

# **PROPOSAL FOR PROLONGATION**

## **Task 40: Sustainable International Bio- energy Trade – Securing Supply and Demand**

**Planning for the New Triennium 2007-2009**

**ExCo58  
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## Working Period 2007-2009

### Task Proposal Summary Sheet; Proposal for ExCo 58 – October 2006.

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Task Title: **Sustainable International Bioenergy Trade – Securing Supply and Demand**

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#### Background and rationale for Task proposal

Essential drivers for bioenergy trade are security of supply, economics, environmental (GHG mitigation and other) and development at large especially for rural areas (in developing countries). Opportunities for trade also arise due to: Mismatches between local fuel resources seldom matches local demand, imbalances in technology, experience and know-how, Differences in rules, regulations, and institutions vary, e.g in different countries, changes in the conditions of competing systems (e.g. oil prices) and unexpected events, hurricanes, fires, leading to unexpected availability of biomass resources.

Biomass markets are developing fast, but are also immature and many barriers remain. In some markets, prices of biomass resources and fuels are already rising, including indirect effects on price of raw material prices for e.g. the forest industry as well as on food (e.g. sugar). Biomass markets are still immature and this is in particular true for the demand side of the market; many biomass markets, e.g. for solid fuels, rely on policy objectives and incentives, that prove to be volatile.

It is in particular important to develop both supply and demand for biomass and energy carriers derived from biomass in a balanced way and avoid distortions and instability that can threaten investments in biomass production, infrastructure and conversion capacity. Our understanding of how this is best organised and managed is still relatively poor. Biomass markets are poorly mapped and only very limited analyses work, statistics and modelling exercises are available.

In some arenas a fierce debate takes place on the sustainability of large scale use of biomass and international trading. Different perspectives and strategies emerge on how biomass and bioenergy markets should be governed and supported and how the sustainability of the resources and use can be secured (e.g. through certification). Securing that biomass produced in other parts of the world is supplied on a truly sustainable basis requires the development of criteria, project guidelines and a certification system that is supported on an international level. Clearly, the strongly growing demand for biomass and biofuels make clear that there is a growing need to develop biomass resources and exploit biomass production potentials in a sustainable way

Eventually, biomass may develop into a commodity market, which could have multiple benefits, such as much improved market stability and competitive prices. However, also the sustainability of large scale biomass production and trading has to be secured and choices on the governance of developing biomass markets is now at a critical stage. At this very moment, fundamental policy choices can still be made on how biomass markets can be supported steered, controlled and governed.

This proposal for an extension of the current Task 40 under the IEA Bioenergy Agreement aims to provide a strong international platform to compile available information on and experience with determining, exploiting and developing biomass resources, the development of working biomass markets and identifying the possibilities, constraints and criteria for sustainable and global trade of biomass and energy carriers derived from biomass. Furthermore, this platform can set the agenda and initiate a host of new activities relevant for developing biomass markets and potentials worldwide.

#### Objectives and scope

The **core objective** of the Task is to support the development of a sustainable, international, bioenergy markets, recognising the diversity in resources, biomass applications.

Developing a stable, international and sustainable bioenergy market is a long-term process. The Task aims to provide strong contributions to such (policy making) decisions in the coming years for market players, policy makers, international bodies as well as NGO's. It aims to do so by providing high quality information and analyses, providing overviews of developments, be a linking pin between different arenas involved in the debate, a clearinghouse for information and by targeted dissemination activities.

The Task aims to provide an outstanding international platform to make inventories of available information and experience, provide new analyses and set the agenda and initiate a host of new activities relevant for developing sustainable biomass markets and trade worldwide.

Trade remains the central component of the work, but the understanding of developing the demand and supply side for biomass is essential on regional and national level as well. In addition, entrepreneurs and policy makers are now dealing with development of regional or national biomass markets in a quickly developing international context. The balance between opening up markets, removing barriers and at the same time building capacity to develop regional resources and demand is raises complex questions in many situations and requires serious attention. Exchange of information on bioenergy experiences between parties and countries in different stages of market development is thus very important.

Such a work scope addresses several key priorities raised by ExCo, recognising that biomass supplies, their sustainability and a working market are key issue for bioenergy at large.

### **Key elements of the work programme and outputs**

1. Improve the understanding of biomass and bioenergy markets; this includes the description of ongoing developments, support development of statistical material, understanding factors that influence supply and demand for biomass on shorter and longer term as well as learning lessons from comparable other markets (such as food, fodder, forestry products, etc.).
2. Analyse the possibilities to develop biomass resources and exploit biomass production potentials in a sustainable way, including supply chains and required logistics and transportation operations.
3. Coherent analysis of biomass markets by modelling and scenario analysis; dynamic demand and supply models of bioenergy, that takes influencing factors (pricing, actual demand, stocks, energy use for long distance transport) into account.
4. Analyse the impacts of biomass utilisation and trade and develop frameworks to secure the sustainability of biomass resources and utilisation. Evaluation of the political, social, economic and ecological impacts of biomass production and trade, also in relation to specific sustainability criteria. Contributing to certification procedures and development of best practice guidelines, especially for integrating the production of biomass for energy and subsequent export into agricultural and agro-forestry systems, including developing countries.
5. High quality dissemination by means of a key international platform (with a diverse range of stakeholders) for bioenergy trade and markets. Findings of the Task are translated in analysis and advice for industry and entrepreneurs, policy makers and other stakeholders. This includes capacity building (e.g. course material, website based material and workshops), a (hand) book like publication on biomass markets (examples of countries and commodities) on trade chains, certification, etc. Dedicated meetings and targeted paper for decision makers (national policy level and international bodies as WTO, UN, etc.), digital newsletter and expansion of the library function of the website [www.bioenergytrade.org](http://www.bioenergytrade.org) (clearinghouse role).

### **Management**

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**Annual Budget:** US\$150,000 (assuming 10 members)

**Annual Budget per participant:** US\$15,000

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# Sustainable International Bioenergy Trade – Securing Supply and Demand

## Proposal for prolongation of Task 40 under the IEA Bioenergy Agreement for the period 2007 - 2009

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## 1. BACKGROUND AND RATIONALE

A reliable and sustainable supply of biomass is vital to any market activity aimed at bioenergy production. Given the high expectations for bioenergy on a global scale and for many nations, the pressure on available biomass resources is increasing rapidly. Especially due to high prices for fossil fuels (especially oil, but also natural gas and to a lesser extent coal) the competitiveness of biomass use has strongly increased. In addition, the development of CO<sub>2</sub> markets (emission trading), as well as ongoing learning and subsequent cost reductions for biomass and bioenergy systems, have strengthened the economic drivers for increasing biomass use, production and trade.

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. A lack of availability of good quality (and competitive) biomass resources has proven to be a structural showstopper for many market initiatives in the past. On the other hand, various countries have considerable experience with building biomass markets and linking available resources with market demand. Examples are found in Brazil, Sweden, Finland, Canada, The Netherlands a.o. Relatively recently, international trade of biomass resources has become part of the portfolio of market parties and volumes traded worldwide increase at a very rapid pace with an estimated doubling of volumes in several markets over the past few years. The fact that markets are growing means that more and more resources are becoming available from regions where biomass use was low or absent so far and supply risks for biomass users have reduced due to more diverse and reliable supplies.

Remarkably, biomass has long been considered an energy source to be used at 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 (fossil fuels, power). Relatively recently, the international debate on the role of bioenergy has taken a different direction and international biomass trade is not only discussed but picked up by the market at a very rapid pace.

In addition the concept of international bioenergy markets and trade has fetched momentum at international organisations as the World Bank, FAO (IBEP), the UN (i.e. UNCTAD with its' biofuels initiative), the G8 Bioenergy partnership, WTO and pursued by a variety of European nations (i.e. Germany, UK, Italy, the low countries and the whole of Scandinavia), Brazil, Canada, Russia, the US, Japan and other countries in East and South East Asia.

Various drivers of international bioenergy trade can be distinguished:

- Fuel supply security is currently a prime driver for biomass use and trade. Biomass diversifies the total portfolio of fuels used and imported by countries. This can reduce the risks of supply disruptions both in terms of quantity and in price. This argument is particularly strong for biofuels for the transport sector, as they replace oil imports. The price developments on the worlds' oil and gas markets (and to a lesser extent also for coal), prove a strong driver in particular.
- A second driver is cost effective emission reduction of greenhouse gasses. At present, the demand for biomass is especially growing due to climate policies of various countries. Import is currently sometimes more attractive than exploiting local biomass potentials in situations where indigenous resources are insufficient (or there are insufficient resources available with specific qualities and costs). In the long run, several world regions would have inherent advantages in producing lower cost biofuels than other parts of the world.

- A third driver is socio-economic development as such. Many institutions and much research have indicated the potential strong positive links between developing bioenergy use and local development. Reliable biomass markets can provide a sustainable source of income for rural communities. Furthermore, for various countries that may export bioenergy in the future, this export may provide substantial benefits for their trade balances.
- A fourth driver could be sustainable management and the rational use of natural resources. This may be a less clear and obvious argument in favour of international bioenergy trade at first glance, but it may prove to be essential. Large-scale production and use of biomass for energy will require the use of (additional) land. The export market can be the trigger for obtaining benefits, when biomass production can be combined with better agricultural management, and with restoration of degraded and marginal lands.

Opportunities for trade of biomass and energy carriers from biomass, whether on international, national or interregional level also arise due to:

- Mismatches between local fuel resources seldom matches local demand
- imbalances in technology, experience and know-how
- Differences in rules, regulations, and institutions vary, e.g. in different countries
- changes in the conditions of competing systems (e.g. oil prices)
- unexpected events, hurricanes, fires, leading to unexpected availability of biomass resources.

The development of truly international markets for bioenergy has become an essential driver to develop available biomass resources and bioenergy potentials, which are currently underutilised 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. The same is true for biomass users and importers, that rely on a stable and reliable supply of biomass to enable (often very large) investments in infrastructure and conversion capacity.

This market stability and proper governance to secure sustainability of biomass production and trade is however far from achieved. Markets are immature and volatile and Task 40 has identified a range of barriers in the 2004-2006 working period that hamper sound development of (international) biomass markets at the moment and that should effectively be addressed.

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 (both in terms of volume, quality and price).

Perhaps even more important is the guarantee that biomass produced in other parts of the world is supplied on a truly sustainable basis. The debate on whether or not large scale use, production and trade of biomass is sustainable is fierce in some arenas and development of certification procedures is taken up in various countries and by several sectors.

This requires the development of internationally accepted criteria, project guidelines and a certification system that is supported by on global level and by key international bodies. This is relevant for large schemes involving supply chains from various parts of the world, down to smaller projects on the regional level.

## **The First Task 40 Triennium 2004-2006**

Task 40 membership grew considerably over the period 2004-2006 and the interest in the field of sustainable international bioenergy trade, development of bioenergy markets, optimisation of supply chains and certification is clearly growing. This is evident by the strongly growing traded biomass volumes, ongoing internationalisation of the bioenergy discussion, strongly growing markets for biofuels (solids and liquid), formulation of policy in many countries and at international bodies around this topic and a strong involvement of industry and market parties.

Task 40 is to date recognised as a unique international platform in this field, which has been created at a very timely moment. Currently, the Task is considered a very relevant and interesting partner for governments, market parties, NGO's and international bodies. Illustrations being the link with UNCTAD's Biofuels Initiative and FAO's International Bioenergy Program. Also collaboration with WWF International and UNEP is explored.

Relevant outputs include a range of international workshop targeting market development and barriers (e.g. on sustainable biomass production & trade and certification, bio-energy trade and development and biomass markets and emission trading), analysis of barriers and opportunities for biomass trade and strategies to overcome barriers, concrete case and feasibility studies of regions and supply chains, market evaluations (on ethanol, pellets, bio-oil), country studies and a wide range of dissemination activities. For other member countries of the IEA bioenergy agreement, membership of Task 40 seems of interest, given the increasing involvement of those countries in international trade, certification activities, related policy formulation and, in particular concrete market developments. Interest is also evident from United States, Denmark, Austria and France. The working field described is also of interest for Japan, South Africa and Australia, given recent market activities and policy development. Last but not least, bioenergy markets, trade and certification is a priority for the EC and the new 7<sup>th</sup> FP.

In rough terms, having started with a small core group in 2004, Task 40 has succeeded in following a broad work program, produced a large number of outputs and received considerable interest (e.g. evident from the performance data of the Task 40 website: [www.bioenergytrade.org](http://www.bioenergytrade.org)). The events to date resulted in considerable exposure, evident from many invitations for presentations and written contributions to journals, newsletters, etc.

The rapid developments with international bioenergy trade and markets justify the prolongation of the Task with an up to date work program to support the development of sustainable biomass markets at large.

## **2. OBJECTIVES AND SCOPE OF THE TASK**

Essential drivers for bioenergy trade are security of supply, economics, environmental (GHG mitigation and other) and development at large especially for rural areas (in developing countries). Biomass markets are developing fast, but are also immature and many barriers remain.

In some arenas a fierce debate takes place on the sustainability of large scale use of biomass and international trading. Different perspectives and strategies emerge on how biomass and bioenergy markets should be governed and supported and how the sustainability of the resources and use can be secured (e.g. through certification).

However, also the sustainability of large scale biomass production and trading has to be secured and choices on the governance of developing biomass markets is now at a critical stage. At this very moment, fundamental policy choices can still be made on how biomass markets are steered, controlled and governed.

Clearly, the strongly growing demand for biomass and biofuels make clear that there is a growing need to develop biomass resources and exploit biomass production potentials in a sustainable way. In some markets prices of biomass resources and fuels are already rising, including indirect effects on price of raw material prices for e.g. the forest industry as well as on food (e.g. sugar). Biomass markets are still immature and this is in particular true for the demand side of the market; many biomass markets, e.g. for solid fuels, rely on policy objectives and incentives, that prove to be volatile.

It is in particular important to develop both supply and demand for biomass and energy carriers derived from biomass in a balanced way and avoid distortions and instability that can threaten investments in biomass production, infrastructure and conversion capacity. Our understanding of how this is best organised and managed is still relatively poor. Biomass markets are poorly mapped and only very limited analyses work, statistics and modelling exercises are available. Over the past 2004-2006 Task 40 has mapped developments in its' member countries and for several specific markets as ethanol and ongoing efforts on e.g. pellets, but both the quality of monitoring, as well as analyses and (modelling) tools to understand how biomass (and related) markets work and are affected is relatively underdeveloped.

This proposal for an extension of the current Task 40 under the IEA Bioenergy Agreement aims to provide an outstanding international platform to make an inventory of available information and experience with on determining, exploiting and developing biomass resources, the development of working biomass markets and identifying the possibilities, constraints and criteria for sustainable and global trade of biomass and energy carriers derived from biomass. Furthermore, this platform can set the agenda and initiate a host of new activities relevant for developing biomass potentials worldwide.

The **core objective** of the Task is to support the development of a sustainable, international, bioenergy market, recognising the diversity in resources, biomass applications. Eventually, biomass may develop into commodity market, which could have multiple benefits, such as much improved market stability and competitive prices.

Developing the sustainable and stable, international, bioenergy market is a long-term process. The Task aims to provide a vital contribution to such (policy making) decisions in the coming years for market players, policy makers, international bodies as well as NGO's. It aims to do so by providing high quality information and analyses, providing overviews of developments, be a linking pin between different arena's involved in the debate, a clearinghouse for information and by targeted dissemination activities.

We distinguish five key areas to serve the main objectives for the Task:

1. Improve the understanding of biomass and bioenergy markets; this includes the description of ongoing developments, support development of statistic material, understanding factors that influence supply and demand for biomass on shorter and longer term as well as learning lessons from comparable other markets (such as food, fodder, forestry products, etc.).
2. Analyse the possibilities to develop biomass resources and exploit biomass production potentials in a sustainable way, including supply chains and required logistics and transportation operations.

3. Coherent analysis of biomass markets by modelling and scenario analysis; Dynamic demand and supply models of bioenergy, that takes influencing factors (pricing, actual demand, stocks, energy use for long distance transport) into account.
4. Analyse the impacts of biomass utilisation and trade and develop frameworks to secure the sustainability of biomass resources and utilisation. 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. Contributing to certification procedures and development of best practice guidelines, especially for integrating the production of biomass for energy and subsequent export into agricultural and agro-forestry systems especially in developing countries, is a key element in this.
5. High quality dissemination; the Task is to provide a key international platform (with a diverse range of stakeholders) for bioenergy trade and markets (covering supply and demand, sustainability, financial products etc.). Findings of the Task are translated in analysis and advice for industry and entrepreneurs, policy makers and other stakeholders.

In the desired impacts and results of the Task emphasis should lay on:

- Real development of markets, trade and (pilot and demonstration) projects (e.g. between the Task member countries!)
- Outreach to industry, strategic policy makers, the general public and international circuits. An important element is also increasing public awareness of on international bioenergy markets and sustainable development, since this is a vital issue for societal support of using biomass resources from other (world) regions.
- Maximising the collaboration with industry and market, not only in bioenergy but also related fields such as feed and fodder market, forest industry, international logistics and certification. This is in particular true for the events organised by Task 40.

Trade remains the central essential component of the work, but in addition, the understanding of developing the demand and supply side for biomass is essential on regional and national level as well. In addition, entrepreneurs and policy makers are now dealing with both development of biomass markets on a regional level in an international context. The balance between opening up market, removing barriers and at the same time building capacity to develop regional resources and demand is at his moment difficult in many situations and requires serious attention. Exchange of information on bioenergy experiences between parties and countries in different stages of market development can than also be facilitated.

Such a work scope would address several key priorities raised by ExCo, recognising that biomass supplies, their sustainability and a working market are key issues for bioenergy at large.

### **3. SPECIFICATION OF KEY CONTENT AREAS OUTPUT AND DELIVERABLES**

In conjunction with the objectives the identified 5 key areas of work are broken down below into different activities and output. This is a tentative list compiled after involvement of all current national Task leaders and international bodies, incorporation of priorities raised by ExCo and issues raised by other Task leaders. Priorities in the list of activities and outputs will be made after the work programme is agreed upon and with the members in scheduled meetings in autumn 2006 and begin 2007.

#### **I: Analysis of Markets:**

1. Country reports mapping the development of biomass markets and trade, should be maintained, updated and extended, in particular with new members. Standardise format and in particular the methodologies to prepare statistical overviews in a comparable way. Efforts should be made to generate time series. Issues as the relevance of indirect imports (or exports) should be structurally included.
2. Assessments of markets such as Russia, China, Argentina, etc, not being member of the Task or IEA Bioenergy due to the relevance for global trading, demand and supplies. This is also important to identify opportunities to mobilise biomass resources, for investments and trade.
3. Analysis of specific biomass markets such as ethanol (covered in 2005) should be expanded. Pellets, bio-oil, vegetal oils/oil seeds, agro-residues should all be addressed along similar lines and with a consistent methodology. Development of such methods could be a key generic output of the Task that can be used by other parties as well.
4. Specific attention for markets and trading of biofuels for transport (work with Task 39). One specific aspect is analysing how the development of international biofuel markets can be combined with building national markets and capacities over time (e.g. in the EU).
5. The development of (uniform) statistics on biomass markets and trade is a key priority. The Task can, by means of mentioned case studies, come to methodological proposals to do deliver such statistics (e.g. addressing indirect trading patterns) and communicate the lessons learned and presumed format to statistical agencies on both national and international level.
6. Specific analysis of the demand side for bioenergy on country, sector or supranational level (e.g. EU, North America). One prime example is the development of large-scale demand for solid fuels for new generation flexible fuel power plants that is expected to grow rapidly in the coming years.
7. Evaluate the impacts of policy incentives and biomass market development / demand on other sectors such as forestry, agriculture, etc. Also, the competition and interference of different policy support schemes on the international biomass market and related sectors should be investigated further.

## **II: Biomass Production and Supply Chains**

1. Analyse biomass production potentials (economic, sustainable, implementable) for specific regions, also in relation to technology development, policy measures and improved management schemes. This should in particular involve developing countries and less explored regions. Key examples are: agricultural residues, bagasse and coffee husk (Latin America), rice husk (SE Asia). Delivery of example reports with a uniform format.
2. Design and analyse sustainable biomass production schemes for the export market based on perennial cropping systems (grasses, trees) and agro-residues. This is in particular an area further covered in collaboration with Tasks 30 and 31. Such assessments can be the basis for designing pilots and demonstration activities under various conditions.
3. Analyse (international) biomass supply chains from source till- end use with specific interest for advanced pre-treatment technologies (torrefaction, pyrolysis, improved pelletisation with steam explosion, a.o.), harvesting and collection schemes etc. Specific outlook oriented work on long distance supply chains for 2<sup>nd</sup> generation biofuels for transport can be addressed in collaboration with Tasks 39 and 33 and 34 (joint event and analyses work). Assessment of the overall cost reduction potentials in the chain and implications for end use (co-firing, gasification for 2<sup>nd</sup> generation biofuels) could be a key priority.
4. Address the requirements and limitations of transportation for competitive and efficient biomass trade by analysing transport capacity and infrastructure, the dynamics of transport markets (shipping, rail transport) and optimisation possibilities. This activity can be done for specific regions as well as by addressing global capacity (e.g. shipping) for certain commodities.

5. Specific analysis of the supply side of biomass on regional or national level. This can include the impact of deployment of improved or new technologies and management systems that lower costs and improve economic potentials and availability.

### **III: Modelling and Scenario Analyses**

1. Provide an overview of available tools/methods and analyses. Tools are plentiful; both the tools and the results should be mapped and evaluated to screen for usefulness to analyse (future) biomass markets. Such an effort is initiated already in 2006, but a complete overview of tools and information and subsequent use of tools for Task 40 objectives requires a sustained effort. A dedicated event organised by T40 (possibly in collaboration with other circuits such as IPCC, IIASA, GTAP, etc.) will provide an overview and agenda for further actions.
2. Linked to evaluations mentioned under point I, models and scenario analyses can quantify the impacts of policies and various incentives on biomass and related markets.
3. Trade-offs between biomass trading and emission trading and impact of accounting rules can specifically address, e.g. in collaboration with IEA Task 38, both with joint analyses work and in a joint event.
4. Scenario analyses on how biomass markets develop can be addressed via stakeholder consultation and development (or adaptation of existing) modelling tools. Such exercises can provide desired insights for both market parties and policy makers and be developed in conjunction with those actors. An interactive procedure could be developed and hosted by IEA Task 40 as has been done in the current triennium in collaboration with EUBIONET.
5. Interactions between demand and supply of biomass should be modelled. When available, such tools could be extremely valuable for market parties and deployed in a variety of situations. Such analyses could for example be used to explore export markets and analyse uncertainties and risks as well as the impacts of various policy measures and incentives and technology development. This is longer term deliverable of the Task that is to be developed with additional research funds and partly with non-Task members (see also section 4 under finance).

### **VI: Sustainability, Quality and Certification/Standardisation**

For many key players and markets, sustainability of supply (and demand) is an essential prerequisite and a vital topic for policy makers that may greatly enhance or limit the perspectives for international bioenergy trade. Key topics for Task 40 are:

1. Continue mapping developments on bioenergy trade (and biomass production) certification, in particular sectoral and national systems. Provide advice from the Task to such processes and facilitate exchange. Assist (collaboration) and coordinate (synthesis, overviews) the formulation of sustainability criteria.
2. Demonstrate methodological frameworks to provide proper impact analysis and monitoring of biomass and biomass trading to support certification. Case studies remain a good method for this. Such work can also support the realisation of pilot projects in different regions.
3. Stimulate, address and facilitate that development and implementation of sound certification on international level, in particular in conjunction with market sectors and international bodies as UNCTAD, WTO, FAO, etc. This activity in particular requires events (such as a high level workshop) and good policy papers providing an overview on developments and key priorities.
4. Address with good detail the lessons and experiences of other markets (food, forest, etc) in dealing with certification and translate those lessons to the bioenergy arena.

5. Map and develop certification and quality assurance procedures for bioenergy production and trade, resulting in overviews (reports, papers) that can be distributed widely to facilitate harmonisation among different efforts made.

## **V: Dissemination:**

The target audience of the Task is broad, covering market parties/entrepreneurs, policy makers as well as international bodies, NGO's and the general public.

Many of the current dissemination activities should logically be maintained. The website [www.bioenergytrade.org](http://www.bioenergytrade.org) is the crucial tool for this, as are the events organised by the Task. Information should continue to be of high quality; useful for market and policy makers but also scientifically excellent to enhance credibility.

New elements in the intended dissemination strategy of Task 40 are:

- Capacity building (e.g. course material, website based material and workshops), especially for developing countries on developing biomass markets and export potentials (e.g. in conjunction with FAO and WB).
- Short summaries of the T40 work especially aimed for policy makers.
- A (hand) book like publication on biomass markets (examples of countries and commodities) on trade chains, certification, etc. could be written over period 2007-2009 to compile the work in an attractive format for a wider audience.
- Dedicated meetings with decision makers (national policy level and international bodies as WTO, UN, etc.) to provide dedicated information and try to influence processes to enhance sound and sustainable market and trade development.
- A digital newsletter (largely pointing to the website information) to highlight developments and results of the Task.
- Expansion of the library function of the website (clearinghouse role).

### ***Outreach***

The strong representation of market parties in the Task and the value of results for market parties make Task 40 relatively unique in the Bioenergy agreement. This character should be strengthened but involving more companies in the work, organising market oriented events (the concept of business fora should be strengthened) and by carrying out dedicated analyses for market parties; exact products need to be defined by industry.

Another characteristic of Task 40 is the interest and involvement of international bodies. The links to UNCTAD, UNEP, UNECE, WWF and current involvement of WB and FAO provide unique possibilities for addressing bioenergy trade and market development at strategic level. Task 40 aims to further strengthen the collaboration with those bodies and strive for formalised contacts (joint participation, exchange, carrying out concrete work) on international level.

## **4. MANAGEMENT**

### **4.1 Participation.**

Current IEA Task 40 Country members are:

- Belgium (representing party: Electrabel)
- Brazil (representing parties: University of Campinas / Cenbio)
- Canada (representing party: Climate Change Solutions/Dynamotive)
- Finland (representing party: Lappeenranta University)

- Germany (representing party: Okoe Insitut)
- Italy (representing party: ETA-Florence)
- Norway (representing party: ENOVA)
- The Netherlands (representing parties: Essent / Copernicus Institute – Utrecht University)
- Sweden (representing parties: Talloil AB / Sveaskog AB)
- United Kingdom (representing party: Imperial College)

Affiliated International Bodies<sup>1</sup> are:

- FAO
- World Bank

Countries that expressed interest in IEA Task 40 are: United States, Denmark and Austria. Other countries for which developments of bioenergy markets and trade has become an important topic are: Japan, South Africa and Australia.

International bodies that have expressed interest in collaboration are: EC, UNCTAD, UNEP, WWF International and UNECE.

## 4.2 Collaboration with Other Tasks

Collaboration and exchange with other IEA Tasks is generally strongly supported by ExCo and over 2004-2006, Task 40 has worked with Tasks 29, 30, 31 and 38. Smaller contributions were made to work of Task 39 and 32.

The issue of biomass resources, impacts of production and utilisation and international trade proves to be an essential area for bioenergy as a whole. This field is extensive and has a strong cross cutting character. Links with a variety of existing IEA Tasks are much desired in order to ensure synergy and good embedding in the ongoing activities of the Bioenergy Agreement.

- With Tasks 29, 30 and 31 many key joint issues remain on how biomass production can be realised in a sustainable way in practice. Also the developing markets for biofuels for transport (Task 39) is a key field for joint work, e.g. addressing the development of markets for second generation biofuels.
- With Task 38, joint work on sustainable biomass production, supplies and certification procedures is desired, given the (observed) synergy between certification efforts for biomass trading as well as for CDM projects. This is also true for addressing specific accounting rules for GHG impacts.
- The role of new or improved technology on development of biomass supply lines and demand is a field of collaboration with the technology oriented Tasks (pyrolysis, gasification, and (co-) combustion 32, 33 and 34).

### *Collaboration with other circuits*

Task 40 aims involve various key sectors (agriculture, forestry, NGO's, transportation and logistics) stronger in the events and collaborate on written deliverables. The current members combined have an excellent network to achieve that.

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<sup>1</sup> Affiliated international bodies are not a member of the task, and have no vote in the decision making, but are invited to workshops of the task to share their knowledge, and achieve wider dissemination of the results of this task. Only when they are a paying member they will have the status of a task participant, and the Executive Committee will have to endorse such participation.

Collaboration is established with various (research) networks such as EUBIONET and within various EC funded research activities. Such collaboration is to be strengthened and optimised further to support the objectives of the Task.

#### 4.3 Suggested work program and outline of possible events

A basic frequency for public events is around 2 per year. The schedule of events should first of all match with the work program priorities and is ultimately determined by the priorities of the Task members. The mentioned dates and locations are therefore fully tentative. Furthermore, scheduling events will be combined with other activities such as relevant (international) conferences and workshops when possible and appropriate.

A rough outline of possible events for the period 2007-2009 is given below:

<b>Suggested date</b>	<b>Content of event</b>	<b>Parties/IEA Tasks involved and suggested location</b>
January 2007	Internal Task kick-off meeting for establishing and organising the work program for 2007-2009.	Largely internal Task 40 event. Netherlands
Spring 2007	Workshop on long distance transport, infrastructure design and supply chains.	Canada; possibly biomass conference Berlin
Winter 2007	Business forum on market analysis, including non bioenergy sectors to evaluate market experiences in bioenergy trade vs. and compared with other markets. Specific attention for dedicated markets such as pellet trade.	Various market parties and sectors.  Sweden
Spring 2008	Workshop on co-firing/large scale power generation markets and related supply systems and technologies	Possible joint event with Task 32, 33. Belgium/Netherlands
Autumn 2008	A high level event aimed towards the key international bodies as UNCTAD, FAO, WB, UNECE, WTO, etc. to provide an agenda for stimulating/facilitating open and sustainable trade, including certification and standardisation issues.	In collaboration with FAO, WB, UNCTAD, UNEP, a.o.  Geneva
Winter 2008	Workshop with key modellers (including market parties) on biomass resource and market studies from different arena's; setting an agenda for further work and identifying tools and results that can be used by further work of the Task.	Dedicated workshop  Italy
Spring 2009	on future supplies, supply lines, trading and market formation for 2 <sup>nd</sup> generation biofuels (synfuels and ethanol)	Possible joint meeting with Tasks 39 and 34 United Kingdom
Autumn 2009	A follow up with on sustainable biomass production and supplies and potentials for the international market on providing the knowledge base for sound certification; including the development of pilots and demonstrations in DC's.	Tasks 29, 30, 31 and 38

## 4.4 Finance

Annual budget (in US\$) estimates related to the membership and budget for Task funded research activities is given in the table below. It should be noted that the 10% budget reservation for ExCo initiated activities and the unfavourable development of the Euro/US\$ exchange rate make it necessary to maintain the annual membership fee at the current (2006) level despite the increasing membership.

No. of paying members	Annual fee per member	Total annual budget	Estimated budget for Task funded research activities
9	15,000	135,000	15,000
10	15,000	150,000	30,000
11	15,000	165,000	45,000
12	14,000	168,000	45,000
13	14,000	182,000	50,000

### *Cost factors*

- Staff costs (personnel capacity): 40%
- Task funded research activities: 10% (up to 25% depending on membership status)
- Accommodation and consumables for meetings: 10%
- Travel Dutch (coordinating) parties and invited (non-Task member) experts: 15%
- Secretariat, dissemination and website (organisation of events, production of integrating Task output for newsletters, papers, etc.): 10%
- Annual reporting (IEA) requirements: 5%
- Budget for IEA ExCo initiated activities (10%)

Annual costs to run the Task (organisation and management, coordination of events, coordination of dissemination, related travel of coordinating parties, quality control of output and provision of (part of the) output is estimated at a stable 75 kEuro/yr.

The expected surplus by some 10 paying members can be spent on internal Task research and activities to be carried out by the members.

### *Sponsorship*

Given the special interest of international bodies in the work of the Task (as shown by the involvement of FAO and WB), negotiations on sponsorship of such bodies (including new parties like UNCTAD, UNEP and WWF International) are important. When successful, the impact on the budget is of course positive, increasing room for specific research work within the Task

### *Mobilising other funds*

Research funds should be attracted for more complex issues as modelling efforts, development of certification schemes and concrete feasibility studies on regions, countries and specific projects. Some concrete options are:

- Upcoming calls of the EC on certification and biofuel markets
- EC calls for INCO proposals (international cooperation; with Developing countries).
- Bilateral or multilateral combination of research efforts by proposing joint or merged proposals (e.g. funds of SenterNOVEM, TEKES, STEM, DTL...)
- Work for and with international parties as UNEP, FAO, World Bank, UNCTAD.

## **4.5 Management structure**

The structure of the management (combined leadership of Copernicus Institute, Utrecht University and Essent Energy Trading, being a leading utility in the use and trade of biomass for energy production, with supervision from SenterNOVEM as Operating Agent is proposed to be continued.

In case the membership grows to 14-15 members, the work program may be organised containing sub-Tasks that are headed by a co-Task leader. The division given under key areas of work above can provide a basis for that.

The Copernicus Institute will, supported by the bioenergy research activities (with some 10 research staff involved), coordinate the scientific content of the Task and be responsible for synthesis and integration work and reporting, combined with supporting everyday management of the Task.

Essent, being a key market party active in biomass utilisation and international bio-energy trading is responsible for the management and finance issues.

A brief description of both parties and CV's of the current Task leaders Andre Faaij (Copernicus-UU) and Peter-Paul Schouwenberg (Essent) is given in the appendix, as well as the CV of Martin Junginger (Copernicus-UU) who performs key activities for the Task on both content and management field.

## APPENDIX: BACKGROUND COORDINATING PARTIES

### **Copernicus Institute - Utrecht University; Dept. of Science, Technology and Society.**

STS is a department of the faculty of chemistry of the Utrecht University and integral part of the COPERNICUS Institute for Sustainable Development (~100 research staff). The research covers: Energy System Analysis, Energy and 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 and System Studies work (>20 research staff; including bioenergy) has an excellent international reputation with collaboration worldwide. Work covers EU-research programs, national government, private sector, the IEA (PVPS, Greenhouse Gas R&D programme and the Bioenergy Agreement), the UN, WEC, IPCC, WWF and FAO. Key activities in the research on biomass and 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 bioenergy systems.
- Scenario studies.
- Studying non-technical barriers, policy, RD&D and implementation strategies.

For more information see: <http://www.chem.uu.nl/nws/www/nws.html>

**Short CV:** Dr. André P.C. Faaij (1969) is appointed as associate professor at the Copernicus Institute for Sustainable Development (Faculty of Chemistry) of the Utrecht University. He has a background in chemistry and environmental sciences and holds a Ph.D. on energy production from biomass and wastes. He worked as visiting researcher at the Center for Energy and Environmental Studies - Princeton University and at King's College - London University.

His main research experience and interests concern energy system and scenario analysis and modeling, bio-energy and other renewables, land-use issues, international bio-energy trade, sustainability assessments of energy systems, alternative transport fuels, decarbonization of fossil fuels, capture and storage of CO<sub>2</sub> (CCS), waste treatment and material and energy efficiency, technological learning, Greenhouse gas balances and energy and research policies.

He coordinates a research cluster on energy supply and system studies (>20 research staff involved), covering bio-energy, sustainable use of fossil fuels, intermittent energy sources and energy system studies and modeling. Both in 2000 and 2004, external evaluations qualified the cluster as *Very Good – Excellent* with respect to *'Productivity, Quality, Viability and Societal Relevance'*, showing strong international leadership in its' core areas as Bio-energy and Carbon Capture and Storage.

He supervises a variety of internal and external Ph.D.-projects and jointly coordinates a Master Programme 'Energy Science'. He is in particular experienced in research and management of research in a multidisciplinary as well as international setting. Such work includes programmes for the National Science Foundation (NSF), the 5-year CATO programme on Sustainable use of fossil fuels, and a wide range projects for the EC and international bodies and companies. To date, he carried out and coordinated close to one hundred projects and programmes.

He is a member of a variety of expert groups in bio-energy and energy policy, research and strategic planning. He works as an advisor for SenterNOVEM, government, the EC, IEA, FAO, the UN, GEF, OECD, the energy sector & industry, strategic consultancy, NGO's, etc. He is Task Leader of Task 40 under the Bio-energy Agreement of the International Energy Agency on 'Sustainable International Bio-energy Trade' and, in the same framework, acted as national representative in several other tasks (Greenhouse Gas Balances, techno-economic analysis). Since 2006, he is a member of the International Expert Advisory Group of the UN Biofuels Initiative.

Furthermore, he was Lead Author for the World Energy Assessment of the United Nations, WWT's book on biofuels for the 21<sup>st</sup> Century and currently for the IPCC 4<sup>th</sup> assessment report and IEA's World Energy Outlook. He is one of the editors of the journal Biomass & Bioenergy and reviewer for a variety of Journals and scientific and government bodies.

He published over 350 titles in scientific journals, reports, books and proceedings, (co-) organized a range of international workshops and conferences and is a much-invited lecturer at a host of events.

**CV, Dr. Martin Junginger:** he is senior researcher in the energy supply group of the Dept. of Science, Technology and Society (STS). After writing his MSc thesis on supply chains for large-scale biomass plants in developing countries, he joined the department in 2001 as PhD student, doing extensive research on the technological development and associated cost reductions of several renewable energy technologies, including onshore and offshore wind farms, biomass CHP plants in Sweden and biogas plants in Denmark. After obtaining his PhD in May 2005, he has mainly been working on the topic of Sustainable International Bioenergy Trade. He is also strongly involved in work on biomass sustainability criteria and certification. Furthermore, he has supervised several M.Sc. students over the past 5 years with a wide range of topics.

### **Essent Energy Trading**

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 Euro and a profit of 250 million Euro. 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.

### **Energy Management Group**

Within Essent, the Energy Management Group (EMG) - under the legal entity of Essent Energy Trading B.V. - is internationally active as the portfolio and risk management organisation that realises maximum value out of the position of all Essent's assets, contracts and customer portfolios by managing and optimising the entire commodity value chain.

### **Energy Trading and Portfolio Optimisation**

EMG is the "hub" of Essent's energy activities. It optimises the entire energy value chain from source to end-customers: exchanging physical flows, financial flows and information flows between physical assets, wholesale markets, distribution grids, retail channels, and end-customers. EMG plays a key role in critical decisions across all time horizons from long-term (20 years) to short-term (one hour). With regard to the long-term, EMG provides market insights and supports the valuation of potential investments or acquisitions. Furthermore, EMG secures medium-term value by asset hedging and portfolio optimisation, supporting generation and maintenance planning, and deal origination and structuring. Finally, EMG ensures short-term optimisation by dispatching and gas nomination, balancing and intraday trading. As a consequence, EMG is best placed to mitigate the impact of risks endemic to the business as well as to capture synergies from Essent's growth.

In executing these activities, EMG is a merchant energy company, with key drivers for success being people and skills, business processes, and information systems. Furthermore, like a merchant energy company, EMG's roles and responsibilities are defined by contracts (both internal SLAs as well as external) and Essent's overall business model. EMG believes that in order to continue to be effective and

meet the challenges of Essent's portfolio of growth initiatives, it needs to pursue three activities in the coming years. First, EMG aims to achieve and maintain operational excellence by focusing on and improving

its business processes (ISO certification). Second, EMG is focusing on customer service and striving to deliver products and services and thirdly EMG aims to grow organically through merchant activities, and support Essent's strategic initiatives. Although these three activities need to be invested in simultaneously, operational excellence is the highest priority for the near future because it is a prerequisite for strengthening capabilities for future growth.

For more information please contact EMG at [energy@essent.nl](mailto:energy@essent.nl)

***Short CV Peter-Paul Schouwenberg (1958)***

8/'02 - today Manager Biofuels Procurement and Development, Global Commodities, Essent Energy Trading B. V.

Responsible for the Purchase and Development of biofuels/biomass all over the world;

11/'98 - 8/'02 Coordinator Environment and Permits, Business Support, Essent Energie Productie B.V.. Responsible for the permits from all the power plants of Essent.

11/'87 – 11/'98 Company lawyer, Legal Department, ElectriciteitsProductiemaatschappij Zuid-Nederland (EPZ) B.V.. Responsible for public and regulatory affairs.

6/'86 – 11/'87 Company Lawyer, Executive Board Office, Provinciale Noordbrabantse Electriciteits Maatschappij (PNEM) N.V., Responsible for public and regulatory affairs.

9/'81 – 6/'86 Legal Employee, Project Management, municipality 's- Hertogenbosch.