WORK PROGRAMME 2011

COOPERATION

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(European Commission C(2010) 9012 of 15 December 2010)

Annex 1: List of International Cooperation Partner Countries (ICPC)[1]

ACP *

- AFRICAN

- Angola LM
- Benin L
- Botswana UM
- Burkina-Faso L
- Burundi L
- Cameroon LM
- Cape Verde LM
- Central African Republic L
- Chad L
- Comoros L
- Congo (Republic) LM
- Congo (Democratic Rep.) L
- Côte d'Ivoire L
- Djibouti LM
- Equatorial Guinea UM
- Eritrea L
- Ethiopia L
- Gabon UM
- Gambia L
- Ghana L
- Guinea L
- Guinea-Bissau L
- Kenya L
- Lesotho LM
- Liberia L
- Madagascar L
- Malawi L
- Mali L
- Mauritania L
- Mauritius UM
- Mozambique L
- Namibia LM
- Niger L
- Nigeria L
- Rwanda L
- Sao Tome and Principe L
- Senegal L
- Seychelles UM
- Sierra Leone L
- Somalia L
- South Africa[2] UM
- Sudan L
- Swaziland LM
- Tanzania L
- Togo L
- Uganda L
- Zambia L
- Zimbabwe L

- CARIBBEAN

- Barbados UM
- Belize UM
- Cuba LM
- Dominica UM
- Dominican Rep. LM
- Grenada UM
- Guyana LM
- Haiti L
- Jamaica LM
- Saint Kitts and Nevis UM
- Saint Lucia UM
- Saint Vincent and Grenadines UM
- Suriname LM
- Trinidad and Tobago UM

- PACIFIC

- Cook Islands UM
- Timor Leste L
- Fiji LM
- Kiribati LM
- Marshall Islands LM
- Micronesia, Federal States of LM
- Nauru UM
- Niue UM
- Palau UM
- Papua New Guinea L
- Samoa LM
- Solomon Islands L
- Tonga LM
- Tuvalu LM
- Vanuatu LM

ASIA

- Afghanistan L
- Bangladesh L
- Bhutan L
- Burma/Myanmar L
- Cambodia L
- China*[2]** LM
- Democratic People's Republic of Korea L
- India[2]** L
- Indonesia LM
- Iran LM
- Iraq LM
- Lao People's Democratic Rep. L
- Malaysia UM
- Maldives LM
- Mongolia L
- Nepal L
- Oman UM
- Pakistan L
- Philippines LM
- Sri Lanka LM
- Thailand LM
- Vietnam L
- Yemen L

EASTERN EUROPE AND CENTRAL ASIA (EECA)

- Armenia[3] LM
- Azerbaijan[3] LM
- Belarus[3] LM
- Georgia[3] LM
- Kazakhstan LM
- Kyrgyz Republic L
- Moldova[3,4] LM
- Russia[2]** UM
- Tajikistan L
- Turkmenistan LM
- Ukraine[2,3,4] LM
- Uzbekistan L

LATIN AMERICA

- Argentina[2] UM
- Bolivia LM
- Brazil[2]** LM
- Chile[2] UM
- Colombia LM
- Costa Rica UM
- Ecuador LM
- El Salvador LM
- Guatemala LM
- Honduras LM
- Mexico[2] UM
- Nicaragua LM
- Panama UM
- Paraguay LM
- Peru LM
- Uruguay UM
- Venezuela UM

MEDITERRANEAN PARTNER COUNTRIES (MPC)

- Algeria[3] LM
- Egypt[2,3] LM
- Jordan [2,3] LM
- Lebanon[3] UM
- Libya[3] UM
- Morocco[2,3] LM
- Palestinian-administered areas[3] LM
- Syrian Arab Rep.[3] LM
- Tunisia[2,3] LM

WESTERN BALKAN COUNTRIES (WBC)

- Kosovo[5] LM

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*In the 'Specific international cooperation actions', Africa can also be considered as a region on its own, while the Caribbean countries can also participate with Latin American and the Pacific countries with Asia.

**For participation in the 'Specific international cooperation actions' each of Brazil, China, India and Russia may be considered individually as a region on its own. Thus, the required two or more partners can be located in these countries. However, in this case, at least two different partners from different provinces, oblasts, republics or states within Brazil, China, India or Russia are necessary.

In accordance with Article 2(12) of the Rules for Participation in FP7, 'International Cooperation Partner Country' (ICPC) means a third country which the Commission classifies as a low-income (L), lower-middle-income (LM) or upper-middle-income (UM) country. Countries associated to the Seventh EU Framework Programme do not qualify as ICP Countries and therefore do not appear in this list.

* Legal entities established in the high-income territories Hong Kong, Macao and Taiwan are not eligible under the ICPC provisions.

[1] **Legal entities established in countries in which the European Union under Articles 75 and 215 of the Treaty on the Functioning of the European Union has issued actions to interrupt or to reduce, in part or completely, economic relations, may only participate and receive a financial contribution if it complies with these actions.**

[2]**Signed an agreement with the EU covering Science & Technology.**

[3]**These countries are also part of the European Neighbourhood Policy (ENP).**

[4]**Until the country becomes Associated to FP7**

[5]**As defined by UNSC resolution 1244 of 10 June 1999.**

Annex 2: Eligibility and Evaluation Criteria for Proposals

Eligibility criteria

A proposal will only be considered eligible if it meets all of the following conditions:

- It is received by the Commission before the deadline given in the call text.
- It involves at least the minimum number of participants given in the call text.
- It is complete (i.e. both the requested administrative forms and the proposal description are present)
- The content of the proposal relates to the topic(s) and funding scheme(s), including any special conditions, set out in those parts of the relevant work programme

Other eligibility criteria may be given in the call text.

Evaluation criteria

The evaluation criteria against which proposals will be judged are set out in article 15 of the Rules for Participation. For the 'Cooperation' specific programme these are:

- scientific and/or technological excellence;
- relevance to the objectives of these specific programmes[1];
- the potential impact through the development, dissemination and use of project results;
- the quality and efficiency of the implementation and management.

Within this framework, the work programmes will specify the evaluation and selection criteria and may add additional requirements, weightings and thresholds, or set out further details on the application of the criteria.

The purpose of this annex is to set out such specifications. Unless otherwise indicated in the relevant parts of this work programme, the criteria, weightings and thresholds given here will apply to all calls for proposals.

Proposals will be evaluated in line with the Commission 'Rules on Submission of Proposals and the Related Evaluation, Selection and Award Procedures'.

A proposal which contravenes fundamental ethical principles, fails to comply with the relevant security procedures, or which does not fulfil any other of the conditions set out in the specific programme, the work programme or in the call for proposals shall not be selected. Such a proposal may be excluded from the evaluation, selection and award procedures at any time. Details of the procedure to be followed are given in the Commission rules mentioned above.

The arrangements for a particular call will be set out in the relevant Guide for Applicants.

[1] **Relevance** will be considered in relation to the topic(s) of the work programme open in a given call, and to the objectives of a call. In the scheme set out on the following page, these aspects will be integrated in the application of the criterion "S/T excellence", and the first sub-criterion under "Impact" respectively. When a proposal is **partially relevant** because it only marginally addresses the topic(s) of a call, or because only part of the proposal addresses the topic(s), this condition will be reflected in the scoring of the first criterion. Proposals that are clearly not relevant to a call ("out of scope") will be rejected on eligibility grounds.

	1. Scientific and/or technological excellence *(relevant to the topics addressed by the call)* **(award)**	2. Quality and efficiency of the implementation and the management **(selection)**	3. The potential impact through the development, dissemination and use of project results **(award)**
All funding schemes	• *Soundness of concept, and quality of objectives*	• Appropriateness of the management structure and procedures • Quality and relevant experience of the individual participants	• *Contribution, at the European [and/or international] level, to the expected impacts listed in the work programme under relevant topic/activity*
Collaborative projects	• *Progress beyond the state-of-the-art* • Quality and effectiveness of the S/T methodology and associated work plan	• Quality of the consortium as a whole (including complementarity, balance) • Appropriateness of the allocation and justification of the resources to be committed (staff, equipment,…)	• Appropriateness of measures for the dissemination and/or exploitation of project results, and management of intellectual property.
Networks of Excellence	• *Contribution to long-term integration of high quality S/T research* • Quality and effectiveness of the joint programme of activities and associated work plan	• Quality of the consortium as a whole (including ability to tackle fragmentation of the research field, and commitment towards a deep and durable integration) • Adequacy of resources for successfully carrying out the joint programme of activities	• Appropriateness of measures for spreading excellence, exploiting results, and disseminating knowledge, through engagement with stakeholders and the public at large.
Co-ordination & Support Actions **CA**	• Contribution to the co-ordination of high quality research • Quality and effectiveness of the co-ordination mechanisms, and associated work plan	• Quality of the consortium as a whole (including complementarity, balance) [for SA: only if relevant] • Appropriateness of the allocation and justification of the resources to be committed (staff, equipment,…)	• Appropriateness of measures for spreading excellence, exploiting results, and dissemination knowledge, through engagement with stakeholders, and the public at large.
SA	• Quality and effectiveness of the support action mechanisms, and associated work plan		
Research for the benefit of specific groups	• Innovative character in relation to the state-of-the art • Contribution to advancement of knowledge / technological progress • Quality and effectiveness of S/T methodology and associated work plan	• Quality of the consortium as a whole (including complementarity and balance) • Appropriateness of the allocation and justification of the resources to be committed (staff, equipment,…)	• Appropriateness of measures for the dissemination and/or exploitation of project results, and management of intellectual property

Notes:

1. Evaluation scores will be awarded for each of the three criteria, and not for the sub-criteria. Each criterion will be scored out of 5. No weightings will apply. The threshold for individual criteria will be 3. The overall threshold, applying to the sum of the three individual scores, will be 10.

2. The second column corresponds to the **selection criteria** in the meaning of the financial regulation[2] (article 115) and its implementing rules[3] (article 176 and 177). They also will be the basis for assessing the 'operational capacity' of participants. The other two criteria correspond to the **award criteria**.

3. For the evaluation of first-stage proposals under a two-stage submission procedure, only the sub-criteria in italics apply.

Priority order for proposals with the same score

As part of the evaluation by independent experts, a panel review will recommend one or more ranked lists for the proposals under evaluation, following the scoring systems indicated above. A ranked list will be drawn up for every indicative budget shown in the call fiche.

If necessary, the panel will determine a priority order for proposals which have been awarded the same score within a ranked list. Whether or not such a prioritisation is carried out will depend on the available budget or other conditions set out in the call fiche. The following approach will be applied successively for every group of *ex aequo* proposals requiring prioritisation, starting with the highest scored group, and continuing in descending order:

(i) Proposals that address topics not otherwise covered by more highly-rated proposals, will be considered to have the highest priority.

(ii) These proposals will themselves be prioritised according to the scores they have been awarded for the criterion *scientific and/or technological excellence*. When these scores are equal, priority will be based on scores for the criterion *impact.* If necessary, any further prioritisation will be based on other appropriate characteristics, to be decided by the panel, related to the contribution of the proposal to the European Research Area and/or general objectives mentioned in the work programme (e.g. presence of SMEs, international co-operation, public engagement).

(iii) The method described in (ii) will then be applied to the remaining *ex aequos* in the group.

NOTE: the call fiche may indicate provisions that supplement or override the above.

[2] OJ L248 16.9.2002, p1.
[3] OJ L357 31.12.2002, p1

Annex 3: Forms of Grant and Maximum Reimbursement Rates for Projects Funded Through the Cooperation Work Programme

Forms of Grant

The FP7 'Rules for Participation' propose three potential forms of grant for the Community financial contribution: reimbursement of eligible costs, flat rate financing including scale of unit costs, and lump sum financing. In this work programme, for all funding schemes, the reimbursement of eligible costs (including the different options for flat rates on indirect costs as established in Article 32 of the Rules for Participation)[4] will be the only form of grant used.

Three exceptions to this will apply. Pursuant to Article 30 of the Rules for Participation and Commission Decision C(2007)2287 of 4 June 2007, participants from International Cooperation Partner Countries (see Annex 1) may choose to opt for lump sum financing.

In accordance with Article 2 of the Commission Decision of 23 March 2009 under reference C (2009) 1942, the present work programme provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. The applicable flat rates are available at the following website http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'. Please note this option is only available when stated explicitly in the call fiche.

In addition, under chapter 5 of this work programme 'Energy', some actions under Activity 8 'Energy Efficiency and Savings', may combine the reimbursement of eligible costs with flat rate financing in the form of scale of unit costs. Further information on this is given in chapter 5.

Maximum Reimbursement Rates

The upper limits foreseen in the Rules for Participation (Article 33) for the Community financial contribution are summarised in the following table.

	Non-profit public bodies, secondary and higher education establishments, research organisations and SMEs	All other organisations
Research and technological development activities	75%	50%[5]
Demonstration activities	50%	50%
Coordination and support actions	100%	100%
Management, audit certificates and other activities[6]	100%	100%

[4] As confirmed by Decision C(2009)4459 of 15 June 2009.

[5] For security related research and technological development activities, (Chapter 10 of this work programme) the Community financial contribution may reach a maximum of 75% in the case of the development of capabilities in domains with very limited market size and a risk of 'market failure' and for accelerated equipment development in response to new threats. Further information is given in Chapter 10.

[6] Including, inter alia training in actions that do not fall under the funding schemes for training and career development of researchers, coordination, networking and dissemination (as set out in Article 33(4) of the Rules for Participation).

This update introduces on pages 9 and 10 details on the content of the CORDIS services.

Annex 4 General Activities

In this annex, the activities which are funded across the Programme are presented. These activities concern in particular the following:

Dissemination, knowledge transfer and broader engagement

1. The CORDIS services

Co-ordination of non-European Union research programmes

2. The ERA-NET scheme
3. Research organisations in the EU
4. Strengthened coordination with EUREKA
5. Scientific and technological cooperation activities carried out in COST

Risk-Sharing Finance Facility

6. Contribution to the European Investment Bank (EIB) – Risk Sharing Finance Facility

A4. 1 THE CORDIS SERVICES

CORDIS, the 'Community Research and Development Information Service', is an information service on EU funded R&D activities and their outcomes. CORDIS is available at: *http://cordis.europa.eu*.

In order to provide a more user-friendly access to information relating to EU funded R&D activities a new overall web-based communication strategy has been agreed by the DGs of the research family and will be implemented gradually as from 2011 onwards. It foresees a threefold division of the key web services according to a clear focus:

- Europa: the web portal for general information on EU research;
- CORDIS: the web portal for dissemination of information on EU-funded research projects and their outcomes as well as their exploitation;
- Participant Portal: the web portal for the participants in the EU Framework Programmes.

From 2011 onwards CORDIS will focus on providing support to the dissemination policy of the Commission and, as expressed in the FP7 Cooperation Specific Programme, will help '…to foster the dissemination of knowledge in a user-friendly way and the exploitation of research results', by ensuring the timely dissemination of research project information, presenting results and key outcomes in attractive ways to the target audience and supporting innovation. CORDIS will also support the efforts of Commission services to strengthen and harmonize their procedures to identify and collect research results and associated documents and assure their timely transfer to CORDIS.

From 2011, the CORDIS website will be streamlined in line with the new orientation of the three portals set out above. Following this logic some services currently provided by CORDIS will be gradually transferred to the Europa website and the Participant Portal and vice versa. Other services will be enhanced and new ones might be developed.

The specific objectives (SO) for CORDIS activities in 2011 are to ensure:

- SO 1: **The continuity and easy availability to users of the existing CORDIS services** including content management, maintenance, operational and supporting activities;
- SO 2: The **gradual relocation of certain services** from or to CORDIS in accordance with the new web-based communication strategy;
- SO 3: Improvement of existing services and possible development of new services related to the **dissemination and exploitation of research results;**
- SO 4: The **Editorial integration of the new CORDIS orientation** on the CORDIS website and print publications;
- SO 5: The **seamless navigation, coordination of editorial policy and interoperability** specifically between CORDIS and other relevant websites, in particular the Participant Portal and Research on Europa;
- SO 6: **Ongoing enhancement of the ergonomics and user-friendliness** of the CORDIS website with the support of ad hoc user groups when necessary.

The CORDIS website will continue to comply with the World Wide Web Consortium (W3C) standards, in particular those relating to the web accessibility initiative (WAI).

The budget foreseen for these activities in 2011 is EUR 7.9 million.

The CORDIS services are managed by the Publications Office of the European Union under the governance of the CORDIS Service Management Board (where all research Directorates-General and other stakeholders are represented) and through the administrative arrangements set out in the applicable SLA between the Research Directorate General and the Publication Office. A detailed Work Programme for the CORDIS 2011 activities including a detailed budget forecast will be drawn up.

A4.2 THE ERA-NET SCHEME

The objective of the ERA-NET scheme is to develop and strengthen the coordination of national and regional research programmes through two specific actions:

- 'ERA-NET actions' - which provide a framework for actors implementing public research programmes to coordinate their activities. This will include support for new ERA-NETs as well as for the broadening and deepening of the scope of existing ERA-NETs, e.g. by extending their partnership, as well as opening mutually their programmes;
- 'ERA-NET Plus actions'- which, *in a limited number of cases,* can provide additional EU financial support to facilitate joint calls for proposals between national and/or regional programmes.

Under the ERA-NET scheme, national and regional authorities identify research programmes they wish to coordinate or open up mutually. The participants in these actions are therefore programme 'owners' (typically ministries or regional authorities defining research programmes) or programme 'managers' (such as research councils or other *research funding* agencies managing research programmes).

The networking and mutual opening of research programmes require a progressive approach. The ERA-NET scheme therefore has a long-term perspective and it is flexible in order to allow for the different ways in which public research funding is organised in different Member States and Associated Countries.

A4.2.1 Approach

As a result of the ERA-NET scheme, progress has been made in reducing fragmentation across the European Research Area (ERA). Organisations from all Member States and Associated Countries participate actively in the scheme:

- Since the introduction of the scheme in FP6, a large number of ERA-NETs (Coordination Actions) have been funded, involving hundreds of national research programmes[7].
- These ERA-NET actions cover a wide range of research fields such as transport, energy, environment, industrial technologies, plant and human health, astrophysics and social sciences. In addition, several ERA-NET actions have been set up to address more horizontal topics such as international cooperation, SMEs, metrology or the promotion of gender balance in research. For the full list of projects, please refer to:

[7] ERA-NET actions cover both national and regional research programmes. To avoid repetition, the term 'national research programme' will be used in this section to refer to both national and regional research programmes.

http://cordis.europa.eu/coordination/projects.htm
http://cordis.europa.eu/fp7/coordination/home_en.html

http://netwatch.jrc.ec.europa.eu/nw

Under FP7, the ERA-NET scheme is continued and reinforced:

- New ERA-NET actions are supported.
- FP6 ERA-NET actions may re-apply to receive Commission support to extend and/or reinforce their integration.
- A new module, called 'ERA-NET Plus', facilitates the organisation of joint calls between national research programmes by 'topping-up' joint trans-national funding with EU funding.

In contrast to FP6, the ERA-NET scheme is no longer a 'stand-alone' action in FP7, but an implementation tool available to the Themes of the Cooperation specific programme and to the Parts of the Capacities Programme.

A4.2.2 Content of the *FP7-ERANET-2011-RTD* Call

For 2011, the ERA-NET scheme will be mainly implemented through a cross-thematic call for proposals, open to strategically important activities and topics explicitly specified in this work programme at the level of the various Themes, which will independently provide the required funding *(please refer to the Call Fiche for details)*.

The cross-thematic call will include also centrally-managed Horizontal Support Actions, looking at refining European-level guidelines applicable to transnational R&D programme collaboration and promoting their acceptance.

In addition, ERA-NET topics might be present also in other calls which, for logistical and organisational reasons, are kept distinct from the present one. In order to provide a complete reference on the way in which the scheme will be implemented in 2011, a list of further subjects open for ERA-NETs is provided in appendix to the call fiche.

A4.2.2.1 Activity: ERA-NET actions

Funding Scheme: Coordination and Support Actions (Coordinating Action)

The aim of ERA-NET actions is to network research programmes carried out at national or regional level, with a view to their mutual opening and the development and implementation of joint activities.

"Research programmes carried out at national or regional level" refers to entire research programmes, parts of such programmes or similar initiatives. Such programmes shall have all the following characteristics:

a) Be strategically planned (i.e. be composed of a number of research projects focused on a defined subject area or set of problems, that are scheduled to run for a set period of time and that have a co-ordinated management).

b) Be carried out at national or regional level.

c) Be either financed or managed directly by national or regional public bodies, or by structures (e.g. agencies) closely related to, or mandated by, public authorities.

Eligibility

The minimum number of participants in an ERA-NET consortium is ***3 independent legal entities*** which finance or manage publicly funded national or regional programmes***. Each of these must be established in a different Member State or Associated Country***.

Partners for ERA-NET actions eligible to satisfy the above condition are:

- Programme owners: typically national ministries/regional authorities responsible for defining, financing or managing research programmes carried out at national or regional level.
- Programme 'managers' (such as research councils or funding agencies) or other national or regional organisations that *implement* research programmes under the supervision of the programme owners.
- Programme owners (typically national ministries/regional authorities) which do not have a running or fully fledged research programme at the moment of submitting an ERA-NET proposal, but which are planning, and have committed, to set up such a programme, are also eligible if their participation is well justified and adds value to the overall programme coordination. As such, countries or regions which have less diverse research programmes (in particular new Member States and candidate Associated Countries) will find their involvement in the ERA-NET scheme greatly facilitated.

Please note that research organisations or universities which are not programme owners or managers are not eligible partners for ERA-NET actions.

In addition to the minimum number of independent legal entities mentioned above, private legal entities (e.g. charities) which manage research programmes may enter the consortium if their participation is well justified and adds value to the overall programme coordination.

Participants are encouraged, as appropriate, to adopt a global approach in their proposals, involving also non-European research programmes in the activities undertaken by ERA-NET actions.

Sole participants (as referred to in Article 10 of the Rules for Participation) may be eligible if the above-mentioned specific criteria for eligible ERA-NET partners are respected. A sole participant shall explicitly indicate which of its 'members', forming a sole legal entity, is either a programme owner or programme manager in the proposed action, and indicate for these members the respective national/regional programmes which are at the disposal of the proposed ERA-NET action.

Technical content/scope

ERA-NET actions cover the networking of national research programmes on selected topics of science and technology which are identified in the annual work programmes of the Cooperation Themes and the relevant Parts of the Capacities Programme.

The networking of programmes may involve several levels of cooperation and coordination, depending on the degree of maturity of the network. The use of the ERA-NET scheme should make this evolution possible and should adopt a step-by-step approach.

In this respect, a four-step approach covering the following activities could be envisaged:

1) Information exchange
2) Definition and preparation of joint activities
3) Implementation of joint activities
4) Funding of joint trans-national research.

ERA-NET actions should be ambitious and should aim to reach step 4. They should result in concrete progress towards the opening up of, or cooperation between, the participating

research programmes. The cooperation should be sustainable beyond the duration of the ERA-NET action itself.

Activities funded

The EU contribution shall take the form of a grant consisting of a reimbursement of the eligible costs related to the action.

Activities eligible for funding correspond to the four steps identified in the *'technical content/scope* section above. More specifically, these include:

(i) Information exchange

This step aims to gather information on the structure and programmes covered by each national research system. It could also improve communication, develop better reciprocal knowledge and promote trust-building among programme owners or managers in similar scientific and technological areas through a mutual learning process, and the systematic exchange of information and good practices.

(ii) Definition and preparation of joint activities

This key part of the action should analyse the information gathered in step 1 and identify the type of cooperation and the areas which will be addressed.

It should result in an **Action plan**, which sets out common strategic issues and prepares for a concrete implementation of joint activities.

(iii) Implementation of joint activities

Experience from FP6 has shown that much of the added value in co-ordinating national programmes is gained by trying to implement joint activities, even if in a pilot form.

ERA-NET actions are therefore encouraged to develop and implement, from an early stage in the project, common, joint, strategic activities such as:

- Clustering of nationally-funded research projects, to develop complementarities or mutual reinforcement of ongoing nationally-funded research programmes.
- Multinational project evaluation procedures (common evaluation criteria and methods of implementation). This could contribute in the long-term to the integration of evaluation practices across national research systems (covering proposal, project and programme evaluation).
- Schemes for joint training activities, such as co-supervised theses and international PhD schemes, to help support a wider cooperation in research.
- Schemes for the mutual opening of facilities or laboratories in one country for scientists from another.
- Converging schemes for programme monitoring and evaluation, including joint monitoring or evaluation.
- Schemes for personnel exchange, in the context of the above activities.
- Specific cooperation agreements or arrangements between participating programmes. These would prepare the ground for further trans-national research programmes and ensure that legal barriers are removed.

(iv) Funding of joint trans-national research

The strongest form of programme networking implies the funding and implementation of a joint programme of trans-national research projects or actions. This is likely to involve the setting-up of a common strategy, a joint work programme, common (mutually open) or joint calls for proposals or tenders, a common trans-national evaluation system and a common plan

for dissemination of results or experiences. In such schemes, projects funded out of a common or joint call for proposals should involve ***at least two teams from two different countries***.

In this step, other ways of implementing joint research actions could also be developed or explored. For example, a complex or very ambitious research agenda could be divided in various parts, which are each addressed through differentiated national calls. Results would then be shared.

Expected Impact

The ERA-NET scheme aims to reduce the fragmentation of the European Research Area by increasing coordination between national research programmes across the EU Member States and Associated Countries.

ERA-NET actions allow Member States and Associated Countries to avoid overlap between their programmes and to develop expertise from mutual learning.

In general, ERA-NET actions should not cover very limited research areas. They should not overlap with other ongoing ERA-NET actions or create further fragmentation. Complementarities to, or coordination with, FP7 activities should be ensured where possible.

ERA-NET actions will result in concrete cooperation between research programmes, such as their networking, their mutual opening and the development and implementation of joint programmes and activities.

The level of ERA-NET actions will depend on their previous experience:

- Existing ERA-NETs wishing to submit a new proposal must include a strong coordination action, directly focusing on steps 3 and 4. As such, these proposals shall aim to broaden the partnership and/or deepen the coordination between the relevant national programmes in the concerned field. In particular, a global approach including non-European research programmes is encouraged.
- New ERA-NETs, addressing topics not covered by previous ones, should target steps 1 to 3 as a minimum, but are encouraged to aim at the 'four step approach' described above.

The scheme will also enable national or regional systems to collectively take on tasks that they would not have been able to tackle independently.

ERA-NET actions are expected to have a lasting impact. The cooperation developed should provide reliable indications that it could continue beyond the EU funding. Lessons learned and knowledge gathered should be disseminated in the European Research Area.

In addition to the general impact described above, more specific expected benefits of ERA-NET actions include:

- Achieving critical mass, to ensure the better use of scarce resources.
- Joining forces to provide common answers to common research problems.
- Addressing global issues, common to many EU Member States or Associated Countries.
- Addressing specific geographical issues, common to a number of EU Member States or Associated Countries.
- Developing common governance principles (e.g. with respect to ethics, good practices).

- Bring together national programmes which deal with cooperation with third countries, and enable them to speak with a 'single voice'.
- Adopt a global approach, including third-country research programmes, to the activities covered by ERA-NET actions.

A4.2.2.2 Activity: ERA-NET PLUS actions

Funding Scheme: Coordination and Support Actions (Coordinating Action)

Under ERA-NET Plus actions, the Commission provides an incentive to the organisation of joint calls between national or regional research programmes by 'topping-up' joint trans-national funding with EU funding. These joint calls will entail the award of grants to third parties participating in calls for proposals launched under the ERA-NET Plus actions.

These actions require programme owners or programme managers ***from at least 5 different Member States or Associated Countries*** to plan a single joint call with a clear financial commitment from the participating national or regional research programmes.

Activities funded

The EU will top up the total of the national contributions to the joint call with additional funding for RTD activities. The EU contribution will be limited to a maximum of 33% of the total contributions to the joint call budget. The combined national/regional and EU contributions to the joint calls have to reach ***at least EUR 5 million.***

The EU contribution shall take the form of a grant. This grant will combine the reimbursement of eligible costs covering the activities linked to the preparation and coordination of the joint call[8], and the reimbursement of eligible costs as an agreed proportional contribution to the national pooling of funds (for activities relating to the funding of selected trans-national projects, maximum 33%).

In accordance with the Decisions concerning the Seventh Framework Programme[9] and the 'Cooperation' Specific Programme[10], the provisions of Article 120(2) of the Council Regulation on the Financial Regulation applicable to the general budget of the European Communities[11] and Article 184a of the Commission Regulation laying down detailed rules for the implementation of Council Regulation on the Financial Regulation applicable to the general budget of the European Communities,[12] shall not be applicable with regard to the financial support provided by the participants in the ERA-NET Plus actions to third parties participating in projects selected following calls for proposals launched under these actions.

The total duration of a given ERA-NET Plus action and of the resulting projects should normally ***not exceed 5 years***.

Specific Eligibility criteria for ERA-NET Plus actions

ERA-NET Plus proposals must meet the following eligibility criteria:

[8] No further supporting costs will be eligible once a 'selection decision' has been taken by the consortium as a result of the joint call.

[9] OJ L 412, 30.12.2006, p. 1 Decision No 1982/2006/EC of the European Parliament and of the Council of 18 December 2006

[10] OJ L 400, 30.12.2006, p. 86

[11] Council Regulation No. 1605/2002 of 25.6.2002 on the Financial Regulation applicable to the general budget of the European Communities (OJ L248, 16.09.2002, p1).

[12] Commission Regulation No, 2342/2002 of 23.12.2002 laying down detailed rules for the implementation of Council Regulation No. 1605/2002 (OJ L357, 31.12.2002, p1).

- A single joint call should be planned with a clear financial commitment from the participating national or regional programmes[13].
- Eligible participants are the same as for ERA-NET actions with the exception that programme owners, which do not have yet a running or fully fledged research programme at the moment of submitting a proposal, are not eligible for ERA-NET Plus actions. Furthermore, ***a consortium must include programme owners or programme managers from at least 5 different Member States or Associated Countries.***
- Beyond the minimum of 5 programme owners or managers, the same types of additional participants foreseen for ERA-NET actions are eligible.
- The total planned budget of ***the joint call shall have a minimum financial volume of EUR 5 million.***
- A common peer review mechanism for evaluating the proposals submitted to the joint call shall be foreseen.
- Each project financed out of the joint call shall be trans-national (i.e. minimum of two partners from different Member States or Associated Countries).
- A fixed common set of general evaluation/selection criteria (excellence, European added value, etc.) should be part of the common evaluation criteria of the joint call organised by the national programmes.

Detailed rules for participation in the funded trans-national projects shall be defined by the call organisers themselves (e.g. participating national or regional programmes).

Expected Impact

ERA-NET Plus actions aim to facilitate the launching of joint calls for proposals between EU Member States or Associated Countries, based on their European added value. In special cases, they may also facilitate the transition of an ERA-NET towards an Article 169 initiative, where the criteria for the latter are met.

The EU added value will be a critical criterion to evaluate the impact of ERA-NET Plus actions and will depend on the area/topic covered by the research programmes participating in the joint call. Therefore, the following criteria should help to identify the impact of ERA-NET Plus actions offering best prospects for sufficient European added value:

- **Relevance to EU objectives:** The field of the potential topic should be of major interest for the EU as a whole.
- **Framework Programme relevance**. As regards '**objective**': Demonstration that an ERA-NET Plus action in that topic shall allow the EU to reach the objective of effectively enhancing the coordination of national research programmes. As regards '**content**': The field of the potential topic shall be covered by the Framework Programme both in terms of scientific content and of budget allocation.
- **Pre-existing basis:** The ERA-NET Plus action should build on a pre-existing basis or coordination experience between national programmes in the topic identified.
- **Critical mass:** ERA-NET Plus actions will enable national programmes to address together with the EU programmes research areas, that due to the nature of the field are

[13] Proposals must demonstrate that national research programmes are committed to support the call. Selected proposals will have to provide evidence that a commitment has been made by the relevant research programmes.

better addressed jointly or fields which would/could not have been addressed independently.

- **Instrument relevance**: Demonstration that ERA-NET Plus is the most appropriate instrument for achieving the Framework Programme goals with regard to coordination of national research programmes (i.e.: avoiding fragmentation, etc.). Demonstration that implementing an ERA-NET Plus action in a given field is more appropriate to coordination goals than other possible FP7 actions.

ERA-NET Plus actions are expected, where appropriate, to facilitate the development of a more global approach to the topics addressed, involving also non European research programme.

ERA-NET Plus actions are expected to have a lasting impact. The cooperation developed should provide reliable indications that it could continue beyond the joint call supported by the EU funding.

A4.2.2.3 Activity: Support for Programme coordination and cooperation in the context of the European Research Area (Horizontal Support Actions)

Funding Scheme: Coordination and Support Actions (Supporting Action)

The Council of the European Union, in its conclusions of 2 December 2008[14] on the Joint Programming of Research in Europe, recognised that, in the context of globalisation and the intensification of competition, there is growing awareness of the existence of common societal challenges which no Member State is capable of resolving alone. The largest share of public resources for research and innovation is actually committed at national or regional level, but there is evidence that clear benefits could be derived by further improving cooperation in the European Research Area, with structuring effects and economies of scale.

Europe needs to elaborate stronger, better coordinated, more coherent and global responses to the challenges it is facing. This will boost Europe's capacity to transform the results of research into tangible benefits for society and for the overall competitiveness of its economy.

In order to foster further progress in co-ordination and mutual cooperation, it is foreseen to call for support actions aimed at refining and promoting the adoption of European-level guidelines in the following domains, collectively referred to as "Framework Conditions":

- Peer Review Procedures
- Foresight Activities
- Evaluation of Joint Programmes
- Funding of Cross-border Research by National or Regional Authorities
- Optimum Dissemination and Use of Research Findings
- Protection, Management and Sharing of Intellectual Property Rights

[14] 2891st Competitiveness Council Meeting Conclusions concerning Joint Programming of Research in Europe in response to the major societal challenges. Brussels, 2 December 2008

Expected Impact

The selected actions should primarily help the developing Joint Programming Initiatives in identifying the set of options most suitable for supporting them, throughout the entire R&D programme cycle, in tackling efficiently the challenges they aim to address.

All proposed interventions and events should be planned for at least six months after the closing date of the call in order to allow sufficient time to complete the procedures for the funding to be in place.

Indicative budget for A4.2.2.3: EUR 600 000

**** Call Fiche FP7-ERANET-2011-RTD ****

Call title: ***ERA-NET Call 2011***

- Call identifier: ***FP7-ERANET-2011-RTD***
- Date of publication: 20 July 2010[15].
- Deadline: 22 February 2011, at 17.00.00, Brussels local time[16].

Indicative budgets and Topics[17]:

A total of EUR 44.6 million is foreseen for this call, divided as follows:

- A sum of up to EUR 44.0 million[18] will be allocated by individual Themes in the Cooperation Work Programme to the ERA-NET and ERA-NET Plus topics detailed in *Table 1* (Thematic part of the Call).
- A further EUR 0.6 million[19] for horizontal support actions, funded pro-rata by all the Themes in the Cooperation Work Programme, as detailed in *Table 2* (Horizontal part of the Call).

Table 1 – Overview of Thematic Activities and Topics in FP7-ERANET-2011 –RTD[20]

THEME/Activity	Topic identifier	TITLE	Indicative budget (EUR million)
1. HEALTH			
1.2.2 Research on the brain and related diseases, human development and ageing	HEALTH.2011.2.2.1-5	ERA-Net on disease-related neurosciences	2.0[21]
1.2.4 Translational research in other major diseases	HEALTH.2011.2.4.3-5	ERA-NET on diabetes prevention and treatment	2.0[21]
2. FOOD, AGRICULTURE AND FISHERIES, AND BIOTECHNOLOGY			
2.1: Sustainable production and management of biological resources from land, forest and	KBBE.2011.1.1-05	Deepened and enlarged European cooperation in the area of Molecular Plant Sciences - ERA-NET	2.0[21]

[15] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.
[16] The Director-General responsible for the call may delay this deadline by up to two months.
[17] Under the condition that the draft budget for 2011 is adopted without modifications by the budget authority.
[18] Total indicative budget provided by the concerned Themes for ERA-NET actions. Following the evaluation of proposals, the final total budget of the call, as well the individual sub-budgets independently allocated by each Theme, may vary by up to 10% of the values initially foreseen.
[19] Total indicative budget for horizontal support actions. Following the evaluation of proposals, the final budget of the call may vary by up to 10% the total value of the indicated budget.
[20] Coordination and Support Actions (Coordinating Action)
[21] Up to one project can be funded

aquatic environment			
2.1: Sustainable production and management of biological resources from land, forest and aquatic environment	KBBE.2011.1.2-08	Forest Research in the Mediterranean Region – ERA-NET - Mandatory ICPC (Mediterranean partner countries)	2.0[21]
2.1: Sustainable production and management of biological resources from land, forest and aquatic environment	KBBE.2011.1.3-05	Animal health and welfare – ERA-NET	2.0[21]
2.2 Fork to farm: Food (including seafood), health and well being	KBBE.2011.2.6-02	Sustainable food production and consumption – ERA-NET	2.0[21]
2.3 Life sciences, biotechnology and biochemistry for sustainable non-food products and processes	KBBE.2011.3.3-01	Deepened and enlarged European cooperation in the area of Industrial Biotechnology - ERA-NET	2.0[21]
2.3 Life sciences, biotechnology and biochemistry for sustainable non-food products and processes	KBBE.2011.3.6-06	Synthetic Biology ERA-NET	2.0[21]
4. NMP			
4.2 Materials	NMP.2011.2.3-2	ERA-NET on research on materials science and engineering, including international cooperation	3.0
4.4 Integration of technologies for industrial applications	NMP.2011.4.0-6	ERA-NET on the Industrial Handling of Raw Materials for European Industries	1.5
4.4 Integration of technologies for industrial applications	NMP.2011.4.0-7	ERA-NET on Industrial Safety	1.5
5. ENERGY			
5.10 Horizontal Programme Actions	ENERGY.2011.10.2-2	Supporting the coordination of national research activities of Member States and Associated States in the field of GEOTHERMAL energy (ERA-NET)	2.0
5.10 Horizontal Programme Actions	ENERGY.2011.10.2-3	Supporting the coordination of national research activities	2.0

		of Member States and Associated States in the field of OCEAN energy (ERA-NET)	
7. TRANSPORT (including Aeronautics)			
7.2 Sustainable Surface Transport	GC.SST.2011.7-8	*ERA-NET Plus* 'Electromobility'	10.0
8. SOCIOECONOMIC SCIENCES AND HUMANITIES			
8.3.2 Societal Trends and Lifestyles	SSH.2011.3.2-2	Drug demand and supply reduction (ERA-NET)	2.0
Area 8.3.3 Cultural Interactions in an International Perspective	SSH.2011.3.3-1	*Cultural Encounters* (ERA-NET Plus)	6.0

Table 2 – Horizontal Support Actions in FP7-ERANET-2011 –RTD[22]

THEME/Activity	**Topic identifier**	**TITLE**	**Indicative budget (EUR million)**
HORIZONTAL			
A4.2.2.3 Support for Programme coordination and cooperation in the context of the ERA	ERA-FC.2011.1	Refine and promote the adoption of European-level guidelines in the domain of the "Framework Conditions" for Joint Programming	0.6

General Eligibility Conditions

The general eligibility criteria are set out in Annex 2 of this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable. Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

Additional eligibility Criteria for ERA-NET proposals

The aim of ERA-NET actions is to network research programmes carried out at national or regional level, with a view to their mutual opening and the development and implementation of joint activities. Such programmes shall have all of the following characteristics:

- Be strategically planned (i.e. be composed of a number of research projects focused on a defined subject area or set of problems, that are scheduled to run for a set period of time and that have a co-ordinated management).
- Be carried out at national or regional level.

[22] Coordination and Support Actions (Supporting Action)

- Be either financed or managed directly by national or regional public bodies, or by structures (e.g. agencies) closely related to, or mandated by, public authorities.

The minimum number of participants in an ERA-NET consortium is ***3 independent legal entities*** which finance or manage publicly funded national or regional programmes***. Each of these must be established in a different Member State or Associated Country***.

For topic KBBE.2011.1.2-08, the minimum number of participants is 3 independent legal entities which finance or manage publicly funded national or regional programmes from 3 different Member States or Associated Countries and 3 independent legal entities which finance or manage publicly funded national or regional programmes from 3 different Mediterranean Partner Countries.

Partners for ERA-NET actions eligible to satisfy the above condition are:

- Programme owners: typically national ministries/regional authorities responsible for defining, financing or managing research programmes carried out at national or regional level.
- Programme 'managers' (such as research councils or funding agencies) or other national or regional organisations that *implement* research programmes under the supervision of the programme owners.
- Programme owners (typically national ministries/regional authorities) which do not have a running or fully fledged research programme at the moment of submitting an ERA-NET proposal, but which are planning, and have committed, to set up such a programme, are also eligible if their participation is well justified and adds value to the overall programme coordination. As such, countries or regions which have less diverse research programmes (in particular new Member States and candidate Associated Countries) will find their involvement in the ERA-NET scheme greatly facilitated.

Please note that research organisations or universities which are not programme owners or managers are not eligible partners for ERA-NET actions.

Additional information

In addition to the minimum number of independent legal entities mentioned above, private legal entities (e.g. charities) which manage research programmes may enter the consortium if their participation is well justified and adds value to the overall programme coordination.

Sole participants (as referred to in Article 10 of the Rules for Participation) may be eligible if the above-mentioned specific criteria for eligible ERA-NET partners are respected. A sole participant shall explicitly indicate which of its 'members' forming a sole legal entity is either a programme owner or programme manager in the proposed action and indicate for these members, the respective national/regional programmes which are at the disposal of the proposed ERA-NET action.

Additional eligibility Criteria for ERA-NET Plus proposals

ERA-NET Plus proposals must meet the following eligibility criteria:

- A single joint call should be planned with a clear financial commitment from the participating national or regional programmes[23].

[23] Proposals must demonstrate that national research programmes are committed to support the call. Selected proposals will have to provide evidence that a commitment has been made by the relevant research programmes.

- Eligible participants are the same as for ERA-NET actions with the exception that programme owners, which do not have yet a running or fully fledged research programme at the moment of submitting a proposal, are not eligible for ERA-NET Plus actions. Furthermore, a consortium must include programme owners or programme managers from at least 5 different Member or Associated countries.
- The same additional participants as for ERA-NET actions are eligible, beyond the number of 5 minimum programme owners or managers.
- The total planned budget of the joint call shall have a minimum financial volume of EUR 5 million.
- A common peer review mechanism for evaluating the proposals submitted to the joint call shall be foreseen.
- Each project financed out of the joint call shall be trans-national (i.e. minimum of two partners from different countries).
- A fixed common set of general evaluation/selection criteria (excellence, European added value, etc.) should be part of the common evaluation criteria of the joint call organised by the national programmes.

Evaluation Criteria for ERA-NET and ERA-NET Plus proposals

For the evaluation of ERA-NET and ERA-NET Plus proposals, the general criteria and thresholds applicable to Coordination and Support Actions given in Annex 2, are complemented as follows:

1. Scientific and/or technological excellence - Quality of coordination (Threshold 3/5)

Level of ambition in the collaboration and commitment of the participants in the proposed ERA-NET / ERA-NET Plus action to coordinate their national/regional research programmes.

2. Quality and efficiency of the implementation (Threshold 3/5) – no additional criteria

3. Potential impact (Threshold 3/5)

Contribution to establishing and strengthening a durable cooperation between the partners and their national/regional research programmes.

A reserve list may be produced of proposals that pass the evaluation, but fall below the available budget.

- Proposal format:
  - Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS. The Commission will instruct the experts to disregard any pages exceeding these limits. The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).
- Evaluation procedure:
  - The evaluation will follow a single stage procedure.
  - Proposals will not be evaluated anonymously.
  - Proposals may be evaluated remotely.

- Indicative timetable:

  - Evaluation in March 2011.

  - Opening of negotiations in May 2011.

  - Selections from October 2011.

  - Grant agreements from November 2011.

- Consortia agreements:

  - Consortia Agreements are recommended.

- The forms of grant and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme. This call provides the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, please refer to the relevant Guide for Applicants. The applicable flat rates are available at: *ftp://ftp.cordis.europa.eu/pub/fp7/docs/flat-rates-subsistence_en.pdf*.

***** End of *Call Fiche FP7-ERANET-2011-RTD* *****

***** Appendix to *Call Fiche FP7-ERANET-2011-RTD* *****

For information purposes: overview of **ERA-NET topics**, open for other Themes in Cooperation and Parts in Capacities, ***which are not included*** in the **coordinated ERA-NET Call 2011** described in the previous section.

THEME/Activity	Topic identifier[24]	TITLE	Indicative budget (EUR million)[25]
COOPERATION SPECIFIC PROGRAMME			
3. ICT			
3.3 Components, systems, engineering	ICT-2011.3.5[26]	Core and Disruptive Photonic Technologies - ERA-NET Plus	5.0
3.3 Components, systems, engineering	ICT-2011.3.6[27]	Flexible, Organic and Large Area Electronics and Photonics – ERA-NET Plus	10.0
3.9 Future and Emerging Technologies	ICT-2011.9.12[28]	Coordinating Communities, Identifying new research topics for FET Proactive initiatives and Fostering Networking of National and Regional Research Programmes – ERA-NET	2.5
10. SECURITY			
7.0 Security Research coordination and structuring	SEC.2011.7.1-1[29]	Co-ordination of national research programmes in the area of Security research (ERA-NET)	6.0
CAPACITIES SPECIFIC PROGRAMME			
1. INFRASTRUCTURES			
1.3 Support for policy development and programme implementation	INFRA-2011-3.1 [30]	ERA-NET supporting cooperation for research infrastructures in all S&T fields	4.0

***** End of Appendix to *Call Fiche FP7-ERANET-2011-RTD* *****

[24] The listed topics belonging to the ICT work programme are open also to other funding schemes: the indicated budgets represent the maximum available for ERA-NET/ERA-NET Plus actions, not the total for the topic.
[25] Under the condition that the draft budget for 2011 is adopted without modifications by the budget authority.
[26] Topic ICT-2011.3.5 is included in the call FP7-ICT-2011-7, with publication date 28 September 2010.
[27] Topic ICT-2011.3.6 is included in the call FP7-ICT-2011-7, with publication date 28 September 2010.
[28] Topic ICT-2011.9.12 is included in the call FP7-ICT-2011-7, with publication date 28 September 2010.
[29] Topic SEC.2011.7.1-1is included in the call FP7-SEC-2011-1, with publication date 20 July 2010.
[30] Topic INFRA-2011-3.1 is included in the call FP7-INFRASTRUCTURES-2011-1, with publication date 20 July 2010.

A4.2.2.4 Activity: Support for Programme coordination and cooperation in the context of the European Research Area (Thematic Coordination Actions)

Funding Scheme: Coordination and Support Actions (Coordinating Action)

Following the Communication 'Towards Joint Programming in Research: working together to tackle common challenges more effectively'[31] and a first pilot initiative launched in 2009 for combating neurodegenerative diseases (Alzheimer's in particular), the Commission encouraged Member States[32] to pursue common visions and strategic research agendas in three further domains, previously identified by the High Level Group for Joint Programming (GPC)[33] as suitable for new Joint Programming Initiatives (JPIs).

Activities funded

In order to fulfil its role of providing the necessary level of support[34], the Commission foresees to sustain the overall coordination and capacity-building process for each of the selected JPIs by means of dedicated actions, aimed initially at facilitating and shortening the time required to reach the implementation phase and, subsequently, allowing the adoption of effective and efficient methods of collaboration, such as those proposed in the context of the European-level guidelines on Framework Conditions, referred in section A4.2.2.3 of the present work programme.

[31] Commission Communication C(2008)468 final. Brussels, 15 July 2008.

[32] Commission Recommendations C(2010)2535 - 26 April 2010; C(2010)2587 and C(2010)2590 - 28 April 2010.

[33] Established by the 2891st Competitiveness Council Meeting Conclusions concerning Joint Programming of Research in Europe in response to the major societal challenges. Brussels, 2 December 2008

[34] As outlined in: 2891st Competitiveness Council Meeting Conclusions concerning Joint Programming of Research in Europe in response to the major societal challenges. Brussels, 2 December 2008

**** Call Fiche ****

Call title: ***Joint Programming Coordination 2011***

- Call identifier: ***FP7-JPROG-2011-RTD***
- Date of publication: 20 July 2010[35].
- Deadline: 5 October 2010, at 17.00.00, Brussels local time[36].

Indicative budgets and Topics[37]:

- A total of EUR 6.0 million[38] is foreseen for this call and will be allocated by individual Themes in the Cooperation Work Programme to the topics detailed in *Table 3*

Table 3 – Overview of the Topics in FP7-JPROG-2011 –RTD[39]

THEME/Activity	Topic identifier	TITLE	Indicative budget (EUR million)
2. FOOD, AGRICULTURE AND FISHERIES, AND BIOTECHNOLOGY			
2.1 Sustainable production and management of biological resources from land, forest and aquatic environment	KBBE.2011.1.4-01	Coordination action in support of the implementation by participating States of a Joint Programming Initiative on 'Agriculture, Food Security and Climate Change'	2.0[40]
2.2 Fork to farm: Food (including seafood), health and well being	KBBE.2011.2.6-01	Coordination action in support of the implementation by participating States of a Joint Programming Initiative on 'A Healthy Diet for a Healthy Life'	2.0[40]
6. ENVIRONMENT			
6.3.2 Protection,	ENV-2011.3.2.2-1	Coordination action in	2.0[40]

[35] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.
[36] The Director-General responsible for the call may delay this deadline by up to two months.
[37] Under the condition that the draft budget for 2011 is adopted without modifications by the budget authority.

[38] Total indicative budget provided by the concerned Themes . Following the evaluation of proposals, the final total budget of the call, as well the individual sub-budgets independently allocated by each Theme, may vary by up to 10% of the values initially foreseen.
[39] Coordination and Support Actions (Coordinating Action)
[40] Up to one project can be funded

conservation and enhancement of cultural heritage, including human habitat		support of the implementation by participating States of a Joint Programming Initiative on 'Cultural heritage and Global Change : a new challenge for Europe'	

General Eligibility Conditions

The general eligibility criteria are set out in Annex 2 to this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable. Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

Funding scheme	**Minimum conditions**
Coordination and Support Actions (coordinating action)	At least 3 independent legal entities, each of which is established in a MS or AC, and no 2 of which are established in the same MS or AC

Additional Eligibility Criteria

The aim of these coordination actions is to support the implementation of Joint Programming Initiatives (JPIs) in the specified domains by proposing a sound approach to the pooling of national expertise and resources, establishing close and robust collaborations among the participating States.

All participants in the proposal must be ***independent legal entities*** which:

- Finance or manage publicly funded national or regional programmes related to the addressed domains or
- Institutions which have been expressly mandated to represent the country/region in JPI activities.

Each of these must be established in a different Member State or Associated Country.

Sole participants (as referred to in Article 10 of the Rules for Participation) may be eligible if the above-mentioned specific criteria for eligible partners are respected. A sole participant shall explicitly indicate which of its 'members', forming a sole legal entity, is either a programme owner or programme manager in the proposed action and indicate for these members the respective national/regional programmes which are involved in the JPI. Information on adequate delegation, representation and accountability procedures put in place between the JPI and the sole participant should be provided in the proposal.

Evaluation Criteria

The general criteria and thresholds applicable to Coordination and Support Actions (coordinating action) given in Annex 2 will be applicable for the evaluation of the proposals, complemented as follows:

1. Scientific and/or technological excellence - Quality of coordination (Threshold 3/5)

- The proposal should, in particular, configure a suitable governance structure for the JPI it intends to support, involving the participating organisations at an appropriate level.

2. Quality and efficiency of the implementation and the management (Threshold 3/5)

- The proposal should demonstrate a solid and firm commitment by participating Member States or Associated Countries to fund the initiative at a level adequate for the ambitious objectives the JPI aims to achieve.

3. Potential impact (Threshold 3/5)

- The proposal should demonstrate the consistency of the supported initiative with the Joint Programming declared objective of increasing the efficiency and effectiveness of Member States' and Associated Country's efforts in dealing with large scale, pan-European socio-economic challenges.

Proposal format:

- Applicants must ensure that proposals conform to the drafting instructions and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS. The Commission will instruct the experts to disregard any pages exceeding these limits. The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).

Evaluation procedure:

- The evaluation will follow a single stage procedure.
- Proposals will not be evaluated anonymously.
- Proposals may be evaluated remotely.

Indicative timetable:

- Evaluation in October 2010
- Opening of negotiations in November 2010
- Selections from January 2011
- Grant agreements from February 2011

Consortia agreements:

- Consortia Agreements are recommended.

Forms of the grant:

The forms of grant and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme. This call provides the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, please refer to the relevant Guide for Applicants. The applicable flat rates are available at: *ftp://ftp.cordis.europa.eu/pub/fp7/docs/flat-rates-subsistence_en.pdf*.

***** End of *Call Fiche* *****

A4.2.3 External expertise

Funding Scheme: Coordination and Support Actions (Independent Experts[41])

It is foreseen to appoint groups of independent experts to carry out the following tasks:

- The evaluation of the proposals submitted to the cross-thematic call *FP7-ERANET-2011-RTD* and, where appropriate, the review of running projects.
- Reporting on the progress of the Joint Programming initiative.
- Mid-term evaluation of the Joint European Programme in the field of Metrology (EMRP)

Indicative budget for A4.2.3: EUR 100 000

A4.3 SUPPORT FOR COORDINATION AND COOPERATION WITH AND BETWEEN INTERGOVERNMENTAL AND OTHER HIGH-LEVEL SCIENTIFIC AND RESEARCH ORGANISATIONS IN THE EU, IN THE CONTEXT OF THE ERA.

Funding Scheme: Coordination and Support Actions (Independent Experts[42])

The role of non-University Research Performing Organisations (RPOs) – both national and intergovernmental - is extremely important: they train young researchers and engineers, develop new technologies and pave the way to innovation, thus binding together the three corners of the knowledge triangle. RPOs are however largely diversified, operating in different contexts and cultures, a factor which has so far prevented them from adopting a unified perspective towards the common problems they are facing.

Europe's Research Organisations should be encouraged to:

- Consolidate their standing within ERA
- Define the contribution they could bring to the Europe 2020 agenda
- Devise the approach for maintaining their global competitiveness
- Improve the way in which they answer the needs of the society and interact with industry

For 2011 it is envisaged to sponsor a series of workshops, targeted to the above mentioned topics, which should bring together representatives from the largest possible number of RPO typologies, with the declared aim of finding consensus on the strategy to pursue. Independent experts will be asked to advise the Commission in the preparation of the workshops and to produce summaries of the conclusions.

Indicative budget for A4.3: EUR 300 000

A4.4 STRENGTHENED COORDINATION WITH EUREKA

Funding Scheme: Other Actions (Subscription[43])

[41] In accordance with Articles 14(c), 17 and 27 of Regulation (EC) No 1906/2006 of 18 December 2006 laying down the rules for the participation of undertakings, research centres and universities in actions under the 7th Framework Programme and for the dissemination of research results (2007-2013).

[42] In accordance with Articles 14(c), 17 and 27 of Regulation (EC) No 1906/2006 of 18 December 2006 laying down the rules for the participation of undertakings, research centres and universities in actions under the 7th Framework Programme and for the dissemination of research results (2007-2013).

[43] In accordance with Article 14(d) of Regulation (EC) No 1906/2006 of 18 December 2006 laying down the rules for the participation of undertakings, research centres and universities in actions under the 7th Framework Programme and for the dissemination of research results (2007-2013), and in accordance with

The Specific Cooperation Programme will support coordination activities aimed at increasing complementarities and synergy between EUREKA and the Framework Programme in areas of common interest. The EU is a member of EUREKA and, as such, contributes to the budget of the EUREKA Secretariat: membership fees are expected to total about EUR 2 million for the duration of the Seventh Framework Programme.

Indicative budget for A4.4: EUR 350 000

A4.5 SCIENTIFIC AND TECHNOLOGICAL COOPERATION ACTIVITIES CARRIED OUT IN COST

Funding Scheme: Coordination and Support Actions – Named Beneficiary[44]

COST is a long-standing, bottom-up mechanism that facilitates coordination and exchanges between nationally funded scientists and research teams in a variety of research fields. During the 6th Framework Programme, COST underwent significant reforms as a result of which it can now contribute cost-effectively to research coordination within the European Research Area.

The European Union's funding to COST under FP7 is specified in the Cooperation Specific Programme, whereby the European Union's grant will be at least EUR 210 million and up to EUR 250 million for COST, subject to a mid-term evaluation in 2010. This grant is subject to an agreement between the Commission and the European Science Foundation29[45], the legal entity designated by COST as its implementing agent and communicated to the Commission by the General Secretariat of the Council.

The first four instalments of the FP7 COST grant, of EUR 30 million each, covered consecutive 12-month periods spanning until 1 June 2011. Similarly in 2011, the grant agreement will be extended for a further 12 months, until 1 June 2012, with a complementary European Union financial contribution. The 2011 baseline contribution to COST should be therefore EUR 30 million, as for the previous years of FP7. However, a provision needs to be made so that, in case of favourable evaluation, a supplementary budget (up to EUR 13.3 million) could be assigned to COST for 2011.

Reinforced coordination among the activities of the European Science Foundation, COST and the Framework Programme will also be sought in areas of common interest. The partnership between the Commission and COST will be further developed.

Indicative budget for A4.5: EUR 43 300 000

A4.6 RISK-SHARING FINANCE FACILITY

In accordance with Annex III of the Cooperation Specific Programme, the European Union has provided a contribution to the European Investment Bank (EIB) for a Risk Sharing Finance Facility (RSFF), with a view to foster primarily private sector investment in research, technological development and demonstration (RTD) as well as innovation[46]. This new

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Article 108(2)(d) of the Financial Regulation and Article 160a of the detailed rules of the implementation of the Financial Regulation.

44 In accordance with Article 14(a) of Regulation (EC) No 1906/2006 of 18 December 2006 laying down the rules for the participation of undertakings, research centres and universities in actions under the Seventh Framework Programme and for the dissemination of research results (2007-2013).

45 The European Science Foundation is established in 1 Quai Lezay Marnesia, Strasbourg, CEDEX 67080, France.

46 Costs related to Innovations activities may be considered as eligible EC RSFF Operations provided their compliance with the provisions set in the RSFF Co-operation Agreement between the European Union and the European Investment Bank (as stated in the article A4.6.2: Selection of Projects for Financing and the Eligibility Criteria below)

financing instrument has been designed by the European Investment Bank with the support of the EC.

Private investment in research and innovation in Europe remains below the level necessary to achieve the Europe 2020 objectives. In addition to grants, other mechanisms have proven effective in leveraging private investment by firms, thus mobilising the financial markets and diversifying funding sources for European RTD actions, in order to contribute to the objectives of the "*Europe 2020 strategy*".

Improving access to loans for RTD actions requires public support to overcome market deficiencies for the financing of European RTD actions, which often involve a high level of risk.

A4.6.1 Approach

Within the framework of a maximum contribution of EUR 1 billion for the period 2007-2013, the European Union has provided its first contributions (Coordination and Support Action) to the EIB for RSFF for an amount of EUR 500 million for the period 2007-2010[47], EUR 400 million of which coming from the Cooperation Specific Programme. For 2011 it is expected that the EU will transfer EUR 250 million to the EIB, out of which EUR 200 million from the Cooperation Specific Programme[48]. The Bank is the sole beneficiary of this European Union action. Pursuant to a decision by the EIB Board of Directors, endorsed by the Bank's Governors on 9 June 2006, the European Union contribution will be matched by an equivalent amount from the EIB (up to EUR 1 billion for the period 2007-2013).

The level of the European Union risk coverage for each operation shall depend on the financial risk evaluation carried out by the EIB. The level of total provisioning and capital allocation for the majority of RSFF operations is expected to fall within the range of 15%-25% – possibly higher in duly justified cases – of the nominal value of such operations, although in view of increasing risks reflecting the crisis, the portfolio may migrate towards the higher end of this range. In no case shall the level of total provisioning and capital allocation amounts of the European Union contribution exceed 50% of the nominal loan or guarantee value. There will be risk sharing under each operation, according to the methodology established in the Agreement concluded between the Commission and the EIB. The percentage of risk covered by the European Union contribution for each operation will be variable and will depend, *inter alia*, on the risk grading of such operation as well as its maturity.

The cooperation agreement between the European Union and the European Investment Bank (EIB) in respect of the Risk-Sharing Finance Facility (RSFF) – the RSFF Cooperation agreement – was approved by the Commission (Commission Decision C(2007)2181 – 25/05/2007) and signed on 5 June 2007 by former Commissioner Janez Potočnik and President Philippe Maystadt and amended by the Commission (on the basis of the Commission Decision C(2008)8058 – 12/12/2008 authorising the Director-General of the Directorate-General for Research to conclude further amendments of the Agreement on behalf of the Commission on a number of points specified in the decision). A first amendment entered into force on 26 February 2009 and a second one on 8 September 2009.

[47] An amount of EUR 70 million was front-loaded from 2010 budget to the 2009 budget in response to the financial and economic crisis for the Cooperation Specific Programme. A EUR 1.5-million advance in 2009 was accepted by the budgetary authority for the Capacities Specific Programme.

[48] Under the condition that the draft budget for 2011 is adopted without modifications by the budgetary authority and according to the conclusions of the interim evaluation of the RSFF. An EFTA contribution of 2.38% will be added to this amount.

This Agreement, defines terms and conditions related to RSFF and, in particular, to the use of the European Union contribution in RSFF, the risk-sharing methodology, the indicative annual budget, the reporting conditions, the governance, the rules for establishment of network of financial intermediaries in all Member States and Associated Countries and their relating conditions. The first amendment seeks to simplify and harmonize the financial reporting requirements and rules for asset management with other Commission funds managed by the EIB. The entry into force of this amendment allows, *inter alia*, for the allocation to RSFF of the Third Country Appropriations. The second technical amendment specifies the EC contribution for 2009 and simplifies reporting dates.

International Co-operation

In accordance with the provisions of the Cooperation Specific Programme, the EIB may only use the European Union contribution to RSFF to cover risk of operations limited to those borrowers or beneficiaries of guarantees from legal entities from Third Countries other than Associated Countries who participate in FP7 projects and whose costs are eligible for European Union funding.

Dissemination actions

Since 2006 the EIB, assisted by the RSFF Designated Service, has carried out an intensive awareness raising campaign to reach stakeholders in as many Member States and Associated Countries as possible. Such awareness raising actions will continue in 2011, with special focus on the most research intensive sectors in Europe.

RSFF will involve development of financial engineering solutions adapted to the needs of European Research & Development and Innovation actions. Such solutions will be implemented and tested by the EIB and its financing partners.

As soon as such a solution can be considered replicable, case studies of risk-sharing arrangements with financing partners and new products developed specifically for RSFF will be published on the EIB dedicated RSFF web-site.

A number of workshops for representatives of Member States and Associated Countries have been held since the launch to disseminate such financial engineering solutions and seek future co-operation opportunities. Initiatives of this kind will be continued in 2011, both at European and national level.

Contacts with potential clients

The launch of RSFF dedicated website and other awareness raising activities started in 2006 have resulted in applications for financing from promoters of European RTD actions. In parallel, the EIB loan officers have numerous contacts with highly research intensive companies explaining the existence of new financing options made possible by RSFF.

RSFF will be offered in all Member States and Associated Countries in order to ensure that all legal entities, irrespective of size (including SMEs and research organizations, including universities) in all Member States and Associated Countries, may benefit from this facility for the funding of their activities in eligible actions. The EIB shall use all reasonable efforts to ensure that RSFF is also offered by means of EIB financial intermediary partners active in each Member state and Associated Country and willing to offer RSFF products, in order to support eligible small and medium sized RTD projects in accordance with the EIB's usual rules and procedures. The attention of the Member States and Associated Countries is drawn to the fact that, in case of difficulties in identifying financial intermediary partner interested to join EIB network for RSFF purpose, there will be a dependence on the best efforts of the Member States and Associated Countries themselves to ensure that there is no consequential damage to the interests of participants in their countries.

Addressing the financing needs of the Technology Platforms and Joint Technology Initiatives

Having identified in 2006 the most dynamic and active Technology Platforms the Commission and the EIB will continue to follow their individual development and monitor the implementation of their strategic research agendas to search for financing needs which the Bank could address. In some cases customised products, individual or wholesale, may be developed, if necessary in co-operation with other financial institutions.

The Commission and the EIB will follow the development of Joint Technology Initiatives and the initiatives undertaken by their stakeholders and advise the stakeholders on options available to optimise their financing packages. This may involve bridge financing as well as individual customised financing solutions, specifically adapted to the financing needs.

Implementation arrangements for SMEs

The EIB can only be directly involved in operations with financing requirements in excess of EUR 7.5 million. Smaller requests will be directed to financing partners established in Member States or Associated Countries with whom the EIB has or will develop risk-sharing arrangements, including Framework Facilities designed to provide intermediated financing to smaller projects, notably those promoted by SMEs.

A Framework Facility is a line of credit advanced by the EIB to banks or other intermediary institutions which on-lend the proceeds to finance small and medium-size investments.

The deployment of Risk-Sharing Framework Facilities across the EU will reflect demand and will be staged, involving, during an initial phase, a limited number of leading EIB partner banks, based in Member State or Associated Countries. In a subsequent phase, a more wide-spread coverage of EU markets will be attempted by approaching, in a systematic manner, other interested financing partners throughout the EU, in view of setting up Risk-Sharing Framework Facilities covering respective markets.

Risk-Sharing Framework Facilities will be set up either through the introduction of risk sharing arrangements in existing credit lines or through new facilities or intermediaries. Alternative framework financing concepts could also be envisaged.

Governance

RSFF is managed by the EIB in accordance with its own rules and procedures, with due regard to terms and conditions of the RSFF Cooperation Agreement (as amended) between the Commission and the Bank. RSFF implementation and in particular the use of the European Union Contribution will be supervised by a Steering Committee, consisting of at least four representatives, at the Director level, from the Commission and the Bank respectively.

The Commission will continue to closely monitor the effective use of the European Union Contribution, including ex-post assessments of the successful features of the action, and to regularly report to the Programme Committee.

In addition, no later than 2010, the Commission shall have carried out, with the assistance of external experts an interim evaluation referred to in Annex II of the Framework Programme, in accordance with the procedure set out in Article 7(2) of the Framework Programme. The Commission shall communicate a report containing notably information on the participation per type of legal entities, the fulfillment of the FP7 selection criteria, the kind of projects supported and the demand for the instrument concerned, the duration of the authorization procedure, the project results, and the funding distribution.

A4.6.2 Selection of Projects for Financing and the Eligibility Criteria

The EIB was recognised as a beneficiary of the European Union action in the Council and Parliament decision adopting the 7th Framework Programme.

In accordance with the principles established in the Cooperation Specific Programme the EIB will use the European Union contribution on a "first come, first served basis", as provisions and capital allocation within the Bank to cover part of the risks associated with its operations supporting eligible European RTD actions.

The European Union contribution to RSFF may only be used to support activities which can be classified as "fundamental research", "industrial research" or "experimental development" as defined in the Framework for State Aid for Research and Development and Innovation. Prototypes and pilot projects, which are part of "experimental development", may be eligible if they fulfill the conditions specified therein. Innovation activities intended to prepare the commercial use of research results within the time period of the project (such as training, technology management and transfer) are eligible if they are linked to and complementary to research, technological development activities and/or demonstration activities, the later constituting the bulk of any eligible European RTD action.

The RSFF Cooperation Agreement with the Bank comprises a list of exclusions from financing with support of the European Union contribution, reflecting political agreement between the Commission, the Member States and Associated Countries as well as the European Parliament as documented in the 7th Framework Programme and the Cooperation Specific Programme.

A4.6.3 The Commission Right to Object to the Use of the European Union Contribution

The Commission has a right to express its opinion on each and every financial operation proposed by the EIB to its Board for decision under Article 21 of the EIB Statutes. Where the Commission delivers an unfavourable opinion, the EIB Board may not grant the loan or guarantee concerned, unless it votes unanimously in its favour, the Commission nominee abstaining. Should the Bank proceed with financing despite the Commission's negative opinion the European Union contribution to RSFF may not be used.

In accordance with Rules of Participation, the Commission may object, in duly justified cases, the use of the *European Union contribution* for provisioning and capital allocation for a loan *or a guarantee* proposed by the EIB. If such a case arises the Commission may conduct an independent, internal or external, review of such a case.

A4.6.4 European Union Contribution to RSFF in 2011[49]

All Themes of this Work Programme will contribute on a proportional basis, except the Socio-Economic Sciences and the Humanities theme, which does not contribute to RSFF

As stated in Annex II to FP7, "for the period 2010-2013, there will be the possibility to release up to an additional EUR 500 million following the evaluation of the European Parliament and the Council in accordance with the procedure set out in Article 7(2) of this Decision on the basis of a report by the Commission containing information on the participation of SMEs and universities, the fulfilment of the Seventh Framework Programme selection criteria, the kind of projects supported and the demand for the instrument concerned, the duration of the authorisation procedure, the project results, and the funding distribution".

According to the procedure set out in Article 7(2) of the 7th Framework Programme , "no later than 2010, the Commission shall carry out, with the assistance of external experts, an evidence-based interim evaluation (…).The Commission shall communicate the conclusions

[49] Under the condition that the draft budget for 2011 is adopted without modifications by the budgetary authority and according to the conclusions of the interim evaluation of the RSFF.

thereof, accompanied by its observations and, where appropriate, proposals for the adaptation of this Framework Programme, to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions".

As from 2009 the Commission proceeds annually with an equal amount of commitment and payment of the European Union contributions to RSFF, based on an the EIB's activity and forecast report and its request for the amount of the contribution estimated necessary for the following year. In compliance with Annex II to the 7th Framework Programme, the Commission will commit, in 2011, an amount of EUR 250 million, of which EUR 200 million coming from the contributing Themes of the Cooperation Specific Programme[50].

A4.6.5 Process for Recovering and Reallocating Unused European Union Funds

In order to mitigate the risk of accumulation of unused funds the multi-annual planning will be adjusted on the basis of reports including pipeline report (summary of information on projects considered for financing) and demand forecasts. Amounts committed but not earmarked, blocked or paid to the EIB – i.e. not used for the operations of RSFF – will be reallocated to other activities of the contributing themes.

Notwithstanding the above and unless the Council and the European Parliament adopting the 8th Framework programme decides otherwise the Commission will recover from the EIB any unused funds of the European Union contribution (including interest and income) which on 31 December 2013 have not been used or committed to be used or are required to cover eligible costs The mid-term evaluation will include an external assessment of the impact of the RSFF.

[50] Under the condition that the draft budget for 2011 is adopted without modifications by the budgetary authority and according to the conclusions of the interim evaluation of the RSFF.

A4.7 FINANCIAL OVERVIEW FOR GENERAL ACTIVITIES FOR 2011

The following provides a financial overview for 2011 of the activities which are funded across the Cooperation Programme:

Activity	Funding for 2011 *
A4.1 CORDIS	EUR 7.90 million
A4.2 ERA-NET scheme (cross-thematic)	EUR 0.70 million *broken down as follows:*
A4.2.2.1 ERA-NET Actions **	*EUR 0.00 million*
A4.2.2.2 ERA-NET Plus Actions **	*EUR 0.00 million*
A4.2.2.3 Horizontal Support Actions	*EUR 0.60 million*
A4.2.2.4 Thematic Coordination Actions **	*EUR 0.00 million*
A4.2.3 External expertise	*EUR 0.10 million*
A4.3 Research Organizations	EUR 0.30 million
A4.4 EUREKA	EUR 0.35 million
A4.5 COST	EUR 43.30 million *broken down as follows:*
A4.5a COST: Baseline Contribution	*EUR 30.00 million*
A4.5b COST: Additional Contribution ***	*EUR 13.30 million*
A4.6 RSFF	EUR 204.76 million *broken down as follows:*
A4.6a RSFF: Primary Appropriations	*EUR 200.00 million*
A4.6b RSFF: EFTA Appropriations	*EUR 4.76 million*
Total:	**EUR 257.31 million**

* Under the condition that the draft budget for 2011 is adopted without modifications by the budget authority.

** ERA-NET Actions are directly funded by the Themes.

*** Additional contribution in case of positive mid-term review outcome

Budget Figures in This Work Programme

All budgetary figures given in this work programme are indicative. The final budgets may vary following the evaluation of proposals.

The final budget awarded to actions implemented through calls for proposals may vary:

- The total budget of the call 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.

For actions not implemented through calls for proposals:

- 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 all other actions not implemented through calls for proposals may vary by up to 10% of the indicated budget for these actions.

Annex 5: Recovery Package: Public-Private Partnerships (PPPs) and Risk Sharing Finance Facility

The European Economic Recovery Plan adopted by the European Commission on 26 November 2008 and endorsed by the European Council on 11-12 December 2008 proposes actions to develop technologies for the manufacturing, construction and automotive sectors, which have recently seen demand plummet as a result of the crisis and which face significant challenges in the transition to the green economy. The Commission proposed to increase research financing through the RSFF instrument and to launch three Public-Private Partnerships (PPPs) which provide the required support to the three sectors:

- in the manufacturing sector: a 'Factories of the Future ' initiative to help EU manufacturers across sectors, in particular SMEs, to adapt to global competitive pressures by increasing the technological base of EU manufacturing through the development and integration of the enabling technologies of the future, such as engineering technologies for adaptable machines and industrial processes, ICT, and advanced materials (EUR 1.2 billion);
- in the construction sector: an 'Energy-efficient Buildings' initiative to promote green technologies and the development of energy-efficient systems and materials in new and renovated buildings with a view to reducing radically their energy consumption and CO_2 emissions (EUR 1 billion);
- in the automotive sector: a 'Green Cars' initiative, involving research on a broad range of technologies and smart energy infrastructures essential to achieve a breakthrough in the use of renewable and non-polluting energy sources, safety and traffic fluidity (EUR 1 billion).

These initiatives are part of a comprehensive, integrated package to be implemented in cooperation between all the responsible services within the Commission, complemented by actions on the demand-side, such as public procurement, technical standards, and regulatory measures. This includes a further EUR 4 billion for non-research activities under the Green Cars Initiative.

The three PPPs are intended to prevent the crisis from deflecting attention from the EU's longer-term interests and the need to invest in its future. Research and Innovation are considered as strategic and "smart" investments to prepare the ground for the future of the EU economy which has to become a knowledge-based and low carbon economy, as stated in the Europe 2020 strategy. This is crucial for the EU to come out from the crisis stronger, more sustainable and more competitive.

The Commission, working in close collaboration with industrial representatives, has developed multi-annual roadmap and longer-term research strategies for the three sectors. For 2011, the initiatives will continue to be implemented through a series of Cross-thematic Calls under the 2011 work programmes of the relevant FP7 Themes. Responsibility for these Cross-thematic Calls is as follows:

- The 'Factories of the Future' initiative involves financial support from the NMP[51] and ICT[52] Themes;

[51] Nanosciences, Nanotechnologies, Materials & New Production Technologies
[52] Information and Communication Technologies

- The 'Energy-efficient Buildings' initiative involves financial support from the NMP, Energy, ICT and Environment Themes;

- The 'Green Cars' initiative involves financial support from the Transport, ICT, NMP, and Environment Themes.

In addressing the industrial needs and objectives of each PPP, the Themes will work closely together to ensure a coherent, complementary and holistic approach. To ensure high visibility and to promote cooperation and exchange of information between the research projects funded under the different Themes, it is intended to gather the researchers and the industrial stakeholders together in annual cross-thematic workshops and seminars for each PPP. This would be part of the implementation of the projects.

The Call Fiche for the call implemented jointly on Sustainable automotive electrochemical storage in the Green Car PPP is included in Annex 5. The Call Fiches for the other topics in the Green Car PPP can be found within the corresponding work programme chapter of each participating Theme. The topics in the FoF and EeB PPPs are organised in two calls implemented in a coordinated way with a common deadline and the Call Fiches are included in Annex 5 and the corresponding work programme chapter of each participating Theme. With the exception of the call implemented jointly on Sustainable automotive electrochemical storage, each Theme will remain responsible for its own budget and for the implementation of the related topics.

The corresponding research topics for each PPP under the work programme 2011 Cross-thematic Calls are given in the following three sections V.1 to V.3.

The RSFF is one of the instruments that can provide support to projects emerging under the PPPs through loan funding. RSFF loans have already been provided to a number of automotive companies which invest in cleaner engines and technologies. Furthermore, for the Green Car PPP, the EIB provides funding either by the RSFF or the (European Clean Transport Facility (ECTF).

In addition to the PPPs launched under the recovery package, a Public Private Partnership Initiative on the Future of the Internet is launched under Theme 3 "ICT – Information and Communications Technologies" of the Cooperation Programme. This FI-PPP focuses on the development of innovative open network and service platforms with generic common enablers serving a multiplicity of demand-driven use cases in "smart applications". Taking a system perspective, the FI-PPP includes a strong experimentation and validation dimension and targets early results with a medium-term outlook before 2015, i.e. a ~5 years horizon perspective. The initiative has a budget of EUR 90 million under this programme. A further EUR 80 million are foreseen in 2012 and EUR 130 million in 2013 (total of EUR 300 million over 3 years) for which financing decisions to cover the budgets of these years will be requested at the appropriate time. The four objectives constituting this PPP are described in Annex 7 under Challenge 1 of Theme 3 "ICT – Information and Communications Technologies". **V.1 "Factories of the Future" Public-Private Partnership (FoF) - Cross-thematic coordination between NMP and ICT**

Manufacturing is still the driving force of the European Economy. Manufacturing activity in Europe represents approximately **21% of the EU GDP** and provides about **20% of all jobs** (more than 30 million) in **25 different industrial sectors**, largely dominated **by SMEs**. With each job on the factory floor generating approximately two other jobs in services, about 60 million people are additionally engaged in the related service areas. Therefore, manufacturing

is of high importance to Europe, with a huge potential to generate wealth, jobs and a better quality of life. The long-term shift from a cost-based competitive advantage to one based on high added value requires that European manufacturing increases its technological base, building on the EU's excellent R&D in this domain, and develops a number of **enabling trans-sectoral production technologies**.

The *Factories of the Future PPP Initiative* aims at helping EU manufacturing enterprises, in particular SMEs, to adapt to global competitive pressures by developing the necessary enabling technologies to support EU manufacturing across a broad range of sectors. It will help European industry to meet the increasing global consumer demand for greener, more customised and higher quality products through the necessary transition to a demand-driven industry with lower waste generation and energy consumption.

The activities will concentrate on increasing the technological base of EU manufacturing through the development and integration of the enabling technologies of the future, such as engineering technologies for adaptable machines and industrial processes, ICT for manufacturing, and the novel industrial handling of advanced materials. The initiative will concentrate on industry-led R&D projects and will include demonstration activities, such as large-scale production-line demonstrators for validation and market applications. The partnership will work together to identify the R&D needs of manufacturing industry and in particular SMEs. In order to further ensure the PPP character of the initiative, a large part of the activities in the projects is expected be performed by industrial organisations themselves. This initiative, being by nature **cross-sectoral** and including efforts to address the **needs of SMEs**, aims to transform Europe into a dynamic and competitive knowledge-based economy by delivering:

- A new European model of production systems for the factories of the future (e.g. transformable factories, networking factories of excellence, learning factories) depending on different drivers such as high performance, high customisation, environmental friendliness, high efficiency of resources, human potential and knowledge creation.
- ICT-based production systems and high quality manufacturing technologies capable of optimising their performance with a high degree of autonomy and adaptability for a balanced combination of high throughput and high accuracy production.
- Sustainable manufacturing tools, methodologies and processes that have the capability of cost-efficiently shaping, handling and assembling products composed of complex and novel materials.

The indicative budget for the "Factories of the future" PPP initiative is EUR 160 million in 2011, of which EUR 80 million is from the NMP Theme and EUR 80 million from the ICT Theme.

V.1.1 "Factories of the Future (FoF)" - Topics covered by the NMP Theme

FoF.NMP.2011-1 The eco-factory: cleaner and more resource-efficient production in manufacturing

Technical content/scope: The Eco-Factory, focusing on the innovation of critical manufacturing processes, requires multidisciplinary scientific expertise to support the knowledge-based eco-engineering of manufacturing processes and to foster the use of advanced sustainable technologies inside the factory. This involves process simulation and modelling, process life-cycle assessment and benchmarking of different options, the

development of new manufacturing technologies and the improvement of the green performance of current manufacturing.

Cleaner and more resource-efficient production in manufacturing implies the application of an integrated environmental protection strategy to manufacturing processes aiming at increasing the overall efficiency of production systems by the decrease in the use of resources and energy, and in emissions and waste treatment and recycling at the point of use. In the manufacturing chain, an integrated and holistic approach is proposed aiming at:

- Preventing environmental pollution, i.e. waste production and resource and energy dissipation, throughout the production site operation, by evaluating the global burden to the eco-system and by developing efficient industrial process control, planning and scheduling (e.g. using sustainability oriented decision support systems for the optimisation of the manufacturing processes along the whole value-chain).
- Reducing global resources consumption, in particular energy usage, by developing and evaluating alternative manufacturing technologies to replace existing resource-intensive manufacturing processes, including tools for modelling resource consumption, developing standards for such models and strategies to maximise the output against resource consumption.
- Developing multi-objective process simulation optimisation methodologies, enabling a more sustainable, efficient and competitive manufacturing of high added-value products.
- Integration of monitoring tools based on Key Environmental Performance Indicators and either local or remote smart components that collect and process information about the product's whole ecological footprint, and reconfigure the production parameters.

The Eco-Factory also requires innovative management methodologies including fast integration of advanced technologies and new business strategies for greener production.

In order to deliver breakthrough research with major impacts on competitive and sustainable manufacturing, the Eco-Factory approach must involve an integrated, cross-sectoral and interdisciplinary team, including large industrial groups and SMEs as well as technological and socio-economic expertise, ensuring a fast innovation transfer from R&D to industrial applications (including SMEs).

The projects are expected to cover demonstration activities, including pilot implementations in industrial settings. In order to ensure the industrial relevance and impact of the research effort, active participation of industrial partners represents an added value to the activities and this will be reflected in the evaluation, under the criteria Implementation and Impact.

Funding Scheme: Large-scale integrating collaborative projects.

Expected impact: Increase in competitiveness and sustainability of manufacturing processes, by advanced design options and guidelines for the manufacturing of new greener products with tailored properties, e.g. using additive manufacturing to decrease waste. Strengthening the environmental performance of the eco-factories by reducing resource consumption, energy and waste by at least 20%. Improving the development and access to markets of innovative environmental technologies, helping SMEs adapt to emerging market needs and protecting and creating new job opportunities. Knowledge of new scientific, technical, economic and social factors to support European policy development and the standardisation and definition of eco-labelled processes and products.

FoF.NMP.2011-2 Cooperative machines and open-architecture control systems

Technical content/scope: The transformation of traditional production line concepts to non-hierarchical agglomerates of autonomous and mobile manufacturing units is a key technology for new European production models. Moreover, open architecture for manufacturing systems implies easier integration and networking of the control systems of equipment modules and will result in enhanced production performance.

Novel approaches in these domains shall encompass the life cycle of the production systems from the development of generic manufacturing ontologies, methods and tools for the development of co-operative production systems to integrated engineering systems, characterised by intelligent monitoring and control systems, predictive performance solutions and a high level of re-configurability. Research activities on human-machine interface (HMI) for enhanced integration of the human workforce in working environment may also be included. Research and development needs to focus on the application of agent control technologies, e.g Holonic/Evolvable Manufacturing Systems or Service Oriented Control Architectures for autonomous manufacturing components as well as methods and strategies to update the design and performance of manufacturing units during their life cycles. R&D projects should lead to multi-sectoral system solutions and address the current limitations in specific manufacturing domains.

The projects are expected to cover demonstration activities, including pilot implementations in industrial settings. In order to ensure the industrial relevance and impact of the research effort, active participation of industrial partners represents an added value to the activities and this will be reflected in the evaluation, under the criteria Implementation and Impact.

Funding Scheme: Small or medium-scale focused research projects.

Expected impact: The research efforts will demonstrate the feasibility and technological advantage of the new European factories of the future in traditional and emerging industrial sectors. Results will stimulate important innovations in production technology and enhance industrial work environments, especially in traditional sectors including food and agro-industries. The technology developed will drastically improve the international position of European manufacturers with respect to their openness to adopt new manufacturing processes and product innovations.

FoF.NMP.2011-3 Robots for automation of post-production and other auxiliary processes

Technical content/scope: In the future the scope of application of robots will tremendously increase as far as their autonomy and affordability, enabling industrial and service robots to carry out more complex life-cycle oriented jobs, e.g. those which need to be carried out after the product has been delivered to its customer or other auxiliary tasks during the production process itself. This may, for example, include recycling and dismantling, inspection, repair, maintenance or other re-configuration tasks and more in general post-production automation tasks, as well as the auxiliary processes in the production chains. However, today's systems are too rigid (i.e. designed for specific applications), they are rather expensive and often unusable in physical conditions where humans can not easily get to (e.g., under water, small spaces, or dangerous locations) or cover efficiently (e.g. large structures). Therefore, manufacturing operations with robots in areas that are traditionally human-intensive and not automated would require enhanced capabilities of man-machine cooperative approaches.

To successfully perform complex tasks over the entire product life-cycle in a very open task spectrum, strict requirements with regard to higher degrees of adaptability, scalability, flexibility and dependability must be linked capabilities associated with natural intelligence

and perception (e.g. identification and manipulation of unknown component geometry), skilled work reasoning, as well as sophisticated motor abilities, in order to cope with incomplete or non up-to-date information about the parts and the production settings. The automation of ancillary processes in production will extend over several inspection, disassembly, treatment and manipulation tasks, and demand for multi-task planning of processes and action in dense structures, strategies for sequencing and choice of treatment, repair and replacement. Semantics, reasoning, learning and planning methods will also be needed.

The projects are expected to cover demonstration activities, including pilot implementations in industrial settings. In order to ensure the industrial relevance and impact of the research effort, active participation of industrial partners represents an added value to the activities and this will be reflected in the evaluation, under the criteria Implementation and Impact.

Funding Scheme: Small or medium-scale focused research projects.

Expected Impact: Most relevant industrial sectors are in capital intensive investment goods (e.g. construction, energy and aeronautics), but the results developed can be applicable to other products having high life-cycle costs. Full life-cycle services are envisaged such as in-field servicing, repair, refurbishing, upgrading, and associated services such as inspection, monitoring and recycling. At the same time, the use of robots in complex manipulation tasks in other industrial sectors will be made possible by the availability of cost effective and flexible automated solutions. The new robotised systems offered should be able to extend the service life and/or improve the operational efficiency and functionality of the product, while at the same time reducing the overall life-cycle costs..

FoF.NMP.2011-4 High tech solutions in the production processes for customised green, safe and healthy consumer products

Technical content/scope: The market trend towards customised, green, safe and healthy consumer products requires a new generation of production systems. Industrial production capacity will need to be able to respond to an increasingly turbulent and uncertain demand for highly-customised products, whose complexity is constantly increasing. Compared to the past, customers demand higher quality, quicker delivery times and shorter product lifecycles. All this requires high flexibility and the permanent adaptation of machines, process equipment and production systems to evolving products and processes , with special consideration for applications in traditional industries.

Customisation of products will range from product technical performance to integration of advanced product functionalities and modification of product features oriented towards specific consumer needs and requirements, such as comfort, health, well-being and safety. Sustainability of products and production processes also has to be addressed, considering their overall life cycle, from conception and design through to disposal and recycling, by means of novel Life-Cycle Assessment methods and tools. Such new technologies will have to be fully integrated in future production solutions, in order to successfully satisfy several aspects of personalised products, from increased customer interaction regarding trends and new requirements through co-design solutions to new agile, fast and eco-effective manufacturing processes performed by new generation of machines, tools, and supporting systems (in areas such as internal logistic or production scheduling). The integration of new high-performance and eco-compatible materials for personalised green customer products also needs to be addressed.

High-tech production solutions for personalised green, safe, and healthy customer products are particularly crucial for all those sectors where a very high level of customisation is required in terms of technical performance and functionalities of individual products. The

developed technologies shall be demonstrated through pilot production with reference to specific needs of target groups, such as children, people with disabilities, the aged or the overweight, and addressing particular market segments and applications (e.g. healthcare, food, sport, leisure and fashion).

SME-dedicated Collaborative Projects are specifically designed to encourage SME participation in research and innovation representing the complete value added of the targeted sectors. The projects are expected to cover demonstration activities, including pilot implementations in industrial settings.

In order to ensure an efficient implementation and maximum impact of SME-related activities, the leading role of SMEs with R&D capacities will be evaluated under the criteria 'Implementation' and 'Impact': the coordinator does not need to be an SME but the participating SMEs should have the decision making power in the project management; and the output should be for the benefit of the participating SMEs and the targeted SME dominated industrial communities.

Funding Scheme: SME-targeted collaborative projects.

Additional eligibility criterion: An additional eligibility criterion related to SME participation applying to this topic is set out in the call fiche.

Expected Impact: The global market for consumer goods is expected to increase significantly in the next decade. Societal concerns on consumer health, safety and well-being should be strongly addressed, as well as sustainability of consumer goods and their manufacturing processes. A new generation of consumer products and production systems is thus expected to both exploit the potential of high value-added European manufacturing industries and significantly improve the consumer life-style through green customised products and processes.

For European SMEs operating in such sectors these innovations are crucial to maintain and increase their role in future turbulent markets, considering that the consumers' expectations in terms of health, safety and eco-friendliness are strongly changing due to aging and globalisation phenomena.

FoF.NMP.2011-5 Towards zero-defect manufacturing

Technical content/scope: Nowadays, manufacturing industries very frequently operate in data-rich environments. On the one hand, product quality is increasingly characterised by multiple geometric specifications of complex product’s shape (e.g. in automotive, white-goods and aerospace industries). On the other hand, the quality process is to a greater extent associated with process data gathering. In fact, moving the attention from product data to process data allows to extend quality monitoring and optimisation strategies also to short-run production (e.g. small-lots, customised manufacturing).

From the system viewpoint, data collection, data presentation and root cause reasoning needs to be developed to allow continuous monitoring of the performance of the different process stages to master propagation of defects within or between processes and increase the robustness of processes.

In these scenarios, traditional “Six-Sigma” approaches can no longer help to achieve zero-defect manufacturing, given their limitation to simple data sets (invariant and independent data over time). Those methodologies have to be improved by controlling the process parameters in real time (in the relevant parameters field) and by the use of pre-processing prognosis and proactive controls on processes, production systems and sub-systems integrated in the production lines/cells. This includes the application of sensors for process diagnostics, monitoring and visualisation. The integration of cognitive systems will enable the development of intelligent and self-optimising machines for “zero-defect” manufacturing,

with increased process capability (of Cpk=2.0 or higher) thanks to new strategies for data-rich quality monitoring, control and optimisation.

From the hardware viewpoint, multi-resolution data-gathering devices are foreseen to integrate intelligence into the machining process after appropriate integration. Thus, new cost-efficient tools for quality monitoring and optimisation with multi-resolution, multivariate and auto-correlated data have to be developed. The research in this area will focus on:

- system approaches for monitoring and data processing of dimensional fluctuations;
- efficient simulation tools and methods to predict the machining system behaviour which can be utilised for efficient operation planning to be combined with in-process monitoring;
- innovative solutions for intelligent manufacturing systems, in support of customising and build-to-order strategies; and
- extensive integration capabilities in production equipment of intelligent, autonomous, and self–adaptive devices (integrated, self-powered sensors and actuators) at low cost for process monitoring, control and quality management.

The projects are expected to cover demonstration activities, including pilot implementations in industrial settings. In order to ensure the industrial relevance and impact of the research effort, active participation of industrial partners represents an added value to the activities and this will be reflected in the evaluation, under the criteria Implementation and Impact.

Funding Scheme: Large-scale integrating collaborative projects.

Expected Impact: The development of innovative solutions for zero-defect manufacturing is of strategic relevance for Europe, especially in the domains of parts manufacturing with conventional technologies such as machining, cutting, forming, coating and others. The reduction of losses by extensive quality control and the increase of efficiency in manufacturing are expected in many industries, in particular in the traditional sectors.

FoF.NMP.2011-6 Manufacturing chains for nano-phased components and coatings

Technical content/scope: Recent research results and high-tech solutions demonstrate the potential and the maturity of nanotechnology to be applied in large scale (bulk and surface), high volume and low cost applications. The integration of high-performance nano-intermediates is considered one of the most promising economic opportunities of industrial nanotechnology. The use and integration of these materials and components will enable a new generation of products with new functionalities, create new market opportunities and improve competitiveness. The challenge for industry is to develop new industrial-scale processes for nano-structured high-performance materials and to integrate them into existing or new micro/macro-manufacturing chains.

The research focus should be on new and intelligent platforms, equipment and tools, which enable the processing and the integration of nano-materials in new or existing micro/macro-manufacturing chains. The structuring of materials at the nano-scale introduces new functionalities for e.g. optical or sensing. The aim is to manufacture new functional micro-macro devices, products and systems in a competitive way by integrating nanostructures and exploiting the potential and advantages of nano-phased materials. The projects are expected to develop/upgrade appropriate high-throughput, cost-efficient processes (e.g. extrusion, moulding, sintering, lithography, imprinting or surface deposition) for the integration of novel nano-materials into new products, exploiting the specific characteristics of those materials and the advantages of high-volume mature manufacturing technologies.

The manufacturing chain shall include intelligent manufacturing solutions like on-line monitoring and quality inspection systems in order to ensure efficiency, reliability and high

product quality. Proposals should provide for adequate operation conditions in terms of cleanliness and environment, health and safety (EHS) requirements and aim for eco-friendly manufacturing routes to encourage energy saving, cost and waste reduction, and recycling.

The projects are expected to cover demonstration activities, including pilot implementations in industrial settings. In order to ensure the industrial relevance and impact of the research effort, active participation of industrial partners represents an added value to the activities and this will be reflected in the evaluation, under the criteria Implementation and Impact.

Funding Scheme: Large-scale integrating collaborative projects.

Expected Impact: Improvement of the technological base of the European manufacturing industry through new innovative processes and equipment for high-throughput, cost-efficient production of nanostructured components and/or devices for future applications in e.g. optics, electronics and/or lighting.

Projects are expected to provide substantial innovation in industry and market perspectives and to contribute to competitiveness, sustainability and employment in the medium term, enabling competitive and sustainable industrial production of new, high added-value products and components based upon nano-materials for cross-sectoral applications.

V.1.2 "Factories of the Future (FoF)" - Topics covered by the ICT Theme

FoF.ICT.2011.7.3 Virtual Factories and enterprises

This objective focuses on end-to-end integrated ICT solutions that enable innovation and higher management efficiency in networked enterprise operations.

Target outcomes

a) **Distributed, adaptive, and interoperable virtual enterprise environments** for business innovation, extensive monitoring, evaluation, forecasting, risk assessment and prevention, e.g. through collaborative business intelligence, productivity, knowledge management and/or mixed reality tools. R&D should aim at integrating novel management methods and ICT to help virtual factories and enterprises move beyond existing operational capability.

b) **Real-time management of volatile manufacturing assets:** ICT tools and applications to support end-to-end management of tangible and intangible assets (e.g. inventories, stakeholder relationships, product configurations, production knowledge, skills) across the entire value chain. Proposed solutions should be validated for scalability, interoperability, reliability, and security.

c) **Component-based tools and architectures enabling the innovative dynamic composition of services** for product operation (maintenance, reliability, upgrades), and end-of-life use (re-manufacturing, recycling, disposal). The proposed solutions should help achieve efficient and sustainable lifecycle management of products and services.

d) **Internet-based, user-centric collaboration, sharing and/or mixed reality tools** supporting the emerging networked enterprise concepts. They should enable new manufacturing business models and practices that enhance and sustain the value of products and services (including value-added, service-enhanced products) by involving all relevant stakeholders in the innovation process, from R&D and design phases to after-sales.

Projects are expected to be industry-driven and to contain a strong validation element with quantifiable targets.

Funding scheme: Collaborative projects – IP and STREP

Indicative budget: EUR 45 million, with a minimum of 50% to IPs and 30% to STREPs

Expected impact

- Higher management efficiency of networked and sustainable business operations.
- ICT tools enabling the participation of SMEs in virtual factory environments.
- New business models and innovation scenarios for a low-carbon economy.

FoF.ICT.2011.7.4 Digital factories: Manufacturing design and product lifecycle management

The work addresses the early stages of manufacturing and engineering through interoperable models, engineering platforms, computer-assisted product and process development and analysis, and virtual prototyping and testing environments to reduce the need for physical mock-ups.

Target outcomes:

a) **Comprehensive engineering platforms** that enable cross-disciplinary information sharing, workflow integration and the capture of product-relevant knowledge (e.g. manufacturing process knowledge embedded in the models and the engineering tools), supporting the re-use of knowledge across stakeholders and the product lifecycle (e.g. from use to design). Projects should also contribute to ongoing international cooperation activities (e.g. IMS) on sustainable engineering and on standardisation for long-term archiving of product information.

b) **User-intuitive tools for simulation and virtual prototyping with forward and backward compatibility** (e.g. from use to engineering) using finer digital models to increase accuracy and integrating aspects such as functionality, forming, painting and assembly. The work should also aim at interoperable models enabling the use of various aspects of design and engineering, model auto-generation and robustness (e.g. automated meshing and optimisation) as well as the use of CAD-, CAE-, VR-, volume-, fluid-, structure-, polygonal- and process models in the various engineering stages. The adaptation and scaling of engineering codes to next-generation high-performance multicore computing clusters should also be addressed.

c) **Tools for holistic modelling and simulation of full complex products and processes** using multi-physics and support for tolerance changes in the models. Digital modelling and simulation of product and process behaviour, e.g., regarding material properties from micro to macro scale (from the atomic level upwards) should also be considered.

Projects are expected to be industry-driven and to contain a strong validation element with quantifiable targets.

Funding scheme: Collaborative projects – IP and STREP for targeted outcomes a) and b); Collaborative projects – IP and STREP and CSA for targeted outcomes c).

Indicative budget: IP, STREP: EUR 33.5 million with a minimum of 50% to IPs and 30% to STREPs; CSA: EUR 1.5 million

Expected impact:

- Reinforced European leadership in knowledge-driven platforms, tools, methodologies, product development and manufacturing.
- Accelerated product design and manufacturing, enabling new products to be realised with a considerably shorter time-to-production and time-to-market.
- Drastically improved accuracy, reliability and speed of simulation techniques for manufacturing processes and/or full complex products permitting design decisions earlier in the design process.

V.2 "Energy-efficient Buildings"- Public-Private Partnership (EeB) - Cross-thematic coordination between NMP, ICT, Energy and Environment (including Climate Change)

The construction industry accounts for more than 10 % of the EU's GDP and employs 32 million people in large, medium and small enterprises (direct and indirect employment). The construction sector is the highest contributor to the emission of Green House Gases with an average value estimated in most developed countries at close to 33%, knowing that around 40% of the total energy use corresponds to buildings, while their fossil-fuel heating represents a major share. Therefore, in the near future, the built environment in Europe needs to be designed, built and renovated with much higher energy efficiency. In order to achieve the objectives of the Energy Policy for Europe adopted early in 2007 and to contribute through Energy-efficient Buildings to the 20% reduction of energy consumption, 20% use of Renewable Energy Sources and 20% reduction of CO_2 emissions, a strong and continued effort in RTD and innovation in the short, medium and long term is needed.

The objective of the *Energy-efficient Buildings PPP Initiative* is to deliver, implement and optimise building and district concepts that have the technical, economic and societal potential to drastically reduce energy consumption and decrease CO_2 emissions, both in relation to new buildings and to the renovation of existing buildings. This new initiative should have a large payoff, as it will increase the market for energy-efficient, clean and affordable buildings. Research priority will be given to delivering new building materials and components for energy saving and energy generation, thermal energy storage systems, advance insulation systems, thermal distribution systems, lighting technologies, windows and glazing technologies, energy generation systems based on renewable sources, but also to reliable simulation and prediction tools, including assessment methods that integrate economical, social and environmental issues. To date, the construction industry has failed to effectively integrate key technologies into its operations in order to achieve sustainable, long-term competitiveness.

The aim of the activities is to identify, through the partnership with industry, the main RTD needs, and address a number of areas of clear industrial interest, such as tools, the building envelopes, systems and equipment, ICTs for energy efficiency, environmental technologies, social and behavioural aspects, standardisation and business models. Specific deliverables expected for new and refurbished buildings (including cultural heritage) are:

- Research for new design and manufacturing technologies, focussing on new building materials and components, thermal energy storage systems, advanced insulation systems, thermal distribution systems, lighting technologies, windows and glazing technologies, and assessment methods which include guidelines/methodologies for the eco-design and the Life Cycle Assessment of energy-efficient buildings.
- Research on ICT for energy efficiency in buildings, such as design and simulation tools, inter-operability/standards, building management systems, smart metering and user-awareness tools.

- Research on resource efficiency (waste and energy use) to identify best practices to help set standards and establish public policies for higher energy efficiency and reduced environmental impact.
- Research on the application of technological, design and organisational improvements at district-level with the aim of reducing the energy and resource consumption.
- Research-related activities on key demonstration topics concerning integration of innovative products and systems, grid issues and business models.

The indicative budget for the "Construction" PPP initiative is EUR 85.5 million in 2011, of which EUR 40 million is from the NMP Theme, EUR 20 million from the ICT Theme, EUR 20 million from the Energy Theme and EUR 5.5 million from the Environment Theme.

V.2.1 "Energy-efficient Buildings (EeB)" - Topics covered by the NMP Theme

EeB-NMP.2011-1 Materials for new energy efficient building components with reduced embodied energy

Technical content/scope: When increasing the level of energy performance of buildings in operation, embodied energy in materials may represent a high percentage of the energy spent in the whole life cycle of a building. Therefore, the development of new multifunctional materials is needed, having a low embodied energy and also higher thermal and acoustic properties (embodied energy is often proportional to mass), overcoming scarcity of renewable materials. New approaches combining novel processes, sensors and material science should help to minimize the embodied energy of main construction materials involved in new energy efficient building components. Solutions for reducing the embodied energy and/or CO_2 of building materials are needed and this will necessitate the further development of innovative new approaches to materials and the materials life cycle that have the potential to go beyond the current state of the art. Moreover, not only a better understanding and application of a particular material is needed, but also the understanding and optimisation of material combinations and their synergistic function, hence blurring the distinction between a material and a functional device comprised of distinct materials. New technology routes to integrate waste in the production cycle (recycling) of new materials are needed.

Research proposals should address materials for building components with reduced embodied energy and should be strongly focused on the final performance properties rather than on the individual material performance. At least one fully operational component should be delivered at the end of the research project. Where appropriate, proposals should also address specific environment, health and safety research and/or assessment. Specific consideration can be given to standardisation issues. Dedicated modelling and/or the production of (certified) reference materials can be also addressed, as an integrated part of the research proposal. The proposed solutions should be based on a responsible, sustainable and environmentally friendly approach. The environmental sustainability of each developed solution shall be assessed via life cycle assessment studies carried out according to the International Reference Life Cycle Data System (ILCD) Handbook.

In order to ensure the industrial relevance and impact of the research effort, the active participation of industrial partners, including SMEs, represent an added value to the activities and this will be reflected in the evaluation, under the criteria Implementation and Impact. The participation of public authorities may also be considered.

Funding scheme: Large-scale integrating collaborative projects.

Expected impact: (i) Reduction by at least 50% of the embodied energy at component level compared to the 2005 values; (ii) Reduction by at least 15% of the total costs compared to existing solutions; (iii) The proposers should demonstrate and quantify the potential European

impact on energy-efficiency at building level; (iv) Improved durability of the components resulting in less frequent replacement, so that the impact of embodied energy will be lower over the lifetime of the building; (v) Contribution to achieving EU policies.

EeB.NMP.2011-2 New efficient solutions for energy generation, storage and use related to space heating and domestic hot water in existing buildings

Technical content/scope: Space heating and domestic hot water represent the largest part of energy use in buildings today. New technologies and methods need to be developed to help reduce the energy consumption and environmental impact of buildings during their entire life-cycle, through specific efforts devoted to space heating and domestic hot water systems. The existing residential building stock is the main target.

Existing technologies are not yet fully suitable or sufficiently integrated to be applied widely within buildings or districts. Cost-effective solutions along the entire life cycle and suitable for retrofitting are necessary to ensure market acceptance. Integration of new reliable systems improving the comfort and combining energy collection (such as solar energy), energy storage, space heating, domestic hot water and/or energy waste capture should be developed. This will require new design tools, production concepts and solutions which are easy to install (e.g. kits, configurators), reducing maintenance efforts and simplifying logistics. In this framework, the involvement of the users and their behaviour is essential, since they are at the core of new SME-friendly business models to be investigated and deployed.

Holistic approaches, tackling multi-disciplinary developments in areas such as ventilation technologies, sensors, actuators, pervasive computing systems, embedded renewable energy sources, high efficient and more integrated heat pumps, compact solutions for enhanced energy storage capacities, waste energy recovery systems or solar heat–exchangers, leakage and air flow control should be considered. Deliverables should include the development, integration and proof of concept, prototypes or demonstrators, decision support systems and assessment tools of the above concepts, if possible according to the global strategy at district level (e.g. for social housing or residential buildings). In line with the global strategy, action at the district level should also remain a target. Measurement and analysis tools for existing and future energy performance are necessary to validate the developed technologies.

In order to ensure the industrial relevance and impact of the research effort, the active participation of industrial partners represent an added value to the activities and this will be reflected in the evaluation, under the criteria Implementation and Impact.

Funding scheme: Large-scale integrating collaborative projects.

Expected impact: A wide impact is expected from higher energy-efficient solutions for space heating and domestic hot water production, which contribute to around 50% of energy use in residential buildings. Holistic design of solutions for energy generation, storage and use should increase the overall efficiency by at least 30%. The proposers should also anticipate future targets for energy-efficient buildings.

EeB.NMP.2011-3 Energy saving technologies for buildings envelope retrofitting

Technical content/scope: Taking into account the very large existing building stock in Europe, retrofitting represents a major challenge and has the highest potential to transform existing and occupied buildings (commercial and residential) into energy-efficient buildings. There is a clear need to develop new technologies and strategies in this area to address energy efficiency with appropriate procedures and building techniques, while taking account of the social acceptance by the buildings' users and the return on investment. In general the

envelope of the buildings is the most important element and has a high potential contribution to reducing energy demand.

The research shall focus on development of new materials, products, components, systems or coherent sets of solutions for the whole, or any part, of the building envelope. These systems can be new or an innovative combination of partially existing technologies combined with new ones. New enhanced multi-functional lightweight materials with lower heat transfer and high heat inertia and improved mechanical properties are also expected. Compatibility with existing building functions and aesthetics is a critical point, i.e. solutions adapted to existing buildings should be developed taking into account jointly reduced energy consumption and increased indoor comfort (noise, glare, moisture, etc.). Solutions should clearly contribute to reach energy saving targets for existing buildings in the short/medium term and should also be validated for all essential requirements. Standardisation aspects should be considered.

Production and assembly of these affordable solutions as well as their easy installation in a minimally intrusive way (e.g. advanced joining techniques) and their maintenance are other important aspects to be considered. Both societal acceptance and making wide-scale commercial application feasible are crucial. The safety of proposed solutions must also be ensured for the full product life cycle. In addition, the economic performance of the proposed solutions should be demonstrated by costing the service life. The re-use and/or recycling of building blocks and components removed during the renovation process, as well as the impact on the occupants and users should be considered.

The basement, roof and walls seem to be the key elements to be addressed, externally (for example by applying a new generation of façade elements) or internally (for example by applying new generation of insulation materials focusing on the best compromise between energy performance, investment cost, durability and ease of installation). The building structure is not the primary target.

In line with the global strategy, the district concept should also remain a target. Measurement and analysis tools for existing and future energy performance, fully exploiting the potential of remote data acquisition techniques, are also necessary to validate the developed technologies and demonstrate clear energy gains. The technologies developed should not hinder the future integration of renewable energy sources in the existing building stock.

In order to ensure the industrial relevance and impact of the research effort, the active participation of industrial partners will represent an added value to the activities and this will be reflected in the evaluation, under the criteria Implementation and Impact.

Funding scheme: Large-scale integrating collaborative projects.

Expected impact: The proposers should demonstrate the possibility to reach at least the energy efficiency of new buildings according to current national regulations. This will result in clear benefits both to owners and tenants. The return on investment should be kept below 7 years, taking into account that the establishment of effective cooperation among stakeholders in the value chain will increase overall efficiency and introduce economies of scale for large take-up. Non technological barriers should be properly addressed.

EeB.NMP.2011-4 Geo-clusters approach to support European energy-efficiency goals

Technical content/scope: Local practices and the operational framework concerning energy-efficient buildings differ widely across the EU. The situation depends often on regional preferences with regard to the processes, materials and technologies in use, as well as social and economic aspects. There is a need for a coordination action:

- To further investigate the geo-clusters concept conceived as virtual transnational areas/markets where strong similarities are found, for instance, in terms of climate or

geography, culture and behaviour, construction typologies, economy and energy/resource pricing policies, GDP per capita, but also the types of technological solutions or building materials available. This requires the identification of those EU areas where the building stocks present such similarities.

- To create, in synergy with existing systems a repository of structured information on all EU wide services and tools in energy efficiency and construction, including indicators, best practices and experience with existing demonstrators as well as available technologies ready to be used in the existing building stock. These solutions should allow common EU standards and parameters to be defined, thus improving the relationship between the citizen and the energy aspect.
- To develop a technology map with a dynamic geo-database web service, based on the geo-clusters concept where different technologies and research challenges can be placed, in order to contribute to the development of appropriate business strategies and maximise the chances for a wider implementation of the technologies that can deliver a higher impact. Solutions should be assessed having in mind Least Life Cycle Costs (LLCC) in order to contribute to EU policies.

Methodology and developed tools to process acquired data, design, model, simulate and predict energy efficiency should take into account the buildings and the district dimension within each geo-cluster.

Funding scheme: Coordination and Support Action (Coordinating Action)

Expected impact: The availability of an extensive set of validated data and indicators for key geographical areas will allow to properly define requirements and specifications for technology development and integration, as well as the fine tuning of demonstration actions in order to maximise impact. Non technological aspects will be instrumental for the full take-up of the geo-clusters concept and should be able to leverage the expected outcomes. The direct/indirect involvement of a wide range of stakeholders guided by a clear industrial vision and a comprehensive coverage of the industrial value chain in energy-efficient buildings.

V.2.2 "Energy-efficient Buildings (EeB)" - Topics covered by the ICT Theme

EeB-ICT-2011.6.4 ICT for energy-efficient buildings and spaces of public use

Achieving more energy-efficient buildings, neighbourhoods and urban areas will require further work on the buildings construction cycle, supported by partnerships between process engineering specialists, software companies, ICT equipment providers, and buildings and construction companies. Advances in complex urban systems calls for partnerships between some or all of software companies, RES (Renewable Energy Systems) providers, ICT equipment providers, buildings and construction companies, utilities companies, public authorities (planners).

Target Outcomes

a) Building Energy Management Systems integrating in a single system different energy efficient production/consumption sub-systems, such as renewable energy sources, solid state lighting, heat transfer, blind control, phase change materials, energy harvesting facades or electric vehicles deployed in spaces of public use. These systems shall be based on advanced control algorithms capable of learning from previous operations and situations and load-balancing in near-real time.

Interoperation of these systems with other ICT-based sub-systems (e.g. for security, safety, comfort) will be considered an asset.

The proposed system shall cover in an integrated way the inside of buildings as well as the exterior and surrounding space. Examples of such spaces may include: a motorway service area, a football stadium with its surrounding parking space, a university campus, a shopping mall.

In addition to systems integration, proposals shall include a substantial validation phase focussing on the operation of the building(s) and surrounding space in real user conditions. During this phase, proposals should record evidence of energy savings, total cost of operation, scalability of the solutions and benefits that accrue, and extract lessons for those planning to deploy and finance such systems. Consortia must be compact with partners each making substantial contributions.

b) Coordination and Support Actions: Bringing together relevant stakeholders including process engineering specialists, ICT software and equipment providers, RES providers, energy companies (including ESCOs - Energy Service Companies), building and construction sector companies, as well as local and regional authorities, to:

- Extend the notion of energy-positive performance from homes and buildings to large areas including neighbourhoods and extended urban/rural communities in a holistic dimension;

- Analyse the relationship between producers, distribution companies and consumers of energy, new business models, opportunities for SMEs, and identify best practices and opportunities for knowledge transfer;
- Identify ICT standards related to the building and construction domain and analyse their relevance and possible evolutions;
- Support the establishment of European-scale actions spanning research, innovation, standards setting and deployment of ICT infrastructures for energy-positive neighbourhoods"[53].

The tasks shall include drafting and up-dating public documents, organising experts hearings and workshops, dissemination and networking events.

Funding scheme: Collaborative projects **(**STREP) for targeted outcome a); Coordination and Support Action for targeted outcome b).

Indicative budget: STREP: EUR19 million, CSA:EUR 1 million.

Expected Impact:

- Contribution to the opening of a market for novel ICT-based customized solutions for buildings operation and maintenance integrating numerous products from different vendors.
- Quantifiable and significant reduction of energy consumption and CO_2 emissions achieved through ICT[54]
- Establishment of a collaboration framework between the ICT and buildings and construction and energy sectors.
- Identification of areas where standardisation work is required.

[53] http://ec.europa.eu/information_society/activities/sustainable_growth/docs/elsa/elsa_report/ELSA-EnergyPositive-Report1.pdf
[54] COM(2009)111

V.2.3 "Energy-efficient Buildings (EeB)" - Topics covered by the Environment Theme

EeB.ENV.2011.3.1.5-1 Technologies for ensuring, monitoring and/or controlling a high quality indoor environment[55] particularly in relation to energy efficient buildings

Tackling climate change will require major reductions in the energy consumption of buildings by up to 50% from current levels and create a market place for energy efficient buildings. This will challenge traditional methods of construction and lead to major changes in the design, construction, commissioning and maintenance of buildings particularly with regard to the retrofitting of buildings which covers the vast majority of building stock in Europe. Research is needed to ensure that these reductions in energy consumption will take place whilst improving the indoor environment with respect to comfort, health, accessibility, safety and usability. The research is expected to lead towards improved indoor environment predictive and monitoring tools for design and retrofitting and to efficient products, systems and processes for commissioning and maintenance management of buildings that ensure a high quality indoor environment. Projects should consider the interests of stakeholder groups such as building designers, developers, owners and managers and related product manufacturers. Projects should demonstrate, in practice, the potential impacts of the tools, technologies or processes developed (in a selected range of diverse building contexts, for instance public buildings, office environments, hospitals, schools, museums, residential sector etc). Supported by data on improved indoor parameters typically affecting indoor environment quality, recommendations should be formulated for new policies and regulations within the EU. A convincing strategy for the effective dissemination, exploitation, take-up in practice and mainstreaming of results is essential.

Non technical barriers to be overcome should be identified and addressed within the project. A substantial participation of industry, (which should include SMEs) is strongly recommended.

Funding scheme: Collaborative project (small or medium-scale focused research project)

Additional eligibility criterion: The requested EU contribution must not exceed EUR 2 500 000.

Additional information: Up to 2 projects will be selected.

Expected Impact: Research should lead to new products/services for indoor quality indicator monitoring and to recommendations for regulations and policies addressing indoor environment quality in relation with sustainability and health issues. Projects should lead to the gradual adoption of more energy efficient practices, within the broader framework of indoor environment quality, by providing building users and managers with efficient information and motivation for improvement. Projects should help promote innovation in the design, construction, commissioning and maintenance of buildings across the industry.

Projects should contribute to the EU Energy Performance of Buildings and other relevant policy regulations such as the EU Disability Action Plan or policies addressing social inclusion, health and safety in the working (and living) environment, accessible tourism, etc. Projects should also support the Thematic Strategy on Air Pollution, the Thematic Strategy on Urban Environment, the European Environment and Health Action Plan, the Lead Market Initiative on sustainable construction and/or the European Economic Recovery Plan.

[55] A high quality indoor environment should be safe, healthy, comfortable, and accessible, should prevent accidents, and provide positive stimulation to users, and facilitate independent living and/or participation in society.

EeB.ENV.2011.3.1.5-2 Operational guidance for Life Cycle Assessment studies of the Energy Efficient Buildings Initiative

Environmental Sustainability is a key driver for the EeB PPP. All the technological developments that will be achieved within this joint action will have to be assessed and measured in a consistent and scientifically sound way. In order to achieve these objectives, the environmental gains achieved by the funded projects should be assessed using Life Cycle Assessments done according to the International Reference Life Cycle Data System (ILCD) Handbook. What is needed in the context of this PPP is(are) (i) specific operational guidance(s) that tailor(s) the general ILCD Handbook for application to future products, and (ii) related training material and courses for practitioners in industry. Dissemination of results, in particular to the EeB community and to the projects already selected in the EeB Initiative, is of primary importance for the success of this action. The project will only develop the specific guidance(s) – the actual data collection and execution of the LCA(s) will be subject to separate calls. The project should be planned in order to deliver all results within maximum one year from its starting date.

Funding Scheme: Coordination and Support Action (Supporting Action)

Additional eligibility criterion: The requested EU contribution must not exceed EUR 500 000.

Additional information: Up to 1 project will be selected.

Expected Impact: Increase in the consistency and transparency of the LCA studies carried out on energy efficient buildings and, more in general, on all projects performed within the EeB PPP. Support - of more solid and reproducible data - to environmental and innovation policies in fields related to the EeB PPP (e.g. Building Performance of Buildings Directive, waste Framework Directive, Sustainable and Consumption Action Plan, Environmental Technologies Action Plan, etc).

V.2.4 "Energy-efficient Buildings (EeB)" - Topics covered by the Energy Theme

EeB.ENERGY.2011.8.1-1 Demonstration of very low energy new buildings

Contents/scope: The objective is to demonstrate in the building sector, high energy efficient innovative technologies and measures resulting in very low energy new buildings. The performance calculation should take into account all types of energy use: consumption for space heating and cooling, water heating, air conditioning, as well as consumption of electricity, including lighting. In any case the total annual energy consumption of the building(s) should not exceed 60 kWh/m²/year (primary energy). Both residential and non-residential buildings are addressed.

A systemic approach is expected in the measures to be taken. All elements and systems of the building that could contribute to a better energy efficiency and sustainability through integrated design and planning should be envisaged, including heat recovery technologies and very efficient water/waste management, enhanced systems for energy behaviour monitoring and demand response and load control systems. Building Information Modelling (BIM) and other methods of integrated project delivery should be used. The project shall use innovation in technology, design, planning, operation and/or systems integration.

The construction should be as cost effective as possible. The return on investment for the energy saving measures should be calculated and presented and should be acceptable under current market standards.

The project could contain a single building or a number of buildings, located in one or more countries. In the latter case, the added value of the joint demonstration effort should be clearly described. The effort and budget should be balanced as much as possible amongst project partners. The CO2 and energy savings should be calculated and compared to standard buildings in the respective country.

Detailed information should be provided on the building(s) design, envelope and its/their future energy use. The energy efficiency measures to be applied should also be described extensively. The gross floor area of the building(s) should be specified together with the targeted annual energy use per m2 (kWh/m²/year, broken down by space heating, cooling, domestic hot water heating, electricity (including lighting) consumption etc.).

Additional accompanying measures affecting the future operation of the building (e.g. behavioural changes, post occupancy evaluation, active training of the occupants, training of professionals and architects in view of the replication of the project in other European regions) should be clearly addressed. Social and economic issues should also be addressed. Buildings utilising thermal masses through their architecture while being of high aesthetic quality that people like to live and work in should be envisaged.

The project should have a high potential of replication contributing to large scale market deployment before 2020. An ambitious dissemination and market deployment programme should be included in the proposal. The detailed metering/monitoring programme should last at least for one year, however, longer term commitment and programmes of the building operators (e.g. in continuous monitoring and/or guarantees of performance to the tenants) would give an added value to the proposal.

Funding scheme: Collaborative project with predominant demonstration component

Expected impact:

- Large scale market deployment of very low/zero energy buildings before 2020.
- Cost effective highly energy efficient practices and techniques.
- Acceleration of the market uptake of the most innovative ICT tools for efficient buildings Management.
- Creation of best practice examples for the construction sector based on innovation and competitiveness, with benefits for the inhabitants and the environment.
- Contribution to raise the performance standards and regulations on European, national and local level, in the construction industry and building sector, through the best practice examples.

Additional information: In addition to the ambitious energy efficiency target mentioned above, a significant share of energy supplied by renewable energies integrated in the buildings would give an added value to the proposal during the evaluation.

In addition to the detailed description of the buildings and the measures to be taken, it is strongly suggested for participants to complete and include in the proposals the Building Energy Specification Tables (BEST) summarizing this information for every type of building proposed. The template for the BEST table can be downloaded from the following web address: *ftp://ftp.cordis.europa.eu/pub/fp7/docs/wp/cooperation/energy/e_best_2010_en.xls*

Successful proposals will be asked to follow a common monitoring data structure, using a common methodology, in order to feed the relevant Commission data bases (e.g. CONCERTO data base).

The form of grant is based on additional energy efficiency measures in buildings. The grant will always be composed of a combination of: the typical reimbursement of eligible costs, and flat rate financing determined on the basis of scale of unit costs only for the building-related demonstration activities. The scale of unit cost for European Union financial contribution is fixed at EUR 100 /m² eligible costs and thus EUR 50 /m² European Union contribution. The amounts determined on the basis of the scale of unit costs are reimbursed by applying the upper funding limits specified in Article II.16 of the model grant agreement. Therefore, the reimbursement rate will be up to 50%, i.e. EUR 50/m². The eligible costs per m² for the building demonstrated in the project(s) are fixed costs. The total of European Union financial contribution based on scale of unit costs may not exceed EUR 6 million.

The evaluation of the proposals will also take into account the degree of excellence and innovation of the technology used and the most cost effective practices (euros/efficiency gain; euros/CO_2 reduction, kWh/m²/year saved). For this reason, the above figures should be indicated in the proposal.

Priority will be given to buildings the typology and use of which could be representative for large geographical areas in Europe.

These elements will be assessed during the evaluation.

It is envisaged that up to five projects can be funded.

V.3 'European Green Cars' Public-Private Partnership (GC)- Cross-thematic cooperation between NMP, Environment (including Climate Change), Transport (including Aeronautics) and ICT

The automotive industry is one of Europe's key industrial sectors, whose importance is largely derived from its linkages within the domestic and international economy and its complex value chain. It is estimated to account for close to 8% of total manufacturing value added (ca. EUR 120 billion, 2006) and about 6% of total manufacturing employment (over 2 million employees). The automotive industry also provides an indirect employment to 10-11 million persons and is one of the largest RTD investors in the EU with over EUR 20 billion annually (ca. 5% of its turnover)[56].

The foreseeable shortage in crude oil based energy carriers is driving fears about energy security: 73% of all oil consumed in Europe is used in transport and estimates predict a doubling of passenger cars within the next 20 years. From an environmental and energy point of view there is an urgent need to find alternatives to fossil fuels in order to secure future energy supply, to guarantee the availability of appropriate material recycling technologies, and to reduce greenhouse gas emissions and other potential environmental impacts related to the automotive industry entire life-cycle. It is thus increasingly evident that a particular emphasis should be put on the rapid development of technologies supporting the massive emergence of more efficient and sustainable road transport solutions based on alternative fuels/energy, and on the RTD efforts associated with them.

The *'European Green Cars' PPP Initiative* is a series of measures boosting research and innovation aiming at facilitating the deployment of a new generation of passenger cars, trucks and buses that will spare our environment and lives and ensure jobs, economic activity and

[56] "European industry – a sectoral overview, 2006 update, EC-DG ENTR

competitive advantage to car industries in the global market. A series of different measures are proposed: support to research and innovation through FP7 funding schemes, specific EIB loans to the automotive and other transport industries and its suppliers, in particular for innovative clean road transport, and a series of legislative measures to promote the greening of road transport (circulation and registration taxes, scrapping of old cars, procurement rules, the CARS21 initiative).

Other actions that are very closely related to the 'European Green Cars' Initiative but not formally included in it are being implemented, such as the 'Fuel Cell and Hydrogen' (FCH) Joint Technology Initiative and the road transport projects funded under the FP7 Transport Theme.

The 'European Green Cars' Initiative includes three major research and development avenues within its RTD pillar:

- **Research for heavy duty vehicles based on internal combustion engines (ICE)** [Sustainable Surface Transport sub-theme (SST)]: The research will primarily concentrate on advanced ICE with emphasis on new combustion, the use of alternative fuels (e.g. bio-methane), intelligent control systems, 'mild' hybridisation (use of recuperated electricity to power the auxiliary systems) and special tyres for low rolling resistance.
- **Research on electric and hybrid vehicles**: This component will be the most essential in this package. To have a real impact on the green economy, research in this field should no longer focus on electric vehicle technologies seen in isolation from the rest of the transport system: a massive introduction of the technology requires the availability of smart electricity grids and intelligent vehicle charging systems tailored to customers' needs.
- **Logistics and co-modality** combined with **intelligent transport system** technologies are essential to optimize the overall system efficiency and sustainability avoiding for example that empty trucks circulate on highways due to sub-optimal logistics. In this respect, smooth and co-operative interactions between the different transport modes will be essential.

The 2011 work programme focuses on the second research avenue: electric and hybrid vehicles and their infrastructures. Three groups of topics covering collaborative research activities as well as coordination and support actions are included:

- Materials, technologies and processes for sustainable automotive electrochemical storage applications, jointly implemented between Themes NMP, Transport and Environment.
- Research on electric and hybrid vehicles, implemented through the Sustainable Surface Transport (SST) sub-theme of the Transport Theme.
- Information and Communication Technologies for the fully electric vehicle, implemented through the ICT Theme.

The indicative budget for the "European Green Cars" PPP initiative is EUR 95.75 million in 2011, of which EUR 50.25 million is from the Transport Theme, EUR 10 million from the NMP Theme, EUR 30 million from the ICT Theme, and EUR 5.5 million from the Environment Theme.

V.3.1 "European Green Cars" (GC) – Topics implemented jointly by NMP, Transport (including Aeronautics) and Environment (including Climate Change) Themes.

One of the crucial aspects of research needed for electric and hybrid vehicles related to electrochemical storage. It should concentrate on both: new low cost materials (nickel and cobalt oxides are expensive and their prices are exploding) and on safety problems related to thermal runaway. Research on these issues is multidisciplinary and must involve several Themes to gather specialised knowledge and critical mass in a research field where step changes are needed. Another aspect that will be looked at is the issue of the recycling of batteries at the end of their life cycle and the development of technologies to maximise the recovery of materials, in particular for those of high added-value or presenting high environmental impacts.

The Call is organized jointly by the NMP, Transport and Environment Themes. The indicative budget of the NMP part for this "Green cars" PPP initiative is EUR 10 million in 2011, with the Transport Theme contributing also EUR 10 million, and the Environment Theme contributing EUR 5.5 million. The indicative budget of the Call is therefore EUR 25.5 million.

GC.NMP.2011-1, GC.ENV.2011.3.1.3-1, GC.SST.2011.7-7 Advanced eco-design and manufacturing processes for batteries and electrical components.

Content/scope: Further development and deployment of electrical vehicles call for large scale production of batteries and electrical components with good performances and at the lowest possible cost. Research shall address the whole value chain including the eco-design, assembly/integration and production of batteries and electrical components (motors, battery management systems, etc.). Eco-design should properly account for the relevant dismantling, recycling/disposal, and health and safety aspects of critical materials.

- For near-to-market types of lithium-based batteries, projects should focus on manufacturing processes of cells but also on their integration into manageable battery modules and packs. Advanced manufacturing processes of battery cells, should be flexible enough or reconfigurable to cope with new chemistries. Special attention should be devoted to thermal management systems and safety issues, which are critically dependant on battery system design.
- For electric drivetrains and in particular motors, the main challenge of cost reductions is to be achieved by design improvements in order to produce lighter systems with increased power density, while at the same time taking into account the availability of critical materials and their dismantling/recycling. Projects should not include design or manufacturing of the power chips themselves.

For a significant industrial benefit, it should be possible to integrate the advanced manufacturing tools, methodologies and processes developed within the project into conventional or already existing production lines or, in case of new architectures, include new methodologies. In both cases the projects are expected to cover small-scale production-line demonstrators. The environmental improvements achieved should be proven via ILCD-conform Life Cycle Assessment. The feasibility of the dismantling/recycling process for motors should be proven at least at bench/pilot scale for the most critical materials.

In order to ensure the industrial relevance and impact of the research effort, active participation of industrial partners, including SMEs, components suppliers, electrical vehicle manufacturers and component recyclers, represents an added value to the activities and this will be reflected in the evaluation, under the criteria Implementation and Impact.

The work should be complementary to the objective GC-ICT-2011.6.8 'ICT for fully electric vehicles'.

Funding Scheme: Large scale integrating collaborative projects

Additional eligibility criterion: The EU contribution requested must be greater than EUR 4 million.

Expected impact: Establishing the basis for a world level European automotive battery and electrical components manufacturing industry. In particular production of cells, battery packs, electrical motors and components with the required performances at competitive costs. Reduction of waste production and improvement of resource efficiency through a more efficient recycling of critical materials.

GC.ENV.2011.3.1.3-2 Operational guidance for Life Cycle Assessment studies of the European Green Cars Initiative

Environmental Sustainability is a key driver for the Green Cars PPP. All the technological improvements that will be achieved within this joint action will have to be assessed and measured in a consistent and scientifically sound way. In order to obtain these objectives, the environmental gains achieved by the funded projects should be assessed using Life Cycle Assessments done according to the International Reference Life Cycle Data System (ILCD) Handbook. What is needed in the context of this PPP is(are) (i) specific operational guidance(s) that tailor(s) the general ILCD Handbook for application to future products, and (ii) related training material and courses for practitioners in industry.

The guidance(s) shall also look at items more specific to electric vehicles for a coherent benchmark framework with the other technological options: battery and electric component production process, end of life and recycling, typical vehicle utilization and associated measurement driving cycles, energy interaction between electricity storage systems and the power generation grid, etc. Dissemination of results, in particular to the green cars community and to the projects already selected in the European Green Cars Initiative, is of primary importance for the success of this action. The project will only develop the specific guidance(s) - the actual data collection and execution of the LCA(s) will be subject to separate calls. The project should be planned in order to deliver all results within maximum one year from its starting date.

Funding Scheme: Coordination and Support Actions (Supporting Action)

Additional eligibility criterion: The requested EU contribution must not exceed EUR 500 000.

Additional information: Up to 1 project will be selected.

Expected Impact: Increase in the consistency and transparency of the LCA studies carried out on electric vehicles and, more in general, on all projects performed within the green cars PPP. Support - of more solid and reproducible data - to environmental and innovation policies in fields related to the Green Cars PPP (e.g. End of Life Vehicles, Weee Directive, Sustainable and Consumption Action Plan, SET-Plan, etc)

V.3.2 "European Green Cars" (GC) – Topics covered by the Sustainable Transport (SST) sub-theme of Transport Theme.

GC.SST.2011.7-1 Specific safety issues of electric vehicles

To facilitate widespread customer acceptance and use of Fully Electric Vehicles (FEVs), a series of potentially-critical safety issues specifically need to be addressed. Therefore, an analysis of the consequences of electrification with respect to safety requirements has to be made. In particular, the presence of high voltages and potentially hazardous chemicals necessitate the definition of specific design, usage and rescue guidelines, while the absence of

engine noise requires in-depth assessment regarding interior and exterior acoustic characteristics during normal operation.

Activities will focus on:

- Safe handling, rescue and maintenance including solutions to ensure safe plug-in/re-charging during normal operation, prevention of misuse/abuse, and protection against fire and electric shocks during maintenance and repair or in the event of a crash including rescue and towing operations in the post crash phase.
- Acoustic perception of the FEV, requiring solutions to warn vulnerable road users of the presence of a nearby moving vehicle while providing a means for heightening the awareness of drivers in critical situations. Including the application/adaptation of existing pedestrian protection systems (active safety) to the raised needs.

Different technologies and solutions shall be explored and assessed also from the perspective of overall effectiveness and acceptability, the objective being to develop FEVs which are optimized in terms of both energy efficiency and safety, a fundamental requirement to enable FEVs to become mass products in the future.

Innovative EV specific safety technologies and solutions should eliminate the risk that these new vehicles be perceived as less safe than their current equivalents, thus the safety and energy efficiency of EV use should contribute to more customer acceptance of EVs.

Given the specificity of these subtopics, small, focused projects are encouraged in particular.

The work should be complementary to the objective GC-ICT-2011.6.8 'ICT for fully electric vehicles'.

Funding scheme: Collaborative projects - small or medium-scale focused research.

Expected impact:

The expected impact of the first subtopic should be technologies and procedures that avoid additional casualties to the current level due to electrocution risks. The second subtopic should produce systems and technologies capable of giving effective warning to vulnerable users at a sufficient distance while maintaining the advantages of electric technologies in terms of improving the current road noise environment.

GC.SST.2011.7-2 Integrated thermal management

The challenge of the implementation on a wide scale of electric vehicles needs a high reliability of the electric power train including the battery, the longest possible range of the vehicle and the satisfaction of customers expectations for thermal comfort. Therefore, the thermal management of the power train and of the vehicle itself, which includes heating and cooling aspects, is an integrated important part of the future electrification of vehicles. The goal of these activities is to develop cost efficient and industrially viable integrated thermal systems for long range, reliable and comfortable electric vehicles when no waste heat source is available.

Activities will address:

- Improvement of the efficiency of the thermal control of the energy storage system, independently of the actual ambient temperature, in order to reduce the impact on vehicle range and battery life of extremely cold or high environments.
- Optimization of the impact of the thermal comfort of the users on the overall energy consumption of the vehicle through innovative, light, cost efficient, electronically

controlled materials used in the vehicle and their integration aspects (e.g. new insulating materials, active glazing, local heating, etc.).

- Development of cost effective thermal management systems of the power train including the cooling and heating aspects for the battery and power electronics during charging, operation of the vehicle as well as during parking periods.
- Cooling aspects of the electric motor in combination with a ICE range extender or auxiliaries. This activity includes the integration of the electric motor either with the combustion engine (high temperature), or with the power electronics, battery and air conditioning (low temperature) in one thermal system, and the control and optimization of the heat flows between these elements especially during heating up.

The work should be complementary to the objective GC-ICT-2011.6.8 'ICT for fully electric vehicles'.

Funding scheme: Collaborative projects - small or medium-scale focused research

Expected impact:

- Synergies in terms of energy efficiency, cost, weight, size and robustness due to optimized coolant temperature and heat load timing resulting from the integration of the electric motor with other vehicle functions in one thermal system.
- A substantial reduction of the energy requirement for the cooling, heating and demisting functions with respect to the current state of the art technologies (compressor driven AC and electric resistances)
- A significant weight reduction of the cooling circuits and equipment to achieve the same component level cooling requirements.

GC.SST.2011.7-3 Efficient long distance transport – waste heat recovery

In a current truck engine, more than about 50% of the combustion energy is lost via the exhaust and the heat rejection system. Therefore, reducing this heat loss is a clear target for further fuel consumption reduction. The further development of waste heat recovery systems and, in particular, the associated components, such as the expander (Rankine cycle), advanced heat exchanger and cooling system is therefore needed, including the investigation of more advanced waste heat recovery systems based on thermodynamic cycles (organic/non-organic) or other advanced technologies, excluding thermoelectric devices, already researched in existing projects. The integration of waste heat recovery systems with different degrees of hybridization can also be considered in order to achieve the highest levels of efficiency.

Scope of the work:

- System design for the thermodynamic cycle (organic and non-organic).
- Development of expanders, advanced heat exchangers and working fluids.
- Cooling system and integration, arrangement at the power train and vehicle.
- Development of simulation methods for future adaptation of such a system on the various power trains for heavy duty trucks**.**

Funding scheme: Collaborative projects- small or medium-scale focused research

Expected impact: A minimum 10% fuel consumption reduction at vehicle level (thus including the effect of any weight or performance penalties) should be demonstrated with an initial cost increase recoverable in a 5 year period.

GC.SST.2011.7-4 Urban – interurban shipments

Today, around 80% of the population worldwide lives in urban areas. Urban areas are consequently the hubs of enormous flows of goods and people with the associated problems of congestion, accidents and pollution. To deal with the multitude of challenges, a new concept of Smart Urban Freight Systems and sustainable solution for city based logistics has to be developed. The aim of this topic is to develop a comprehensive approach to provide the overall socio-economic, managerial, technical, environmental balance of such systems. The logistics efficiency changes as well as the environmental effects shall be addressed by an impact assessment e.g. by applying planning and simulation tools.

The following aspects could be addressed and tested:

- New transportation solutions (electrical cars, public transport, etc.).
- New mechanisms for control on ordering, monitoring, supervising and executing city delivery.
- Decoupling of supply lines and distribution activities around cities.
- Optimization of terminals connecting long distance transport and urban distribution.
- Research on urban distribution of goods (delivery systems, delivery routes, last mile logistics organization and operation) to reduce the impact of freight movements on urban resident.
- New regulatory solutions.
- New instruments/technologies for urban freight data collection.
- The transport operation of delivery vehicles within zero-mission zones.
- Collaboration between authorities, transportation providers and major customers.

The proposal should consider previous work on urban freight financed through EU and/or national programmes or even city governments.

Funding scheme: Collaborative projects - small or medium-scale focused research

Expected impact: A more efficient urban freight distribution system and a sustainable European transport and mobility network within urban centres efficiently linked with long distance transportation. The added value of the proposed solutions must be realistically demonstrated on the basis of actual practices and measurable indicators.

GC.SST.2011.7-5 Integrated intermodal traveller services

The aim of the topic is to integrate available traveller information systems for all transport modes (rail, air, road and waterborne) in order to provide and establish an open platform for planning, booking and travelling multimodal journeys. Research should exploit the open platform concept further, and take into account the results of recent FP6 and FP7 projects on transport planning and travel information.

The trips can be long, i.e. from one country to another country, or short, i.e. within a city. The research aims at intermodal management based on up-to-date on-line information. The optimization of transport mode choices and interchanges will be based on real-time and forecast state of public and private transport as well as specific needs of users and service providers, journey purpose, cost and environmental impacts. Integrated travel information services should re-use as much as possible existing information services and allow for

seamless integration of offerings of new and/or niche travel services and information providers.

These integrated travel information services shall ensure co-operation between transportation modes and improve the ability of the system to cope with unexpected scenarios. In particular, research should develop solutions to compensate for a sudden decrease of the traffic capacity in one transportation mode to ensure continuity of mobility services (for example, following unexpected hazards and natural phenomena, such as the recent volcanic ash clouds across Europe).

To ensure a seamless journey, seamless traveller information services are also required. The traveller information services can provide 'early warning' to travellers including regular updates on delays and service disruptions and will thus allow any necessary change of plan according to the actual situation.

The following aspects could be addressed:

- Creation of standardized interfaces to facilitate dynamic data exchanges among different transport modes, air, rail, water and public transport and different operators of these transport modes.
- Development of forecast mechanism to deliver a short term forecast of state of relevant transport modes. The forecast will be based on available information, e.g. weather, road traffic situation and planned large events. The forecast will be used to generate optimized intermodal exchange between different transport modes and different operators based on real-time information and forecasts to ensure a smooth journey.
- Design of standardized approach to deliver cross mode information. The information will be delivered to mobile devices with wireless communication. The information will also be integrated with e-ticket services.
- Development of recommendations on conditions on the availability of data and data exchange (metadata) between different actors.

The research activities should result in fully integrated intermodal transport services with support of traveller information services that are up-to-date, reliable, user-friendly and wide-ranging, as well as covering public transport and non-road modes.

A strong commitment from European and non-European stakeholders including research organizations, transport operators, information providers, industry associations and ITS organizations towards developing a joint platform and sharing information is essential.

Following the conclusions of the SIMBA 2 project, intermodal traveller services have been identified as a common field of research cooperation between Europe, Brazil, China and Russia, with strong commitment from non-European stakeholders, including research organizations, industry associations and ITS organizations. International cooperation is therefore encouraged, in particular with countries which are facing fast growth transport demand and/or advanced multi-modal traveller support systems (Brazil, China and Russia).

The research will support the development of specifications for compatibility, interoperability and continuity of intelligent transport systems in the area of EU-wide traveller information as foreseen by the future new Directive on the Deployment of Intelligent Transport Systems and the activities for the ITS Action Plan.

Funding scheme: Collaborative projects - small or medium-scale focused research for specific cooperation actions (CP-FP-SICA) dedicated to international cooperation partner countries.

Expected impact: Research will increase the acceptance and take up of new fully integrated intermodal traveller services and therefore contribute to a more efficient and safe transport system with reduced CO_2, pollutant emissions and noise.

GC.SST.2011.7-6. Capability of improving and exploiting capacity

Expenditures in logistics at EU level amount at roughly EUR 600 billion per year. If the loading factor in transport could be significantly improved, this would lead to substantial annual savings and contribute positively to sustainable transport. To achieve this, it is essential that a balance is found between two seemingly conflicting dilemmas: on the one hand, the logistic process should have more frequent deliveries in order to deliver goods to the consumers; on the other hand, even very large companies do not carry enough volumes to exploit intermodal transport properly. To achieve a better balance, organizational changes are needed (in addition to those of e-logistic technologies). New ways of cooperation to reorganize and scale-up transport flows to fully exploit the transport capacity have to be found.

The topic aims at providing instruments to stimulate the cooperation between manufacturing and transport industries in the definition of innovative business models and measures, in view of increasing the load factor up to 80%. Models and measures could include share of transport capacity, new schemes of product sourcing, swapping, thus increasing reliability and efficiency of the logistic chain.

Through coordination and networking activities, studies or expert groups the following issues must be addressed:

- Promoting match-making and sharing sustainable logistics knowledge between manufacturing industries and the transport & distribution sector.
- Methodology to calculate revenues and benefits, including a legal framework to split costs and benefits in shared transportation.
- New business models for the entire supply-chain, fully based on the used of co-modality and focusing on the increase of loading factors through new practices, such as company collaboration, customer and product swapping, product sourcing, etc.
- Application and validation of business models on different configurations (supply chain, modes of transport, shippers, types of goods, etc.).

Expected outcomes of this action should be new business models developed by the industries in the direction of collaboration in managing and operating logistics, and to demonstrate - by means of use cases and comparison with baselines - that the practical application of these models improve both quality and performance of the logistics chain, expressed in terms of different indicators, such as load factor, overall costs, energy efficiency, etc.

Funding scheme: Coordination and Support Actions aiming at coordinating research

GC.SST.2011.7-8 ERA-Net Plus 'Electromobility'

Content and scope: The main aim of this ERA-NET Plus is to pool the necessary financial resources from the participating national (or regional) research programmes and the European Union with a view to launching a single joint call for proposals for research projects in the field of Electromobility, which will be evaluated and managed jointly by the participating programmes.

An ERA-NET Plus on Electromobility research should aim at improving the coordination of national research activities and policies in the domain of transport regarding the integration of a sustainable infrastructure for Electromobility in Europe.

The joint call should focus on an interdisciplinary approach to transport research on the specific field of Electromobility.

More information about the ERA-NET PLUS actions (including eligibility criteria) can be found in Annex 4 of the work programme.

Funding scheme: Coordination and Support Actions aiming at coordinating research activities

Expected impact: As a complement to the European Green Car Initiative, a significant participation of the Member States and Associated States in shaping of the European landscape of Electromobility is expected. Better use of scarce resources and the avoidance of double funding. Reduction of fragmentation of research efforts made at national and regional level. The ERA-NET Plus can provide a basis for a long-term platform on Electromobility.

GC.SST.2011.7-9 Efficient long distance transport – future power train concepts (includes: advanced combustion and after-treatment)

The aim of this research is to contribute to the further reduction of the fuel consumption of heavy duty trucks. It is necessary to investigate the engine downsizing potentials, along with the possible integration of hybrid systems for boosting the power for acceleration and starting of heavy duty trucks on a hill. This approach also opens a potential for an emission reduction, due to reduced transient behaviour period of the truck engine. This sector is already facing the forthcoming EU VI emission legislation in 2012 and must therefore look to the further expected steps of regulation. Therefore, this aspect is also part of the objective of these research activities. To meet this challenge, it is necessary to work on the development of improved combustion systems as well as on key components, such as the turbo charging system, the thermal management for the after-treatment system and the efficiency of the Selective Catalytic Reduction (SCR) system. For the realization of this goal, advanced drive train control considering e.g. model based approaches is needed.

Scope of activities:

Engine innovation will include a suitable combination of these activities to demonstrate the expected impacts:

- Down-sizing / down-speeding with advanced turbo-charging.
- Development of a new turbo charger system with higher pressure ratio and wider area of high efficiency.
- Friction reduction: piston, crankshaft camshaft and auxiliaries (oil and water pumps).
- Faster combustion (e.g. high PCP, low EGR rate, VVA), supported by advanced injection strategies, using closed loop functionality as well as high thermal efficiency.
- Advanced air control systems for internal EGR and effective compression ratio management.

After-treatment innovation will include a suitable combination of these activities to demonstrate the expected impacts:

- Reduced thermal losses, with a possible integration of improved exhaust after treatment systems for cold start and transient conditions, considering new catalytic materials.

- Advanced NO_x after-treatment systems: SCR (Selective Catalytic Reduction) systems (e.g. new catalytic materials) and combinations with NO_x trap and particle filters/oxicat, with an additional aim of minimizing the NO_2 fraction in NO_x emissions.
- Heat management for the after-treatment system.

Funding scheme: Collaborative projects - large scale integrating projects

Expected impact: The results of the research will demonstrate a 15% efficiency improvement from the power train, based on Euro 5 power train (without considering the reduction of CO_2 through blending of bio fuels), on the WHTC and the ETC (all emissions should however be tested under both test cycles). At the same time Euro VI emission limits should be met (including measurement according to the forthcoming particle count methodology), with no increase in the NO_2 share of the total engine-out Nox (both of the prototype and of the baseline engine). To ensure real life benefits, improvements should be confirmed with a multiplier for in-use compliance with PEMS testing reduced to 1.25. This activity will lead to new technologies for the next generation of truck power trains.

GC.SST.2011.7-10 Architectures of Light Duty Vehicles for urban freight transport

Electrified vehicles, which may be radically different from conventional vehicles, offer significant new opportunities in terms of functionality and construction whilst enabling further improvement of usability, energy efficiency and manufacturing processes. Whereas the architectures of vehicles currently on the market are constrained by mechanical, thermal and safety considerations due to the presence of the internal combustion engine and its transmission system, in many respects the requirements and constraints of an electrical power train are much less stringent and are yet to be fully exploited. Aiming at turning such innovative vehicles into viable products, novel architectures are needed which explore all the different aspects and requirements emerging from this new paradigm, particularly as concerns light duty vehicles (LDVs) and their usability with respect to mobility and the transportation of goods in the urban environment, e.g. last mile delivery and other applications such as the powering of tools by making appropriate use of the available source of electrical power.

Activities will focus on novel electrified LDV concepts and solutions (conversions and adaptations of existing vehicles and platforms are therefore excluded) to enable gains in their efficiency particularly with regard to:

- Usability in the urban environment.
- Optimized structural layout aiming at improving weight and crashworthiness.
- Modularization of subsystems and standardization of components for low cost and high efficiency.

These concepts should be considered in a holistic way to achieve optimized performance also with respect to safety, EMI/EMC and radiation health impact issues (particularly important given the longer driving time and therefore exposure), maintenance and repair, while exploiting the significant opportunities offered in terms of layout and packaging, functionality, and construction.

The development of complete vehicle concepts is envisioned, projects only dealing with a limited part of the topic are excluded, and a strong industrial participation is recommended in order to maximize the impact.

The work should be complementary to the objective GC-ICT-2011.6.8 'ICT for fully electric vehicles'.

Funding scheme: Collaborative Projects - small or medium-scale focused research.

Expected impact:

The proposal should quantify and demonstrate that the resulting vehicle concept would achieve higher energy efficiency (at least 40% less in terms of primary energy consumption) with respect to best of class vehicles in the same category, while achieving a range adequate to the typical daily urban mission.

GC.SST.2011.7-11 E-freight solutions and supply chain management

The European Commission in its Freight Logistics Action Plan introduces the e-Freight concept. The Freight Logistics Action Plan states the following aim: "To overcome the current and future transport problems Europe's transport system needs to be optimized by means of advanced logistics solutions that can increase the efficiency of individual modes and their combinations". Transport administrations and the business community must share the responsibility for developing a common ICT application or e-freight framework in ways that serve transport policy goals, society's interests and have a convincing business case. From commercial, technical and business perspectives, there is a need for an open and efficient e-freight framework open to all partners in the transport supply chain. It must enable the management of goods movements into, out-of and around the Union that will operate within and across modes. It must be affordable, accessible, reliable, accountable and secure.

The aims of this topic are to:

- Demonstrate the interoperability of a wide range of e-logistic solutions that have been developed recently through various EU funded and national projects.
- Demonstrate that these solutions, while diverse in terms of concepts, information requirements and information management, fill the gap between data availability and data needs throughout the supply chain.

Specific issues to be addressed:

- To demonstrate the SME friendliness, giving SMEs access to easy-to-use and environmentally friendly co-modal transport options.
- To create a solid European transport e-logistic framework, which in its turn is a sound basis for developments on e-customs, e-health, etc.
- To analyse possible new roles, opportunities and responsibilities of stakeholders in respect of accurate data provision and management; or alternatively to describe new transportation business models.
- To develop where needed legal structures and measures required to make the intelligent cargo and supply chain management operate in an efficient, accurate and secure way, protecting users.

Scope:

- Geographically: EU and global transport & distribution.
- Door to door consignments and TEU levels.
- All inland modes, possibly with air transport linking up with IATA business.
- Large stakeholders but also SMEs.

Funding scheme: Collaborative Projects - small or medium-scale focused research

Expected impact:

The demonstration project needs to be of sufficient representative size that convincingly proves the attainability of an open e-freight framework, independent of specific technologies,

and agreed among the stakeholders involved in supply chain management processes. The demonstration project must demonstrate the costs and benefits for the individual stakeholders when participating in such an e-freight framework.

V.3.3 "European Green Cars" (GC) – Topics covered by the ICT Theme.

GC-ICT-2011.6.8 ICT for fully electric vehicles

Full electric vehicles (FEV) means electrically propelled vehicles that provide significant driving range on pure battery based power. It includes vehicles having an on-board fuel based electrical generator (Range Extender based on Internal Combustion Engine or fuel cells).

Projects supported under this objective should advance the research, development and integration of major building blocks of the FEV, and integrate the FEV with infrastructures.

Target outcomes:

a) **Energy/Power Storage Systems**, targeting control system solutions for batteries only as well as batteries and super-capacitors integrated either at a pack-to-pack or at cell-to-cell level. Electronic architectures have to manage optimal charging and discharging rates of the cells in relation to their typology and operating temperatures. Sensors and networking capabilities should be developed for monitoring and controlling the energy/power storage system's efficiency, lifetime, reliability and safety, including monitoring and early warning of fault conditions environmental monitoring, temperature conditioning and shock protection/spark avoidance. Furthermore, high voltage switches and interconnects and system interfaces need to be developed. Electro-chemical material developments are excluded.

b) **Architectures for Energy, Communication and Thermal Management** Energy optimised systems are an essential element to ensure maximum FEV range. With a multiple voltage system, an optimised distribution of functions is necessary:: power-train, bilateral grid connection, on-board energy harvesting, heating and cooling conditioning systems, vehicle stability and comfort, lighting, driving assistance sensors, on board information and entertainment and other auxiliaries. Each layer requires its own optimisation and operated by real-time and fail-safe standard communication to assure the best compromise between safety, driving and comfort.

c) **Vehicle-to-grid Interface (V2G)**
Focus is on connection of the vehicle to the grid by enabling controlled flow of energy and power through safe, secure, energy efficient and convenient transfer of electricity and data. Related issues to consider include E/M compatibility, robustness, reliability, safety, security and impact on health and grid stability. Solutions should be independent of a specific platform, be based on pan-European consensus and conform to interface standards for Smart Grids.

d) **Vehicle Stability Control**

Focus is on control architectures with 2, 3 or 4 electrical motors for stability of the electric power train thus providing safety, comfort and fun-to-drive. Vehicle dynamics simulation and robust E/M compatibility have also to be addressed as well as generic and standardized, safe and redundant bus-based solutions for communication and control. Regenerative breaking, system faults like maximum torque / oscillating torque at a single wheel /two wheels and issues like controlled shut down procedures in case of a crash should be taken into account.

e) **Electric Drive and Electronic Components**

Partitioned and highly efficient power electronics devices, converter and inverter and electrical interconnects that simplify packaging and cooling, EMI-EMC designs, the management of high voltages, currents and temperatures and hardware-in-the-loop technology for algorithm and component testing. Projects should target the level of integration between the drive and the motor while maximising the efficiency of the drive over a wide range of operation of the motor as well as in relation to temperature excursions and voltage variability and fail safe tested components.

f) Integration of the FEV in the cooperative transport infrastructure

ICT-based interaction between the driver, the vehicle and the transport and energy infrastructures, for FEV trip planning and optimization including energy use and charging. In order to compensate for the limited autonomy range, gains in energy efficiency, charging strategies and route optimisation by using of traffic information are needed to turn the FEV into a mass market product. Adaptive strategies, algorithms and operation modes are needed for the charge and discharge management of the FEV's that balance, predict the range and adapt to the energy needs of the user in respect of the properties of vehicle's battery and the grid. Research should also address opportunities for improving energy efficiency provided by automated driving and driver training.

g) Functional Safety and Durability of the FEV

Electrical and electronic components affect vehicle dynamics, safety and durability. Fail-safe concepts are an essential element of the system. Requirements and standards related to electromagnetic compatibility and health impacts of electromagnetic fields should be developed. Continuous improvements are expected against low frequency electromagnetic fields as well as on local sensing of currents and electromagnetic fields, on safe and robust components and subsystems. Research will also address adaptation and improvement of in-vehicle active safety for FEVs, integrated driver-vehicle – infrastructure safety, protection of vulnerable road users, and FEV emergency handling procedures. Moreover, test methods will be required.

h) Coordination and Support Action "FEV made in Europe"

One action for the coordination of a FEV Strategic Research Agenda for ICT, components and systems, for the clustering of R&D projects in the field, and for training, education and dissemination activities. The agenda should also investigate new usages for the FEV (e.g. last mile delivery and mobility for the elderly and disabled); it should cover standardisation measures; it should propose measures for harmonisation of national research policy measures and programmes, and also propose actions for international collaboration. The action should involve relevant electrical vehicle stakeholders.

Funding Scheme: Collaborative projects (STREP) for targeted outcomes a), b), c) and d)

Indicative budget: a),b),c),d): EUR 30 million

Expected impacts:

- Improved energy efficiency and extended driving range of the FEV
- Reduced costs of the electronic components and the overall FEV at increased performance
- Mitigated constrains for the user of the FEV versus the Internal Combustion Engine vehicle
- the FEV seamlessly implemented in the smart grids and existing infrastructure
- Significant improvement of FEV's safety, comfort and new information and comfort services for FEV users.

- Strengthened global competitiveness of the European automobile, ICT and battery sectors. Market penetration of key components of FEVs.

Calls for proposals Public-Private Partnerships

Public-Private Partnership "Factories of the Future" - **Cross-Thematic call implemented between NMP and ICT**

Call title: "Factories of the Future" - 2011

- Call identifier: FP7-2011-NMP-ICT-FoF
- Date of publication: 20 July 2010[57]
- Deadline: 2 December 2010[58] at 17.00.00 (Brussels local time).
- Indicative budget[59] [60]: EUR 160 million from the 2011 budget of which:

  - EUR 80 million from Theme 4 – Nanosciences, Nanotechnologies, Materials & New Production Technologies

  - EUR 80 million from Theme 3 – Information and Communication Technologies (ICT)

- **Topics called:**

Activity/ Area	Topics called	Funding Schemes	Budget (Million EUR)
NMP – Nanosciences, nanotechnologies, Materials and new Production			
FoF.NMP.2011-1	The eco-factory: cleaner and more resource-efficient production in manufacturing	*Collaborative Projects (Large-scale projects)*	*80*
FoF.NMP.2011-2	Cooperative machines and open architecture control system	*Collaborative Projects (small or medium-scale focused research project*)	
FoF.NMP.2011-3	Robots for automation of post-production and other auxiliary processes	*Collaborative Projects (small or medium-scale focused research project*)	
FoF.NMP.2011-4	High-tech solutions in the production processes for customised healthy, green and safe consumer products	*SMEs targeted collaborative projects*	

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

[58] The Director-General responsible may delay this deadline by up to two months

[59] The budget for this call is indicative. The final budget awarded to actions implemented through calls for proposals may vary:

- the final budget of the call may vary by up to 10% of the total value of the indicated budget for the 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

[60] Under the condition that the draft budget for 2011 is adopted without modification by the budgetary authority

FoF.NMP.2011-5	Towards zero-defect manufacturing	*Collaborative Projects (Large-scale projects)*	
FoF.NMP.2011-6	Manufacturing chains for nano-phased component and coatings	*Collaborative Projects (Large-scale projects)*	
ICT – Information and Communication Technologies			
FoF-ICT-2011.7.3	Virtual Factories and enterprises	*Collaborative Projects* (*IP and STREP)*	
FoF-ICT-2011.7.4	Digital factories: Manufacturing design and product lifecycle management **a) and b) targeted outcomes**	*Collaborative Projects* (*IP and STREP)*	
FoF-ICT-2011.7.4	Digital factories: Manufacturing design and product lifecycle management **c) targeted outcome**	*Collaborative Projects (IP and STREP) &* *Coordination and Support Actions (CSA)*	80

- **Eligibility conditions:**

The general eligibility criteria are set out in Annex 2 to this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.

Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

The minimum number of participating entities required, for all funding schemes, is set out in the Rules for Participation: For Collaborative projects, the minimum condition shall be the participation of 3 independent legal entities, each of which is established in a Member State or Associated Country and no two of which are established in the same Member State or Associated Country.

For Coordination and Support Actions, the minimum conditions shall be:

- Coordination and Support Actions – **coordinating actions**: at least 3 independent legal entities, each of which is established in a Member State or Associated Country, and no 2 of which are established in the same Member State or Associated Country.

- Coordination and Support Actions – **supporting actions**: at least 1 independent legal entity.

- **Additional eligibility criteria**

For the following topics, implemented via large scale projects: the **EU funding requested must be greater than EUR 4 million:**

- **FoF.NMP.2011-1** The eco-factory: cleaner and more resource-efficient production in manufacturing;

- **FoF.NMP.2011-5** Towards zero-defect manufacturing;

- **FoF.NMP.2011-6** Manufacturing chains for nano-phased.

For the topics: **FoF.NMP.2011-2** Cooperative machines and open-architecture control systems and **FoF.NMP.2011-3** Robots for automation of post-production and other auxiliary processes, implemented via small and medium scale focused research projects have specific eligibility criteria: the **EU funding requested must not exceed EUR 4 million.**

For the topic: **FoF.NMP.2011-4** High-tech solutions in the production processes for customised , green, safe and healthy consumer products, implemented via SME targeted collaborative projects: SME-targeted Collaborative Projects will only be selected for funding on the condition that the estimated EU contribution going to SME(s) is 35% or more of the total estimated EU contribution. ***This will be assessed at the end of the negotiation, before signature of the grant agreement. Proposals not fulfilling this criterion will not be funded***.

For the ICT topics, each proposal must indicate the type of funding scheme used (IP or STREP for Collaborative Projects where applicable; CA or SA for Coordination and Support Actions). See Appendix 2 to the ICT chapter of the Cooperation work programme for further details.

- **Evaluation procedure:**

A one-stage submission procedure will be followed.

Proposals will be evaluated in a single-step procedure. Proposals could be evaluated remotely with the consensus sessions being held in Brussels.

Each Theme will remain responsible for its own budget and for the implementation of the respective call topics. This includes drawing up ranking lists per Theme and subsequent negotiation and follow-up of the grant agreements resulting from proposals selected under the respective call topics.

For this call the following criteria and thresholds are applied: **1. S/T quality; 2. Implementation; 3. Impact.** For each criterion marks from 0 to 5 will be given, with the possibility of half-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**

Further information on elements to be taken into account in the evaluation is given under the respective topic descriptions.

See also Annex 2: Eligibility, Evaluation criteria for proposals and priority order for proposals with the same score[61].

[61] For the NMP Programme, and in contrast with Annex 2, at Panel stage, the priority order of the proposals with equal overall scores will be established in accordance with 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. If proposals are still tied, they will be prioritised on the basis of the work programme coverage.

Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS.

- **Indicative evaluation and contractual timetable**:

Evaluation of proposals: January 2011. It is expected that the grant agreement negotiations for the shortlisted proposals will start as of March 2011.

- **Consortia agreements**

Consortia agreements are required for *all* actions.

- **Particular requirements for participation, evaluation and implementation:**

As a result of the evaluation, a ranked list of proposals retained for funding will be drawn up by each Theme as well as a reserve list of proposals that may be funded in case budget becomes available during negotiations.

The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.

- **Use of flat rates for subsistence costs**:

For topics FoF.NMP.2011-1, FoF.NMP.2011-2, FoF.NMP.2011-3, FoF.NMP.2011-4, FoF.NMP.2011-5, FoF.NMP.2011-6 and in accordance with Annex 3 to this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

Public-Private Partnership "Energy-efficient Buildings" – Cross-Thematic call implemented between NMP, ICT, ENERGY, and ENVIRONMENT (including Climate Change)
Call title: "Energy-efficient Buildings" - 2011

- Call identifier: FP7-2011-NMP-ENV-ENERGY-ICT-EeB
- Date of publication: 20 July 2010[62]
- Deadline: 2 December 2010[63] at 17.00.00 (Brussels local time).
- Indicative budget[64] [65]: EUR 85.5 million from the 2011 budget of which:

  - EUR 40 million from Theme 4 – Nanosciences, Nanotechnologies, Materials & New Production Technologies

  - EUR 20 million from Theme 3 – Information and Communication Technologies (ICT)

  - EUR 20 million from Theme 5 – Energy

  - EUR 5.5 million from Theme 6 – Environment (including Climate Change)

- **Topics called:**

Activity/ Area	Topics called	Funding Schemes	Budget (Million EUR)
NMP – Nanosciences, nanotechnologies, Materials and new Production			
EeB.NMP.2011-1	Materials for new energy efficient building components with reduced embodied energy	*Collaborative Projects (Large-scale projects)*	*39*
EeB.NMP.2011-2	New efficient solutions for energy generation, storage and use related to space heating and domestic hot water in existing buildings		
EeB.NMP.2011-3	Energy saving technologies for buildings envelope retrofitting		
EeB.NMP.2011-4	Geo-clusters approach to support European energy-	*Coordination and Support Actions (coordinating*	*1*[66]

[62] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication
[63] The Director-General responsible may delay this deadline by up to two months
[64] The budget for this call is indicative. The final budget awarded to actions implemented through calls for proposals may vary:
- the final budget of the call may vary by up to 10% of the total value of the indicated budget for the 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.

[65] Under the condition that the draft budget for 2011 is adopted without modification by the budgetary authority

	efficiency goals	*action)*	
Environment (including Climate Change)			
EeB.ENV.2011.3.1.5-1	Technologies for ensuring, monitoring and/or controlling a high quality indoor environment[67] particularly in relation to energy efficient buildings	*Collaborative Projects (small or medium-scale focused research project*)[68]	*5*
EeB.ENV.2011.3.1.5-2	Operational guidance for Life Cycle Assessment studies of the Energy Efficient Buildings Initiative	*Coordination and Support Actions (supporting action)*[69]	*0,5*
Energy			
EeB.ENERGY.2011.8.1-1	Demonstration of very low energy new buildings	*Collaborative Projects*[70]	*20*
ICT – Information and Communication Technologies			
EeB-ICT-2011.6.4	ICT for energy-efficient buildings and spaces of public use - **a) targeted outcome**	*Collaborative Projects (STREP only)*	*19*
EeB-ICT-2011.6.4	ICT for energy-efficient buildings and spaces of public use - **b) targeted outcome**	*Coordination and Support Actions (CSA)*	*1*

- **Eligibility conditions**

The general eligibility criteria are set out in Annex 2 of this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.

[66] In the case the budget of 1 million for the topic **EeB.NMP.2011-4** cannot be consumed (totally or partially) the remaining budget will allocated to the NMP topics in the area of the Energy Efficient Buildings.

[67] A high quality indoor environment should be safe, healthy, comfortable, and accessible, should prevent accidents, and provide positive stimulation to users, and facilitate independent living and/or participation in society.

[68] Maximum requested EU contribution per project: EUR 2 500 00. Up to two projects can be funded

[69] Maximum requested EU contribution per project: EUR 500 00. Up to one proposal can be funded

[70] Up to 5 projects can be supported

Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

The minimum number of participating entities required, for all funding schemes, is set out in the Rules for Participation: For Collaborative projects, the minimum condition shall be the participation of 3 independent legal entities, each of which is established in a Member State or Associated Country and no two of which are established in the same Member State or Associated Country.

For Coordination and Support Actions, the minimum conditions shall be:

- Coordination and Support Actions – **coordinating actions**: at least 3 independent legal entities, each of which is established in a Member State or Associated Country, and no 2 of which are established in the same Member State or Associated Country.

- Coordination and Support Actions – **supporting actions**: at least 1 independent legal entity.

- **Additional eligibility criteria**

For the following topics, implemented via large scale integrating projects: the **EU funding requested must be greater than EUR 4 million:**

- EeB.NMP.2011-1 Materials for new energy efficient building components with reduced embodied energy;

- EeB.NMP.2011-2 New efficient solutions for energy generation, storage and use related to space heating and domestic hot water in existing buildings;

- EeB.NMP.2011-3 Energy saving technologies for buildings envelope retrofitting.

For the following topic, implemented via small or medium-scale focused research projects: **EU funding requested must not exceed EUR 2.5 million:**

- EeB.ENV.2011.3.1.5-1 Technologies for ensuring, monitoring and/or controlling a high quality indoor environment[71] particularly in relation to energy efficient buildings.

For the following topic, implemented via coordination and support action (supporting action): **EU funding requested must not exceed EUR 0.5 million:**

- EeB.ENV.2011.3.1.5-2 Operational guidance for Life Cycle Assessment studies of the Energy Efficient Buildings Initiative.

For the ICT topic **EeB-ICT-2011.6-4**, each proposal must indicate the type of funding scheme used - CA or SA for Coordination and Support Actions. See Appendix 2 to the ICT chapter of the Cooperation work programme for further details.

- **Evaluation procedure**

A one-stage submission procedure will be followed.

Proposals will be evaluated in a single-step procedure. Proposals could be evaluated remotely with the consensus sessions being held in Brussels.

Each Theme will be responsible for its own budget and for the implementation of the respective call topics. This includes drawing up ranking lists per Theme and subsequent negotiation and follow-up of the grant agreements resulting from the proposals selected under the respective call topics.

[71] A high quality indoor environment should be safe, healthy, comfortable, and accessible, should prevent accidents, and provide positive stimulation to users, and facilitate independent living and/or participation in society.

For this call the following criteria and thresholds are applied: **1. S/T quality; 2. Implementation; 3. Impact.** For each criterion marks from 0 to 5 will be given, with the possibility of half-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**

Further information on elements to be taken into account in the evaluation is given under the respective topic descriptions.

See also Annex 2: Eligibility and evaluation criteria for proposals and priority order for proposals with the same score[72].

Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS.

- **Indicative evaluation and contractual timetable**:

Evaluation of proposals: January 2011. It is expected that the grant agreement negotiations for the shortlisted proposals will start as of March 2011.

- **Consortia agreements**

Consortia agreements are required for *all* actions.

- **Particular requirements for participation, evaluation and implementation:**

As a result of the evaluation, a ranked list of proposals retained for funding will be drawn up by each Theme as well as a reserve list of proposals that may be funded in case budget becomes available during negotiations.

The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.

For topic **EeB.ENERGY.2011.8.1-1** the following applies:

- Successful proposals will be asked to follow a common monitoring data structure, using a common methodology, in order to feed the relevant Commission data bases (e.g. CONCERTO data base).
- The form of grant applied for 'Energy efficiency in Buildings' is based on additional energy efficiency measures in buildings. The grant will be composed of a combination of:
    - the typical reimbursement of eligible costs, and
    - flat rate financing determined on the basis of scale of unit costs for the demonstration part of the project.

[72] For the NMP Programme, and in contrast with Annex 2, at Panel stage, the priority order of the proposals with equal overall scores will be established in accordance with 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. If proposals are still tied, they will be prioritised on the basis of the work programme coverage.

- For the flat rate financing, the unit value of the European Union's financial contribution is fixed to an eligible cost of EUR 100 /m² eligible costs and thus to a European Union contribution of EUR 50 /m².
- The total of the European Union financial contribution based on flat rate financing may not exceed EUR 6 million.
- The evaluation of the proposals will also take into account the degree of excellence and innovation of the technology used and the most cost effective practices (euros/efficiency gain; euros/CO_2 reduction, kWh/m²/year saved). For this reason, the above figures should be indicated in the proposal.

- **Use of flat rates for subsistence costs**:

For topics EeB.NMP.2011-1, EeB.NMP.2011-2, EeB.NMP.2011-3, EeB.NMP.2011-4, EeB.ENV.2011.3.1.5-1, EeB.ENV.2011.3.1.5-2 and EeB.ENERGY.2011.8.1-1 and in accordance with Annex 3 to this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: *http://cordis.europa.eu/fp7/find-doc_en.html* under 'Guidance documents/Flat rates for daily allowances'.

Public-Private Partnership "Green Cars": Cross-Thematic call jointly implemented between NMP, ENVIRONMENT (including Climate Change), and TRANSPORT (including Aeronautics)

Call title: Sustainable automotive electrochemical storage

Call identifier: FP7-2011-GC-ELECTROCHEMICAL-STORAGE

Date of publication: 20 July 2010[73]

Deadline: 2 December 2010[74] at 17.00.00 (Brussels local time).

Indicative budget [75] [76]**:** EUR 25.5 million from the 2011 budget of which:

- EUR 10 million from Theme 4 – Nanosciences, nanotechnologies, materials and new production technologies (NMP)
- EUR 5.5 million from Theme 6 – Environment (including Climate Change)
- EUR 10 million from Theme 7 – Transport (including Aeronautics).

The budget for this call is indicative. The final budget of the call may vary by up to 10% of the total value of the indicated budget for the call.

In case the budget can not be consumed (totally or partially), the remaining budget will be returned to each FP7 theme according to its respective contribution.

Topics called

The topic on **Advanced eco-design and manufacturing processes for batteries and electrical components** is identical in each theme. Hence, each proposal must be submitted only **once** either to topic GC.NMP.2011-1 or to topic GC.ENV.2011-3.1.3-1 or topic GC.SST.2011-7.7, **but not to all.**

<table>
<tr><th>Activity/ Area</th><th>Topics called</th><th>Funding Schemes</th><th>Budget
Million EUR</th></tr>
<tr><td>GC.NMP.2011-1</td><td rowspan="3">– Advanced eco-design and manufacturing processes for batteries and electrical components</td><td rowspan="3">Collaborative projects (Large-scale projects)</td><td rowspan="3">25.5</td></tr>
<tr><td>GC.ENV.2011-3.1.3-1</td></tr>
<tr><td>GC.SST.2011-7.7</td></tr>
<tr><td>GC.ENV.2011-3.1.3-2[77]</td><td>- Operational guidance for Life Cycle Assessment studies of the European Green Cars Initiative</td><td>Coordination and support action (Supporting action)</td></tr>
</table>

- **Eligibility conditions:**

[73] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.
[74] The Director-General responsible may delay this deadline by up to two months.
[75] A single reserve list will be constituted if there are a sufficient number of good quality proposals. It will be used if extra budget becomes available.
[76] Under the condition that the draft budget for 2011 is adopted without modification by the budgetary authority.
[77] Up to one project can be funded

The general eligibility criteria are set out in Annex 2 to this work programme, and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.

Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

The minimum number of participating entities required, for all funding schemes, is set out in the Rules for Participation: For Collaborative projects, the minimum condition shall be the participation of 3 independent legal entities, each of which is established in a Member State or Associated Country and no two of which are established in the same Member State or Associated Country

For Coordination and Support Actions, the minimum conditions shall be:

- Coordination and Support Actions – **coordinating actions**: at least 3 independent legal entities, each of which is established in a Member State or Associated Country, and no 2 of which are established in the same Member State or Associated Country.

- Coordination and Support Actions – **supporting actions**: at least 1 independent legal entity.

- **Additional eligibility criterion:**

For the topic **Advanced eco-design and manufacturing processes for batteries and electrical components,** implemented via large scale collaborative projects: **the EU funding requested must be greater than EUR 4 million**.

For the topic: **Operational guidance for Life Cycle Assessment studies of the European Green Cars Initiative,** implemented via coordination and support action (supporting action): **the EU funding requested must not exceed EUR 500 000.**

- **Evaluation procedure:**

A one-stage submission procedure will be followed.

Proposals will be evaluated in a single-step procedure. Proposals could be evaluated remotely with the consensus sessions being held in Brussels.

For this call the following criteria and thresholds are applied: **1. S/T quality; 2. Implementation; 3. Impact.** For each criterion marks from 0 to 5 will be given, with the possibility of half-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**

Further information on elements to be taken into account in the evaluation is given under the respective topic descriptions.

Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS.

- **Indicative evaluation and contractual timetable**:

Evaluation of proposals: January 2011. It is expected that the grant agreement negotiations for the shortlisted proposals will start as of March 2011.

- **Consortia agreements**

Consortia agreements are required for Collaborative projects.

- **Particular requirements for participation, evaluation and implementation:**

As a result of the evaluation, a single ranked list of proposals retained for funding will be drawn up as well as a single reserve list of proposals that may be funded in case budget becomes available during negotiations.

The forms of grants and maximum reimbursement rates which will be offered are specified in Annex 3 to the Cooperation work programme.

- **Use of flat rates for subsistence costs**:

In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.