity has strong links with deliverable 7.

Responsible partner:

The Netherlands, with FAO, UK (EC is expected to participate when membership would be secured).

Deliverables:

- Event in fall/winter 2005 on sustainable biomass production systems. Possibly in Brazil in combination with IEA task 30 and 31 (short rotation coppice and sustainable forestry)
- Position paper Task 40 and input for strategic advice to IEA

Pilot projects

Identify possibilities for pilot- and demonstration projects and aim for supporting their development; especially in developing countries (e.g. Africa). Key output for the shorter term should be a work plan, which describes how pilot projects are set-up in an international setting and what is needed from organisational and financial point of view. The World Bank and FAO have prime experience in this field. Further comments:

- The World Bank has suggested that a first feasibility study could be supported by them in the context of Task 40.
- A report (supported by SIDA) on possibilities/modalities of biomass production for export (vs. local use) in developing countries can be made available.
- The concept of setting up pilot projects seems to receive support from the Dutch government in the coming years.
- Pilot/demonstration activities in OECD countries could be considered too (e.g. pyrolysis capacity in Canada for export markets and evaluation the replication potential for developing countries).
- FAO: Pilots in the agricultural sector are a prime interest for FAO. The potential impacts of growing export markets for developing countries should be evaluated, especially with a focus on employment and development potential for rural areas. This is closely linked to activity no.
- From the UK (Imperial College) work on sweet sorghum production in Central and Southern Africa with FAO could be fed into the Task 40 work.

Responsible partner:

World Bank / FAO; Netherlands, UK, Canada

Deliverables:

- Plan of action/work programme on setting up pilot projects.
- Selection of potential projects.
- First feasibility studie(s).
- Subject for March 2005 event hosted by Worldbank in Washington during the Energy Week in combination with IEA task 29 on socio-economic aspects of bio-energy trade and potential contribution to (rural) development

Case studies; impact analysis

Provide insight (e.g. through case studies and best practice examples) in the socio-economic and ecological impacts of biomass production and trading schemes and demonstrate how bio-energy trade can contribute to general (sustainable) development targets.

Remarks:

- FAO: potential impacts of increasing international bio-energy trade on food security, soil quality, water resources, forest cover and socio-economic impacts should be investigated. The envisaged International Bio-Energy Programme of FAO would lead to several activities (case studies, development of analysis tools) in this field and FAO would like to play a leading role in this. Attention should be paid to the competition for biomass fuels for international and local/national markets.
- The long term perspective for biomass production and supplies is an important element for the analyses.
- Elements of this work are covered by Task 29 (socio-economic effects of bio-energy systems; reports (e.g. by Reinhart Madlener) are available. Collaboration with Task 29 is desired.

Responsible partners:

FAO, Netherlands, UK, World Bank

Deliverables:

- Concrete case studies, in particular in developing countries
- Subject for spring 2005 event possibly hosted by Worldbank in Washington in possible combination with IEA task 29 on socio-economic aspects of bio-energy trade and potential contribution to (rural) development.
- Subject for fall 2005 event possibly in Brazil in possible combination with IEA task 30 and 31 (forestry and short rotation coppice); possibly suited for case study.

Evaluation of markets (Ethanol and other commodities)

This work should evaluate major emerging markets for bio-energy trade focusing on specific commodities. Focus will first lay on ethanol. When the approach is successful, the Task can continue with assessing other commodities like pellets, vegetal oils, bio-oil or electricity at a later stage.

Remarks:

- In the UK an evaluation has been made about the fuel ethanol mandates and possible impacts.
- In Brazil there is ongoing debate on expanding export markets for ethanol (largely driven by the producers). For biodiesel this is in the starting phase and largely a government initiative at this stage.
- Evaluations should include the potential markets of relevance, e.g. driven by the biofuels directive in Europe, the Pacific Rim area, etc. Further, trade barriers in place should be part of the evaluation.
- In the evaluation the production potentials should play a role. (on global scale; considering different biomass resources and technologies)

Responsible partners:

Brazil; UK, Canada (others when other commodities are going to be addressed).

Deliverables:

- Report

Improved communication

Raising awareness, networking and information exchange on the fields covered by the Task.

Responsible:

The Netherlands (taskleader), supported by all T40 members

Deliverables:

- Website distribution,
- Via newsletters,
- Active distribution of results to dedicated audiences, etc. Compact written reports/papes on appropriate level (non-technical, policy oriented character. Task 40 could determine who should receive such advice (with particular focus on industry as well as government level). Such documents should be actively distributed. Starting from autumn 2005 such reports could be released on an annual basis.