

# **Integrating Energy Recovery into Solid Waste Management Systems**

## **Task 36 Final Proposal for Task Prolongation for the New Triennium 2016-2018**

**21st October, 2014**

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**Triennium 2016-2018**  
**Task 36 Proposal Summary Sheet – First draft for ExCo 74**

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**Task Title: Task 36 – Integrating Energy Recovery into Solid Waste Management Systems**    **Proposer: Kathryn Warren and Pat Howes.**

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<b>Endorsement by ExCo Member of participating country</b>		
<b>Country:</b>	UK <b>Name:</b> Elisabeth McDonnell	<b>Signature:</b>

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## Objective

To collect, analyse, share, and disseminate best practice technical and strategic non-technical information on integration of energy recovery into solid waste management, leading to improved availability of information to decision makers and to increased acceptance and performance in terms of environment, costs, and reliability.

## Work scope

The proposed biomass combustion and co-firing task is a prolongation of Task 36, with continued emphasis on dissemination of information aimed at policy and decision makers.

The program of activities defined in this proposal builds upon the work done in the current Task 36 and addresses key challenges in the integration of energy into solid waste management solutions and decisions. This includes issues that look at the role that energy recovery can play in a transition to a circular economy, waste to energy in developing economies and the influence of the varying international policy and legislative factors, including fiscal measures. The scope of work will also focus on future development of energy recovery from waste, specifically at the growing trend of converting solid waste to liquid fuels and other commodities. The Task is in discussion regarding potential collaboration with Task 33 and Task 39 in this area. Further work will involve an updated assessment of the technologies, markets and legislation relating to the management of residues from energy recovery from waste. The Task is in discussions with Task 32 regarding a potential seminar on challenging biomass fuels which will include waste derived fuels. The Task will also continue to work closely with trade organisations, operating industry and with research organisations. The structure of work will generally consist of a workshop exploring each theme, associated summary reports and technical site tours.

## Work programme

- Task meetings to exchange results from relevant national R&D programmes;
- Field trips associated with the Task meetings, including visits to state of the art facilities to view new developments in conversion of solid waste to liquid fuels and other commodities, residues treatment facilities. Presentation of information from these visits on the Web site.
- International workshops associated with the Task meetings, to cover new developments in energy recovery; advanced treatment technologies and conversion of waste feedstocks to liquid fuels; the role of energy recovery in a circular economy; legislative and policy drivers; and factors influencing the development of waste to energy internationally.
- Specific actions resulting in discussion of concepts for improved integration of energy from waste into resource value chains<sup>1</sup>, including:

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<sup>1</sup> For example there are proposals for Smart Management of waste, which takes into account the technical, environmental and economic factors influencing waste management. See, for example: <http://www.navigantresearch.com/research/smart-waste>. Alternative proposals include the development of a circular economy. This represents an alternative to a traditional linear economy, in which commodities are produced, used and thrown away. A circular economy keeps resources in use for as long as possible, allowing the extraction of maximum value from them whilst in use, then recovery and regeneration of products and materials at the end of each service life

- Recent and future trends to convert **solid waste into liquid fuels** and other commodities, including examination of waste feedstocks, technologies, applications and drivers.
- examination of the role that EfW has to play in a circular economy, including the recovery of materials and by-products from waste. This will examine how energy recovery can be included in a fully integrated waste management system to close the resources circle and how waste refineries might be developed;
- challenges to the integration of energy from waste into waste management in developing economies;
- Update on the status of treatment technologies, legislation and markets for residues of energy recovery, including bottom ash and air pollution control residues
- Review of international policy, legislative and fiscal drivers impacting on energy recovery (for example, there are moves to limit municipal solid waste to energy in some countries to no more than 30%; and there are incentives to make advanced conversion more viable)
- Transboundary shipments of waste to be used in energy recovery
- Latest developments in waste derived fuels, including solid recovered fuel (SRF), with the intention of providing information for decision makers;
- trends in the use of commercial and industrial waste for energy and alternative feedstocks to MSW;
- Information exchange with IEA Bioenergy Task 33 and 39, as indicated above. This would facilitate discussion on a range of aspects impacting on conversion of solid waste to liquid fuels, including technologies, markets, feedstocks, policy etc. The Task is in discussion with Task 33 on the potential to do a joint project in this area.
- A joint seminar with Task 32 on the topic of challenging biomass fuels is under discussion. Task 36 will contribute to presentations on waste derived fuels and solid recovered fuels for this seminar.
- Information exchange with other IEA Bioenergy Tasks and other international networks on relevant energy from waste technologies worldwide;
- Closer links to the International Solid Waste Association (ISWA). ISWA are working in related areas and have asked Task 36 to participate in their Task Force on Resource Management. We are currently discussing this with them. ExCo interaction and support

### **Deliverables and Target Groups**

The following deliverables will be primarily aimed at decision makers who impact the development of energy from waste

- A summary report on conversion of solid waste to liquid fuels
- A summary report on international policy, legislation and fiscal drivers impacting on energy recovery in solid waste management
- A workshop and summary report on transboundary shipments of waste for energy recovery.
- An update report on the situation regarding solid recovered fuels.

The following deliverables will also provide information to the Executive Committee on the progress of the work:

- Two Task meetings each year, including site visits, reported on the web site
- Updated web site and web visit numbers
- Progress reports, financial reports and audited accounts for the Executive Committee.

### **Management Qualifications**

**Task Leader:** The Task Leader for this work will be Kathryn Warren.

Kathryn is a Chartered Waste manager with over 10 years' experience in the waste industry in the UK. She has worked in the public and private sector, delivering a range of waste and energy projects to

local authorities, government and industry. Kathryn has been involved in Task 36 for the past three years, providing support and assistance to Pat Howes. Her active involvement has included work on a collaborative project with Task 37 (biogas) and organisation of workshops and Task meetings. She has also been supporting Pat in the preparation of Task meeting minutes and other routine work. Kathryn is an experienced project manager, managing work including multi-partner projects of values up to £250,000.

**Task Assistant:** Kathryn will be assisted by Pat Howes as Task Assistant

Pat Howes has been the Task 36 Leader for the past six years. During this time she has supported the production of reports aimed at providing information for decision makers, the organisation of a series of workshops on key topics and the work of the Task at ExCo level. She will remain to support the handover of the Task to Kathryn, providing advice and technical support. Pat has 28 years' experience of bioenergy, including a wide understanding of energy from waste and waste management. Her involvement with the IEA began in 1990 when she introduced a Task on landfill gas and biogas. Her general experience includes support for policy in UK and Europe, bioenergy research gap analysis for UK Government, due diligence for private sector bioenergy developers in the UK and research in areas such as environmental impact, sustainability and resource assessment for bioenergy at UK and European level.

**Annual Budget** US\$15,400; **Budget per participant;** US\$92400, assuming 6 countries participate.

Identify the actions in the Strategic Plan 2015-2020 that would be addressed by the proposed Task / SP\* by inserting an X in the 'Tick' column for each relevant row.

OBJECTIVE	ACTION	TICK
Objective 1: To promote the market deployment of technologies and systems for sustainable energy production from biomass.	Provide a realistic overview of the readiness level of different conversion technologies as well as potential benefits and impacts on the market.	X
	Provide an integrated technologies approach (synergy) with regard to the use of biomass for energy purposes as well as the use of co-products (chemicals, fodder, fibre, mechanical wood / biomass products)	X
	Identify and characterise the R&D priorities for bioenergy, including the scientific and technical innovations needed for new and growing market. Encourage joint actions on technological innovation in the area of bioenergy including energy driven biorefineries and job creation.	
	Identify the most promising bioenergy technologies and most efficient public policies and investigate technical and non-technical barriers and incentives to the market deployment of these technologies in the context of the scenarios of the 2020-2050 low carbon society (IEA, 2011) and investigate the emerging technologies for this	
	Encourage and promote the sustainable deployment of technologies with important local, regional, and global socio-economic and environmental benefits that will contribute to a secure energy supply and job creation	X
	Show the potential of bioenergy to contribute to a sustainable environmental footprint e.g. by GHG reductions, soil improvement and nutrient balance, water footprint, material recycling, resource sufficiency	
Objective 2: To raise public awareness through communication with key stakeholders for the use of biomass as an energy source and to provide clear and verified information on bioenergy	Provide scientifically sound and politically and commercially independent data and information for policy makers, industry and IEA bodies in a format appropriate to the specific audience	X
	Take a leading role in the discussion of current topics in the field of biomass energy	X
	Ensure communication on different levels and with different means, e.g. scientific and easy to read policy oriented reports, strategy papers, website, newsletters etc.	X
	Develop mechanisms for exchanging feedback with the relevant target groups, to gauge visibility and impact	X
	Encourage other sectors of the bio-based economy to apply the same stringent rules of sustainability in using biomass as in the case of biofuels and bioenergy	
Objective 3: To strengthen the outreach efforts of the Implementing Agreement to involve interested new member countries, industry and multilateral organisations	Actively involve relevant industry players by organising topical workshops with panel discussions at both the ExCo and the Task level	X
	Continually adjust the Task work programmes to reflect industry's needs and to promote cooperation with industry	X
	Actively seek new member countries. Educate possible participants about the benefits of IEA Bioenergy through invitations to observe Executive Committee meetings and Task events such as workshops, study tours, and seminars	X
	Encourage industry associations to contribute to Task work where appropriate	X
	Initiate new tasks where new topics emerge that are in accordance with the needs of the members, and close completed tasks	X
	Strengthen the exchange of information and technology transfer with multilateral organisations (e.g. FAO, GBEP, etc.) within the biomass sector to develop global energy and environmental policies with regard to the use of biomass	
	Encourage the information exchange and possible joint research projects at ExCo and at Task level with other IEA Implementing Agreements which are topically close to IEA Bioenergy (see Figure 2)	X
	Support the development of global, sustainable, bioenergy policies by designing mechanisms that enable the involvement of countries with less developed bioenergy infrastructure and expertise, while maintaining a collaboration which is attractive to internationally leading countries and experts	
	Identify strategies that encourage existing Contracting Parties to expand their Task participation	
Objective 4: To increase the dissemination of information	Keep the website of IEA Bioenergy and the Tasks' websites up-to-date and work towards their increased integration	X
	Encourage member countries to create a national distribution list and take responsibility for periodically providing information on relevant IEA Bioenergy publications, newsletters, events etc. by the national delegate	X
	Encourage members who have an expert's presentation at international conferences also to briefly mention the work of IEA Bioenergy (where appropriate)	X
	Strengthen the exchange with IEA Headquarters and get actively involved in the development of road maps, ETPs etc.	X
	Improve interaction with other IEA Implementing agreements through information exchange (see Figure 2)	X
	Present IEA Bioenergy and its results at national and international meetings	X