

FP7 Transport Call IV

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EUROPEAN
COMMISSION

Community research



Group of Topics 2

Eco-innovations in shipbuilding and waterborne transportation



Eco-innovations in shipbuilding and waterborne transportation



Background

- Europe can only survive if it concentrates on high technology added value solutions
- Eco-innovations can provide decisive competitive advantage to European industries in view of increasing international legislation concerning maritime environmental activities
- Eco-innovations address CO₂ emissions reduction, towards step changes.

TOPICS describe the work content to be addressed by proposals [Surface Transport definition]

– **Level 1 (generic):**

- Define broad fields of activity
- Implemented with some degree of flexibility
- Not all subjects need to be addressed

- **Level 2 (specific):**

- Mission oriented
- Explicit in their formulation
- Mostly specific to one mode
- All aspects must be addressed

FUNDING SCHEMES



- **Collaborative Projects CP**
 - Large scale integrating projects (CP- IP)
EC Contribution > 3 M€
 - Small or medium-scale focussed research project (CP-FP)
EC Contribution < 3 M€
- **Coordination and Support Action CSA**
 - Coordination (or networking) actions (CSA - Coordination)
 - Support actions (CSA - Support)

Waterborne Eco Innovation



Topics Overview

Waterborne Eco Innovation 26 M€

Activity 7.2.1 GREENING

3 topics: 2 CP-FP - level 1 & 1 CP-IP - level 2;

Activity 7.2.5 COMPETITIVENESS

3 topics: 1 CA, 1 CP-FP - level 2, 1 SA

❑ TOPIC –SST.2011.1.1-1 CP-FP - level 1

Green retrofitting through optimisation of hull-propulsion interaction.

- ❑ Objective: To increase efficiency & reduce emissions through solutions that improve hull propulsion interactions and can be fitted to existing ships.
- ❑ Coverage: towards improved energy performance and retrofitting:
 - ❑ Develop tools to determine environmental, energy and operational benefits, including remaining vessel life cycle for various service profiles
 - ❑ Develop tools for structural and technical assessment of retrofitting possibilities, including safety, vibration and noise.
 - ❑ Develop innovative solutions to improve propulsion efficiency of existing ships and reduce emissions.
 - ❑ Analysis of prime factors affecting energy consumption
 - ❑ Optimise hull propulsion interaction of existing ships
 - ❑ Cost effective innovative solutions for retrofitting (tools, down time environment, surface protection, processes).
 - ❑ Develop best practices and test optimal cooperation scenarios between actors to optimise retrofitting processes.
- ❑ Compatibility expected with tools included in topic SST.2010.1.1-2

❑ TOPIC –SST.2011.1.1-2 CP-FP - level 1.

Retrofitting of existing ships with green technologies.

- ❑ Objective: Develop and validate new and combined solutions to reduce the environmental and climate change footprint of existing ships.
- ❑ Coverage:
 - ❑ Identification, develop methods and assess green technologies and components (not hull/propulsion).
 - ❑ Taking into account new and expected legislation, develop tools and methods for life cycle optimised solutions considering; the condition of the ship for retrofit, remaining components and new components.
 - ❑ Decision support for emission control and energy optimisation in ship operations, including ship, environment and service parameters.
 - ❑ Integrated with other systems, innovative waste management solutions that use waste as an energy source.
 - ❑ Green concepts, processes, support tools and equipment for retrofitting and/or direct plug in technology to reduce ship lay off time.
 - ❑ Develop tools to monitor and manage retrofitted performance throughout its life cycle.
- ❑ Compatibility expected with tools included in topic SST.2010.1.1-1

❑ TOPIC –SST.2011.1.1-3 CP-IP - level 2

Towards zero emission marine engines



- ❑ Objective: Develop marine engines with even higher efficiency, lower emissions, better reliability and longer life.

- ❑ Coverage:
 - ❑ Advanced engine development
 - ❑ Combustions concepts, fuel nozzle modelling and validation, multi-fuel and advanced turbo charging.
 - ❑ Optimised ship energy management:
 - ❑ Computer based optimization, including thermal process adaption, propulsion integration-including energy usage and storage
 - ❑ Advanced adaptive engine control for extreme operation.
 - ❑ Integration of sequential after treatment, towards near zero emissions.
 - ❑ Technology and materials to improve performance
 - ❑ Friction investigation, new material application, engine health monitoring.

❑ TOPIC –SST.2011.5.2-1 Co-ordination Action

Strengthening the European maritime sector competitiveness.



❑ Objective:

- ❑ Develop, implement and sustain the knowledge triangle (*research, innovation, education*) developed inside the Waterborne Technology platform.
- ❑ Develop a strategic road map that ensures sufficient skills in Europe and timely, adequate connection between research and innovation.
- ❑ Provide a model for partnerships in the waterborne sector concerning specific innovation opportunities.

❑ Coverage:

- ❑ Develop tools and/or services to; identify innovation demand & feed back mechanisms, results of research suitable for innovation.
- ❑ Identify key competences in the waterborne sector and training needs
- ❑ Elaborate the SRA, & roadmap of “Waterborne” towards innovation and education and how this could be integrated in a “Waterborne” SRA & road map
- ❑ Elaborate a model for partnerships in the waterborne sector concerning innovation opportunities- optimising use of national and EU funding instruments.

❑ TOPIC –SST.2011.5.2-3 CP-FP - level 2

Cost Effective Modernisation of the inland fleet for freight transport.



- ❑ Objective: Modernisation of the inland fleet to improve the economic and ecological performance of inland waterways transport. Meeting the challenges of an over aged fleet, climate change and stronger environmental objectives through cost effective retrofit concepts and alternate propulsion systems.

- ❑ Coverage:
 - ❑ Modernisation of the inland with a focus on existing vessels and transfer technology from other transport modes.
 - ❑ Further improvement of energy and environmental efficiency.
 - ❑ Short, mid term & post fossil fuel
 - ❑ Adaption to regulatory needs (ADN) concerning transport of hazardous goods.
 - ❑ Modernisation of existing vessels based on research, technology transfer and a holistic approach concerning tools, identification of ship types, and service needs.
 - ❑ Cost effective retrofit concepts for carrying hazardous goods.
 - ❑ Assessment of retrofit concepts, considering life cycle.
 - ❑ Cost effective solutions to reduce energy demand, engine efficiency, alternate/renewable energy, energy recovery and energy management
 - ❑ Real scale demonstration platforms.

- ❑ TOPIC – SST.2011.5.2-4, Support Action
- ❑ Exploring and fostering international collaboration in the waterborne transport sector.

- ❑ Objective: Foster international cooperation for research and innovation in the waterborne sector. In particular with Russia and Brazil with a view to improve the quality of maritime products and services, in particular regarding environmental and safety aspects.

- ❑ Coverage:
 - ❑ Identification of actors, competencies and interests in maritime research for Brazil, Russia and Europe towards, greener, safer competitive ships.
 - ❑ Elaboration of roadmaps with concepts for closer cooperation.
 - ❑ Elaboration of scenarios and schemes for cross fertilisation in the domain of maritime education and training.
 - ❑ Organisation of a conference on International collaboration in the waterborne sector.

SST.2011.7.2.8. 'THE OCEAN OF TOMORROW' – JOINING RESEARCH FORCES TO MEET CHALLENGES IN OCEAN MANAGEMENT

*Joint Call with Food, Agriculture and Fisheries, and Biotechnology;
Environment; and Energy themes*

- Multi-use offshore platforms
- Marine microbial diversity
- Assessing and predicting the combined effects of natural and human-made pressures in the Mediterranean and the Black
- Knowledge-base and tools for regional networks of MPAs, integrated management of activities together with assessment of wind energy potential in the Mediterranean and the Black Sea

OCEAN.2011-1. Multi-use offshore platforms



❑ Objective:

- ❑ to develop novel innovative designs for multi-use offshore platforms and assess the technical, economical and environmental feasibility of constructing, installing, operating, servicing, maintaining and decommissioning together with the related transport aspects.

❑ Coverage:

- ❑ The platforms shall target ocean renewable energy and in particular offshore wind, aquaculture and the related transport maritime services.
- ❑ The work shall determine the optimal locations for multi-use offshore platforms taking into account renewable (in particular wind) energy resources, appropriate aquaculture, transport issues, and other platform-related activities including accessibility and possible use as offshore terminals.

Up to 3 projects may be funded under the total budget of the topic (€ 14 million) in order to allow various designs to be tested while maintaining critical mass and ensure complete coverage of the topic.



Advice and Assistance in the UK



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