

WORK PROGRAMME 2009

COOPERATION

THEME 4

***NANOSCIENCES, NANOTECHNOLOGIES, MATERIALS AND
NEW PRODUCTION TECHNOLOGIES - NMP***

(European Commission C(2008)4598 of 28 August 2008)

Objective

The principle objectives of this Theme are to improve the competitiveness of European industry and to generate knowledge to ensure its transformation from a resource-intensive to a knowledge-intensive base, by creating step changes through research and implementing decisive knowledge for new applications at the crossroads between different technologies and disciplines. This will benefit both new, high-tech industries and higher-value, knowledge-based traditional industries, with a special focus on the appropriate dissemination of RTD results to SMEs. These activities are concerned with enabling technologies which impact all industrial sectors and many other FP7 Themes.

I Introduction

The NMP Theme pursues the overall objective of enhancing the competitiveness of European industry by **generating step changes in a wide range of sectors and implementing decisive knowledge for new applications** at the crossroads between different technologies and disciplines.

Research will be focused on generating **high added-value products and related processes and technologies** to meet customer requirements as well as growth, public health, occupational safety, environmental protection, and societal values and expectations. The competitiveness of more mature industries is also largely dependent on their capacity to integrate knowledge and new technologies.

The first of the series of calls included in the NMP Work Programme 2009 deals with research in the field of bio-refineries, published jointly with the Themes Food, Agriculture and Fisheries, and Biotechnology, Energy (including the participation of DG TREN) , and Environment.

The aim of the joint call in the field of bio-refineries is to increase the critical mass in terms of resources (human, financial, of activities, stakeholders, etc.) in order to meet the RTDD needs not yet fully addressed by existing programmes and projects. It will contribute to meeting the broader challenge of sustainable development by integrating and demonstrating the potential of biomass in developing bio-products and –fuels in a sustainable and value adding framework of industrial and economic activity.

This call will be complemented by the NMP calls, expected to be published in November 2008.

II Content of calls for proposals in 2009

II.1 Activity 4.4: Integration of technologies for industrial applications - Joint call on Biorefinery

Biorefinery is the sustainable processing of biomass into a spectrum of value-added products (chemicals, materials, food and feed) and energy (biofuels, power and heat). By producing multiple bio-products and bio-energy, a biorefinery takes advantage of components and intermediaries and maximizes the value derived from refining operations.

The aim of the joint call is the research, development and integration of innovative technologies to prove the viability related to the entire value chain (biomass production, biomass conversion, safe recycling and/or disposal of waste, conformity of end-products to end-user requirements) of advanced biorefineries. It will be targeted at the selection of a limited number of large, multi-disciplinary, collaborative projects addressing bioproducts, bioenergy, sustainability and technical and economical viability.

Quality proposals with the intended level of integration are expected to achieve a breakthrough beyond the "business as usual" scenario. Furthermore, proposals shall necessarily include the sustainability assessment of any proposed solution on the basis of a life cycle approach. This shall be developed with the aim to provide a robust scientific basis for policy and decision making at different levels and scales (from production unit to policy development).

Topic NMP-2009-4.0.1-1: Sustainable Biorefineries

Scope: Development of advanced biorefineries for sustainable processing of biomass into building blocks for the production of bio-based chemicals, materials, second generation biofuels, power and heat. The biorefineries shall demonstrate their performance, sustainability and feasibility at least at pilot scale in an integrated approach. Part of the biorefinery complex that is closer to the market shall be demonstrated at industrial pilot plant scale.

All proposals shall address the entire value chain from biomass feedstock production, logistics and pre-treatment to the development of thermo-chemical and bio-chemical technologies, including bio-technological routes, for the conversion of different types of biomass feedstock into bio-based products and energy. The utilisation and upgrading of residues and process waste streams and the purification and upgrading of the various products into final marketable services to consumers shall also be addressed. Bio-technological tools for the development of new non-food industrial crops and/ or biomass sources as feedstock may be applied. The upgrading and integration of new stable materials as well as of new non-enzymatic high-selective catalysts may be considered. The integration and optimization aspects of all the main biorefinery sub-systems shall be described and show progress beyond the state-of-the-art.

With regard to sustainability, all proposals shall assess for the entire value chain the environmental, economic and social sustainability, including consequences due to the competition for food and biomass resources, the impact on water use and quality, changes in land-use, soil carbon stock balance and fertility, net balance of greenhouse gases, impact on biodiversity, potential toxicological risks, energy efficiency. Impacts on international and regional dynamics, end-users and consumer needs, investment feasibility may also be considered.

Funding Scheme: Collaborative Project

Expected Impact: Funded projects are expected to demonstrate the capacity of biorefineries to contribute to European competitiveness and wealth by responding to the need for supplying a wide range of bio-based products and energy in an economically, socially, and environmentally sustainable manner. New competences, new job opportunities and new markets are also expected. Furthermore the development of biorefineries is expected to also contribute to the implementation of several EU policies and initiatives, notably the SET Plan and the Energy & Climate Package in general.

Other information: The participation of relevant industrial partners, along with research organisations, SMEs, end-users and civil society organisations is essential to achieving the full impact of the project. This will be considered in the evaluation. The proposals may consider opportunities of international cooperation and address international integration of value chains, provided that they respond to sustainability criteria.

Topic NMP-2009-4.0.1-2: Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries

Content/scope: The aim is to promote coordination of on-going research at European and national levels across Biotechnology, Energy, Industrial Technologies and Environment on distinctive features of the biorefinery concept. Information exchange and cross fertilisation may concern any aspect of the feedstock, the conversion and fractionation technologies, the integration of processes and uses of side-streams, the biofuels and the bio-based products, the energy efficiency, the economic, socio-economic and environmental performance, as well as other sustainability issues (impacts on food production schemes, impact on water use and quality, changes in land-use, access to resources, impact on biodiversity, and the net balance of greenhouse gases). Activities should aim to overcome fragmentation in this multidisciplinary field and develop cross-thematic synergies by identifying gaps and overlaps, defining priority needs and infrastructure. In addition, activities shall involve dissemination of results.

Funding Scheme: Coordination and support action (coordinating action)

Expected Impact: Significant improvement is expected in the exchange and use of the information available on biorefinery concepts within the thematic projects, in the identification of complementary research results and the cross-fertilisation to make best use of them, and in the synergies between the thematic projects. Significant enhancement is also expected in the cooperation between key researchers and industries that are active in Biorefinery research funded by EU and national programmes.

Other information: The consortium should include a balanced partnership from all scientific domains involved (biotechnologies-agriculture-food, energy, environment and industrial technologies) with solid experience and competence in the field and strong project management skills. The partnership should demonstrate the added value of the cross-thematic collaboration in the proposed action. In that respect, the participation of relevant industrial partners is deemed as essential to achieving the full impact of the project. This will be considered in the evaluation. . Networking and exchange activities with relevant international programmes shall be established. Up to one project may be funded.

III Implementation of calls 2009

III.1 Budget (Million EUR): First call 2009 (Joint call)

	<i>Budget in million EUR</i>	2008*	2009
2nd calls – NMP WP 2008	Large scale integrating collaborative projects	70.000	170.000
	Small or medium scale focused research projects	99.990	50.010
	SME-targeted projects	11.900	53.100
	CSA (Coordination and Support Actions)	15.000	
	Joint Call with Energy Theme	10.000	
	Joint call with Environment Theme	5.000	
	Coordinated call with India	5.000	
	ERANET		4
	ERANET Plus		6
	Total	216.890	283.110
Biorefinery Joint Call (WP 2009)	Collaborative projects		5.000
	Coordination and Supporting Actions		2.000
General Activities	- <i>ERANET (0.0023) - Cordis (1.336)</i> - <i>Eureka/Research organisations (0.041)</i>		5.145

	- COST (3.744) - ERANET (0.023)		
	- Evaluation		3.500

All budgetary figures given in this work programme are indicative. Following the evaluation of proposals the final budget awarded to actions implemented through calls for proposals may vary:

- by up to 10% of the total value of the indicated budget for each call; and
- any repartition of the call budget may also vary by up to 10% of the total value of the indicated budget for the call

The final budgets for evaluation, monitoring and review may vary by up to 20% of the indicated budgets for these actions. The final budget awarded for actions not implemented through calls for proposals may vary by up to 10% of the indicated budgets for these actions.

*- 2008 Figures given for information only.

IV Call for proposals – First call 2009

Call title: BIOREFINERY Joint Call

Call identifier: FP7-2009-BIOREFINERY¹

Date of publication: 26 July 2008

Deadline: 25 November 2008 at 17.00.00, Brussels local time²

Indicative budget³: EUR 57 million from the 2009 budget of which:

- EUR 10 million from Theme 2 – Food, Agriculture and fisheries, biotechnology (KBBE)
- EUR 7 million from Theme 4 – Nanosciences, nanotechnologies, materials and new production technologies (NMP)
- EUR 30 million from Theme 5 – Energy
- EUR 10 million from Theme 6 - Environment⁴.

The final budget awarded to this call, following the evaluation of projects, may vary by up to 10% of the total value of the call.

Topics called:

The Biorefinery topics are implemented jointly by the Themes 2, 4, 5, 6 mentioned above. They are identical in each theme. When applying for this call please use one of the activity codes below. Each proposal must be submitted only once

Activity/ Area	Topics called	Funding Schemes
ACTIVITY KBBE 2.3. LIFE SCIENCES, BIOTECHNOLOGY AND BIOCHEMISTRY FOR SUSTAINABLE NON-FOOD PRODUCTS AND PROCESSES		
KBBE.2009.3.4.1	Sustainable Biorefineries	Collaborative Project
KBBE.2009.3.4.2	Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	Coordination and support action (coordination type)
ACTIVITY NMP- AREA 4: INTEGRATION OF TECHNOLOGIES FOR INDUSTRIAL APPLICATIONS		

¹ The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication

² At the time of the publication of the call, the Director-General responsible may delay this deadline by up to two months.

³ A reserve list will be constituted if there are a sufficient number of good quality proposals. It will be used if extra budget becomes available.

⁴ Under the condition that the preliminary draft budget for 2009 is adopted without modification by the budgetary authority.

NMP-2009-4.0.1-1	Sustainable Biorefineries	Collaborative Project
NMP-2009-4.0.1-2	Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	Coordination and support action (coordination type)
ACTIVITY ENERGY.3: RENEWABLE FUEL PRODUCTION		
ENERGY.2009.3.3.1	Sustainable Biorefineries	Collaborative Project
ENERGY.2009.3.3.2	Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	Coordination and support action (coordination type)
ACTIVITY ENV.3: ENVIRONMENTAL TECHNOLOGIES		
ENV.2009.3.3.2.2	Sustainable Biorefineries	Collaborative Project
ENV.2009.3.3.2.3	Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	Coordination and support action (coordination type)

	Indicative Budget
Sustainable Biorefineries	EUR 55 million
Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	EUR 2 million

In case the budget of EUR 2 million for the topic 'Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries' cannot be consumed (totally or partially) the remaining budget will be returned to the topic 'Sustainable Biorefineries'.

Eligibility Conditions

The evaluation criteria, together with the eligibility, selection and award criteria, for the different funding schemes are set out in Annex 2 to this work programme

The minimum number of participating legal entities required, for all funding schemes, is set out in the Rules for Participation. They are summarised in the table below⁵:

Funding scheme	Minimum conditions
Collaborative project	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Coordination and Support Actions (coordination type)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.

Evaluation procedure:

- Proposals will not be evaluated anonymously.

⁵ MS = Member States of the EU; AC = Associated country. Where the minimum conditions for an indirect action are satisfied by a number of legal entities, which together form one legal entity, the latter may be the sole participant, provided that it is established in a Member State or Associated country.

- Proposals will be evaluated remotely with the consensus session being held in Brussels.
- At the Panel stage, proposals with equal overall scores will be prioritised according to their scores for the S/T Quality criterion. If they are still tied, they will be prioritised according to their scores for the Impact criterion.

Topic Sustainable Biorefineries

The evaluation of the topic *Sustainable Biorefineries* shall follow a two stages procedure. The first stage proposal, of a maximum of 15 A4 pages should focus on the S&T content and on clear identification of the intended results, their intended use and the expected impact (economic, social, environmental, etc.) and maximum 2 additional pages to list the consortium organisations and the estimated financial resources involved. In order to ensure equal treatment, it is strongly recommended to proposers to respect these limits.

First stage proposals will be evaluated on the basis of their S/T Quality and Impact. Stage 1 proposals shall be submitted by the closure date mentioned above.

Coordinators of retained proposals in stage 1 ("go" proposals) will be invited to submit a complete proposal that will be then evaluated against the entire set of evaluation criteria. The closure date of the second submission will be specified in the invitation to submit the complete proposal. The indicative closure date is 16.04.2009.

Hearings may be organised.

Topic Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries

The evaluation of the topic Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries shall follow a one stage procedure. Proposals shall be submitted by the closure date mentioned above and evaluated against the entire set of evaluation criteria.

For this call, implemented via a two stage procedure (topic **Sustainable Biorefineries**) and via one stage procedure (topic **Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries**), the following criteria and thresholds are applied:

Evaluation criteria and thresholds for stage 1 proposals of the two stage procedure (Sustainable Biorefineries):

Stage 1 proposals are evaluated on the basis of their **S/T quality** and **Impact**. For each criterion marks from 0 to 5 will be given, with the possibility of 0.5 point scores. Successful proposals must pass the minimum thresholds as follows:

	Minimum threshold
S/T quality	4/5
Impact	3/5
Overall threshold required	8/10

Evaluation criteria and thresholds for stage 2 proposals of the two stage procedure (Sustainable Biorefineries):

Stage 2 proposals are evaluated on the basis of the following three criteria: **1. S/T quality; 2. Implementation; 3. Impact.** For each criterion marks from 0 to 5 will be given, with the possibility of 0.5 point scores. Successful proposals must pass the minimum thresholds as follows:

	Minimum threshold
S/T quality	4/5
Implementation	3/5
Impact	4/5
Overall threshold required	12/15

Evaluation criteria and thresholds for proposals of the one stage procedure (Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries):

Proposals of the one stage procedure are evaluated on the basis of the following three criteria: **1. S/T quality; 2. Implementation; 3. Impact.** For each criterion marks from 0 to 5 will be given, with the possibility of 0.5 point scores. Successful proposals must pass the minimum thresholds as follows:

	Minimum threshold
S/T quality	3/5
Implementation	3/5
Impact	3/5
Overall threshold required	10/15

Indicative Evaluation and contractual timetable

Sustainable Biorefineries

Evaluation stage 1 proposals: remote phase December 2008, consensus phase January 2009
 Evaluation stage 2 proposals: remote phase April / May 2009, consensus phase end of May 2009. Evaluation results: estimated to be available within two months after the closure date. A reserve list of projects might be established.

Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries

Evaluations are expected to be carried out in December 2008 and January 2009 (Remote phase December 2008, consensus phase January 2009). It is expected that the contract negotiations for the short listed proposal will open by March 2009.

Consortia agreements

Participants in Collaborative Projects are required to conclude a consortium agreement; participants in Coordination and support actions are encouraged, but not required, to conclude a consortium agreement.

Forms of grant and maximum reimbursement rates for projects funded through the Cooperation work programme are given in Annex 3

The following points will be reflected in the evaluation

Sustainable Biorefineries

The participation of relevant industrial partners, along with research organisations, SMEs, end-users and civil society organisations is essential to achieving the full impact of the project.

Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries

The participation of relevant industrial partners is deemed as essential to achieving the full impact of the project.