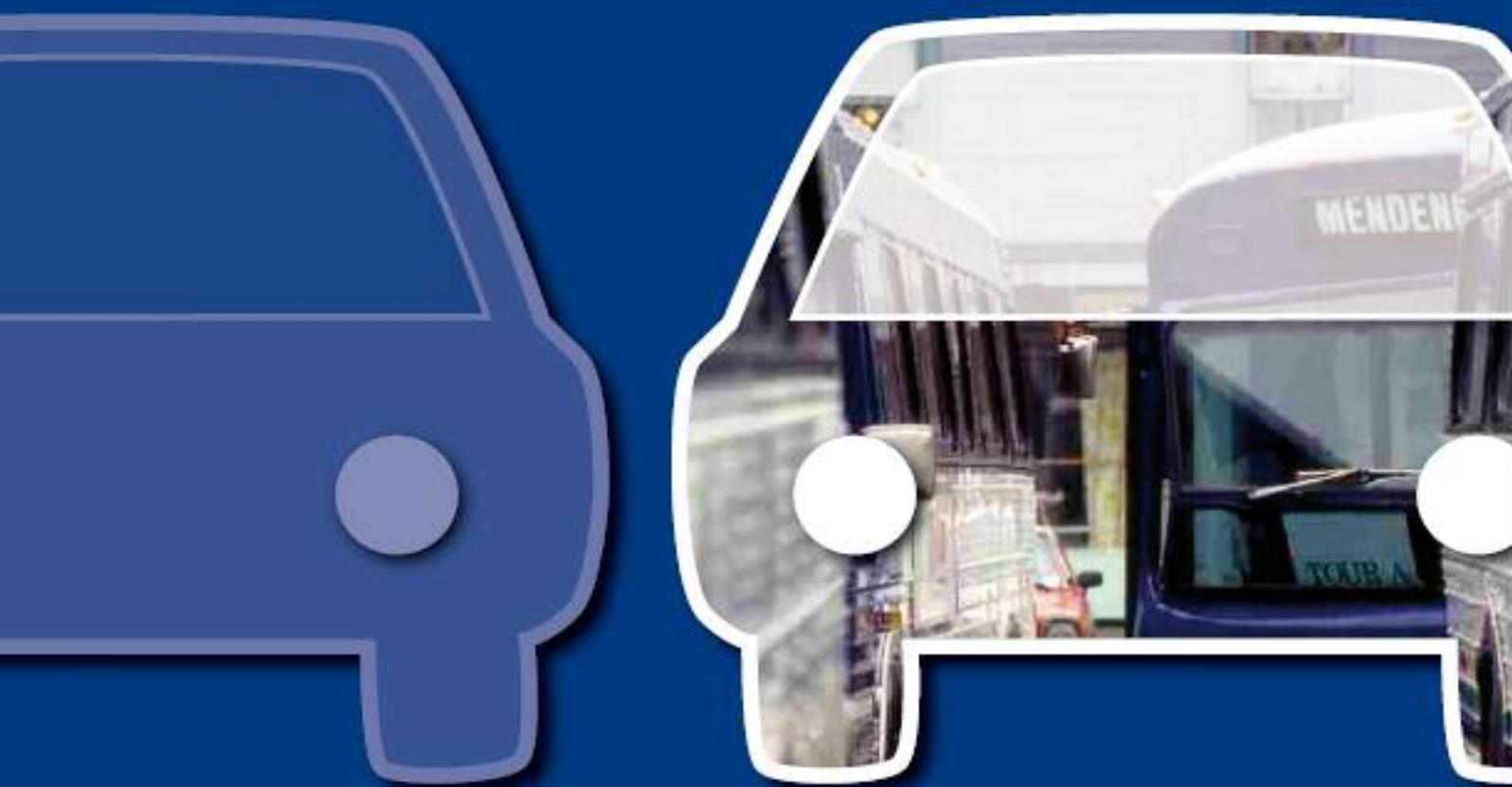


# Background document





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## 1 Introduction

### 1.1 Purpose and contents

The purpose of this background document is detail the main principles of the Biofuel Cities European Partnership (BCEP). In this way, this document serves as the foundation for building and maintaining the partnership. It also allows anyone interested to give feedback.

In order to detail the main principles of the BCEP, this document will answer the following questions:

- For who** - Who can profit from this partnership e.g. who is the target group?
- What** - What does the partnership provide for this target group or, in other words, which are the functions of the Partnership?
- How** - How (by which steps, in which time frame) will this be realised?

The target groups will be described in Chapter 2, the functions of the BCEP are given in Chapter 3, and a description on how this will be realised is given in Chapter 4.

Before doing so, two notes are added. The first is that this work (the background document, the work described in Chapter 4) is part of a European project under the EU Sixth Framework programme. A short explanation of this project is given in paragraph 1.3. The second important note is that the current version of the Background document is the first version before it is distributed to future users of the BCEP (the target group). The comments and feedback from the future users will be incorporated into a next version of this document to be called "Biofuel Cities – framework document".

### 1.2 Objectives of the Biofuel Cities project

The aim of the project will be to develop a European Partnership to demonstrate the broadscale use of new and innovative technologies covering the complete chain from feedstock to biofuels production, distribution and utilisation in vehicle fleets. This partnership will be a platform, allowing organisations (local governments, companies, institutions and other stakeholders) that work on biofuels, or are interested to work with biofuels, to find and exchange information, find partners and start new initiatives.

In addition to building a European Partnership, the project aims to assess and monitor the progress of biofuel projects and assess the local sustainable mobility policies. These actions will support the European Partnership.

These aims will involve providing a framework for assessing and monitoring what is happening and what are the potentials in the field of biofuels as well as developing an exchange network and dissemination of results of work undertaken in this field.

New and existing projects on biofuels will be invited to be part of Biofuel Cities, in order to coordinate efforts and actively contribute to reaching the targets of Directive 2003/30/EC.

Examples of the uses of the European Partnership are:

- Find and share new and existing information on the current status of biofuels development, available from studies, projects and policy.
- Find and share new and existing practical guidelines and experiences from different stakeholders, e.g. local authorities.
- Assist in mainstreaming and raising the level of awareness of the benefits and use of biofuels.



- Find and build new partnerships such as:
  1. Partnerships with similar types of organisation, e.g. to form stronger consortia for the definition of (quality) standards or for the purchase of energy efficient vehicles;
  2. Regional whole project chain-covering partnerships for the development of sustainable systems in the concerned regions;
  3. New partnerships between local governments, as well as with local industries, small and medium enterprises (SMEs) and agricultural structures - to ensure the establishment of a favourable local framework, reduce investment risks through cooperation, achieve critical mass, etc., thus lowering (risk) costs and improving quality. These new partnerships can be sector based, whole-chain based, regional based and/or policy based;
  4. New partnerships between national, provincial and/or local governments, to develop joint policy approaches and instruments, which might assist in harmonising the European market,
- Encourage new biofuels initiatives and physical measures as a result of participating in the European Partnership.

### 1.3 Background to the underlying EU project

This background document is one of the first results of the EU co-ordinated action project “Biofuels Cities”<sup>1</sup>. This project has started mid-2006 and aims to build a **Biofuel Cities European Partnership** (BCEP). This partnership will be a platform, allowing organisations (local governments, companies, institutions and other stakeholders) that work on biofuels<sup>2</sup>, or are interested to work with biofuels, to find and exchange information, find partners and start new initiatives.

The European project, under the EU Sixth Framework programme (6FP), will run for three years and has partners from six European countries. More information on this project can be found on the website of the BCEP: [www.biofuelcities.eu](http://www.biofuelcities.eu).

In addition to building the BCEP and supplying information and exchange opportunities the project will assess and monitor the progress of biofuel projects and assess local sustainable mobility policies, by:

- Validation of results, dissemination and awareness-raising activities on biofuel initiatives among local governments, closely related to an identification of the local needs, possibilities and bottlenecks.
- Independent monitoring of demonstration activities and practical project progress within cities. Based on this, the European stakeholders and the European Commission will be advised on the progress of the implementation of biofuels.

The initiative to come to a Biofuel Cities coordinated action was taken by the European Commission in a 2004 call for projects with the Sixth Framework Programme. This call should be seen against the background of developments in alternative motor fuels. Information on both is given in Appendix A.

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<sup>1</sup>: The name of the partnership, Biofuel Cities, does not in the first place refer to the cities that are one of the major stakeholders. All municipalities (large and small), and companies like fleet owners are examples of major stakeholders. The name Biofuel Cities refers to the virtual city that will be created to form the basis structure supporting the European Partnership. In the research process it will be checked whether these potential stakeholders agree that a multi-functional web-site is a preferred way of information exchange.

<sup>2</sup>: This can be any part of the complete biofuel chain from feedstock to biofuels production, distribution and utilisation in vehicle fleets. It is expected that among the stakeholders there will be particular interest in higher blends of biofuels in petrol and diesel than present biofuel blends which are max 5% by volume in most European countries.



## 2 Biofuel Cities target groups

This Chapter details the groups of persons and organisations that can profit from the Biofuel Cities project. The list of target groups is extensive, and therefore a subdivision is made in this chapter. Firstly looking into different biofuel markets, secondly following the biofuel supply chain.

### 2.1 Target groups distinguished by biofuel market

Looking at current developments on the European market for fossil fuels and biofuels, the following two biofuel markets can be distinguished:

#### 1. Low percentage blends of biofuels in regular fossil fuels

In a number of countries increasingly large volumes of biofuel are sold in the traditional fuel markets (with consumers often unaware of using biofuels), by blending biofuel components in regular petrol or diesel. This market is driven by tax exemptions and/or biofuel obligations. The main biofuels blended with fossil fuels are biodiesel (FAME<sup>3</sup> fulfilling the EN 14214 standard from CEN), bio-ethanol and ethyl-tertiary-butyl-ether (ETBE) produced with bio-ethanol (both based on EN 15376).

Companies involved in these markets are oil companies and producers of biodiesel, ethanol and ETBE. Also vehicle manufacturers, national and EU governments, standardisation institutes and R&D organisations are involved when it comes to the corresponding tax exemptions, biofuel obligations and fuel quality standards.

#### 2. Pure or nearly pure biofuels, special blends of biofuels (e.g. ethanol in diesel)

In some countries pure biofuels or nearly pure biofuels have been introduced in the market quite successfully. Examples of pure biofuels are pure biodiesel (B100), pure plant oil (PPO) and biogas, the latter replacing natural gas as a fuel. An example of a nearly pure biofuel is E85<sup>4</sup>. In comparison with the market for blended biofuels, the market for (nearly) pure biofuels is smaller, and can be considered to be more innovative as for most of these fuels (PPO, E85, biogas) cars have to be modified before being able to use the fuel, and as the market for these fuels is in practice often a local rather than a national market. Another difference is that in this non-regular market, the users of the fuel are very aware of using a biofuel and of advantages and disadvantages that come with the use of thereof.

As a result, this market is characterised by many relatively small initiatives by local governments, fleet owners and private persons. The companies and organisations involved in this market for pure or nearly pure biofuels are local governments and commercial fleet owners, as well as small companies and individuals that aim for innovations in (bio)fuel distribution and use. National governments and vehicle manufacturers are also involved as they set financial, legislative and technical boundary conditions.

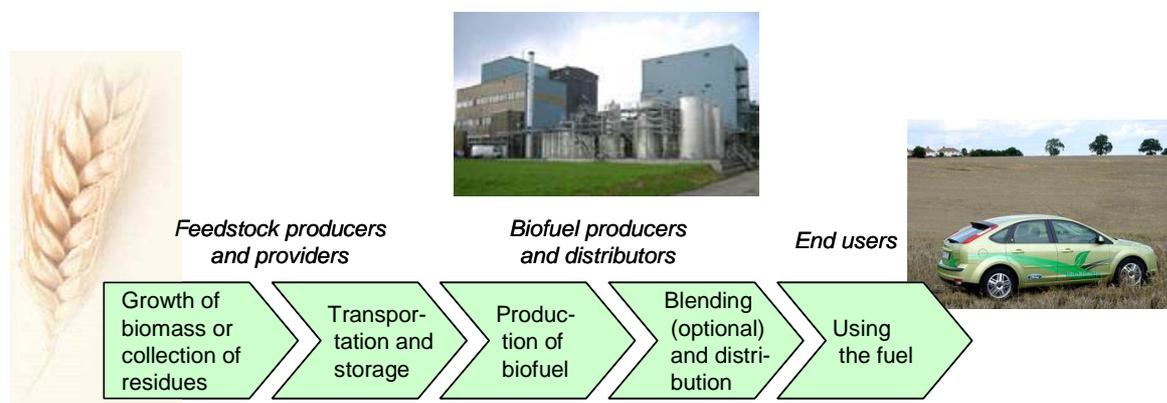
<sup>3</sup> Fatty acid methyl ester, an esterified vegetable oil

<sup>4</sup> E85 is a blend of 70 to 85% ethanol with petrol, for which also a CEN specification exists (CWA 15293), that can be used by non-regular, adapted cars mostly called flexible fuel vehicles.



## 2.2 Target groups distinguished by biofuel supply chain

Target groups can be subdivided following the chain of supply of biofuels. In a simple way this can be represented as follows:



This subdivision leads to three basic target groups being:

1. Feedstock producers and providers;
2. Biofuel producers and distributors; and
3. End-users.

A fourth basic target group consists of the organisations that are working on biofuels but are not involved in the primary chain of biofuel supply, we will call this group:

4. Biofuel frame workers

The following organisations can be considered target groups:

Target group	Description	Examples
<b>1. Feedstock producers and providers</b>		
1.1	Agricultural producers & cooperatives	Producers of feedstock like wheat, rape seed, sugar beet.
1.2	Industries that collect or trade feedstock for biofuels	Collection of residues like used frying oil Trade and stock of bulk products like wheat
<b>2. Biofuel producers and distributors</b>		
2.1	Biofuel industry & plant manufacturers	Companies producing e.g. ethanol, biodiesel, ETBE Companies making biofuel production plants
2.2	Oil industry	Oil companies that blend and distribute (bio)fuels
2.3	Biofuel distributors	Companies specialised in logistics & supply-chain, like import, blending and storage of vegetable oils, FAME or fuel ethanol
2.4	Fossil fuel distributors	Companies specialised in logistics & supply-chain, import and storage etc. of automotive <sup>5</sup> fuels.
<b>3. End-users &amp; automotive industry</b>		
3.1	General public (car owners)	
3.2	Industrial & commercial end-users (fleet owners)	Commercial owners of vehicle fleets that (can) use biofuels
3.3	Local & regional governments (fleet owners)	Public owners of vehicle fleets that (can) use biofuels. Departments, e.g. purchasers, transport, climate, energy, land-use planning, estates, environment, sustainability, ..
3.4	Agricultural end-users	Farmers and agricultural contractors owning machinery
3.5	Public transport organisations	
3.6	Automobile, car & marine engine industry & suppliers (OEMs)	Vehicle manufacturers

<sup>5</sup> For the benefit of this document automotive includes light and heavy duty engines, road and non-road, plus other transport (ships, trains) of fuel systems (heating, power generation) that use regular fuels.



<b>4. Biofuel framework actors</b>		
4.1	European-level bodies & legislation	EU institutions, DGs, European agencies & networks
4.2	National governments & legislation	Ministries, departments, agencies, parliamentary groups
4.3	Local & regional governments & legislation	
4.4	Finance & banking sector, investors & insurance	.
4.5	Research & development institutes	Academic and research community, scientists, designers, etc
4.6	Standardisation agencies	International, national
4.7	Non-governmental organisations	
4.8	Associations & pressure groups	Sustainability and others e.g. WWF or automobile associations, municipal associations, ..
4.9	Consultants	
4.10	Media	(Special group itself related to the other target groups, as recipient and multiplying provider, of information)
4.11	General public	Important is that there is this other group – the general public/others (e.g. students, car owners at large) – i.e. these who are not our target group. However, members of these groups will approach us, and therefore constitutes a residuum group. The below-specified instruments include means to communicate with them
4.12	Other: national organisations	
4.13	Other: international organisations	



### 3 Functions of the Biofuels Cities European Partnership

#### 3.1 Virtual city

The BCEP aims to support the stakeholders mentioned in Chapter 2 by providing a range of functions. These functions can be visualised by the following illustration of our virtual city:



The Biofuel Cities European Partnership can be visualized as a virtual city that will be a place for a variety of citizens (target groups) who can make use of a variety of functions and services (exchange of goods, contacts, knowledge; a city membership registry; brokerage; communication facilities; newspapers, etc) that can also be found in a real city. The above picture is an artist impression of that virtual city. Functions of the partnership can be recognized as well as target groups. There can even be construction sites where new services are developed, or new buildings that can house working groups or joint ventures that are started within the Partnership. The city can grow and be self-sustaining by generating its own revenues by selling advertising space e.g. The roads might lead to other cities that also are involved in biofuels and sustainable mobility so that the cities (thus also its residents) are connected and are able to exchange resources and share experiences. Supply and demand meet at the marketplace. The virtual Biofuel City is the place where you can find like-minded people and businesses, your future partner, the latest knowledge (and gossip), a shoulder to cry on and instructive examples across Europe. In a word: the place to be.



Two levels of access to the functions of the BCEP via the virtual city will be realised:

1. Access as a member of the BCEP;
2. Access by the general public.

Access by a member will provide more functionality. The difference in member-and non-member access is not yet described in this document, it will be in a future version.

The following paragraphs describe these functions in more detail. Please note that all the functions are tentative as the future users will comment on these in the public consultation. Some of the functions might not be valuable for the Target groups and might therefore disappear. Other functions might be described differently. Also, new functions might be added as a result of the consultation.

The functions are described under two headings, which are “Information supply” and “Interactive assistance”. In the interactive assistance, more than one stakeholder is involved in for instance a partner search, a discussion platform or in a market place.

### **3.2 Information supply**

One of the key functions of the EP is to supply and exchange information. This will include, for example:

- Progress of (European) market introduction of biofuels;
- New developments in biofuel policies in EU member states or in individual municipalities;
- Research and developments in biofuel industries;
- Objectives, progress and results of biofuel projects at national and local level;
- Technical information.

#### **Library**

The library is a function that allows users to trace back biofuels reports and brochures on technology, market development and policy aspects. The library will be electronic, where only digital information, electronic reports and brochures will be stored.

The library function has been successfully used in a former EU project named VIEWLS, see [www.viewls.org](http://www.viewls.org).

#### **European contacts, projects and instruments**

This function provides up-to-date information in a standard format on:

- Biofuel contacts (who-is-who in Europe on biofuels).
  - Existing biofuel projects including in-depth info of a number of these existing projects.
  - Existing policies and instruments, including in-depth info (‘experiences’) on some of the instruments;
- It is proposed to prepare these reports and to update them once or twice over the next 2,5 years.

#### **Newsletters**

This is a function providing a periodic (monthly or two-monthly) newsletter on actual biofuel developments.

#### **Workshops and study tours**

Workshops and study tours on specific topics and/or for specific regions in the European Union can help to build the network and share experience. Workshops are ideally organised together with local partners and bring together local governments, industrial and commercial end users from different regions. Study tours can give Biofuels Cities demonstration projects an opportunity to visit cities already experienced in the use of biofuels, and can enable the Biofuels Cities demonstration projects, interested local governments, networks, and other key actors of the biofuel communities to visit cities involved in the demonstration projects themselves once these are quite advanced.



### **Calendar of events**

The website of the EP will provide an agenda listing relevant events that will take place in the near future, with the weblinks – structured to provide an easy overview.

## **3.3 Interactive assistance**

The second half of the functions under the BCEP will be more interactive, and thus only open to registered users (EP member), e.g. information on the person or organisation is needed before a request can be answered. These functions will be implemented, preferably in such a way that the request and answers are self-regulatory, e.g. the assistance will come from other EP members without intervention of a convener. In this way, the future functioning of the EP is partly guaranteed also after the ending of the EU Sixth Framework project (as described in Paragraph 1.3) from which this partnership is created and temporarily supported.

### **3.3.1 Discussion platform**

Members of the BCEP can start discussions in an on-line forum. The forum will be self-regulatory, however, at the background a convener will monitor the discussions and filter out unwanted contributions. Unresolved questions or requests can be forwarded by the convener to a specialist with the request to assist, and to ensure all requests are attended to.

### **3.3.2 Partner search**

The BCEP will provide for a tool to look for partners to (for instance)

- Start a new Research, Development and Demonstration (RD&D) projects,
- Deliver goods or services in a demonstration or implementation project,
- Share legal support (see also function 3.3.4),
- Commonly start joint procurement actions.

Joint procurement can be described as a process where several organisations simultaneously buy a product in order to influence the price or in order to influence the attitude of the companies selling the product, for instance by creating a market large enough to improve environmental performance of a product or even creating a market large enough to bring a non-existing product on the market. An example of joint procurement is TRENDSETTER - a large demonstration project focusing both on heavy vehicles (buses, lorries and vans) and on private cars, led by the City of Stockholm. One of the aims is to achieve a higher market penetration for clean, renewably fuelled busses, lorries, vans and cars by co-ordinated procurements to reduce prices, improved infrastructure and other measures (<http://www.trendsetter-europe.org/>).

### **3.3.3 Market place**

The BCEP could offer reference to market places where members of Biofuel Cities can offer or request:

- Feedstock or fuels
- Biofuel vehicles (for instance flexifuel vehicles, natural gas driven vehicles);
- Futures (contracts for raw materials, fuels etc)

The websites that are referred to, provide the platform where offers or demands can be placed. Agreements or transactions that are a result, are the responsibility of the persons involved. The EP does not assist in looking for interested parties or in coming to agreements or transactions.

### **3.3.4 Shared legal support**

This function becomes interesting if several (or at least a number of) EP members have similar legal questions. This can, for instance, be the case if local governments from different countries in a country border region would like to create a joint biofuel market or would like to jointly operate a biofuel driven



bus fleet and the respective national legislations would make this difficult or impossible. Another example is when local governments would like to perform first-of-a-kind experiments with a biofuel (like E85) in a country where the national legislation does not allow the use of such a fuel whereas in other countries this is possible.

The EP might actively look for solutions for such legal problems. At forehand it cannot be estimated which legal questions might arise, what is needed to look for solutions and how time-consuming this will be. Therefore, for this function the exact role of the EP has to be determined case-by-case.

### **3.3.5 Shared capacity building**

Capacity building efforts can include a broad range of approaches, e.g., granting operating funds, granting management development funds, providing training and development sessions, providing coaching, supporting collaboration with other nonprofits, etc. Like for the shared legal support function, at forehand it cannot be estimated which shared capacity building might arise, what is needed to do so and how time-consuming this will be. Therefore, also for this function the exact role of the EP will be determined case-by-case.

### **3.3.6 Identify strategic research and implementation topics**

This function is aimed at jointly identifying implementation obstacles and jointly addressing them. The first step in doing so is some-one bringing in an important implementation obstacle and questioning (1) if this obstacle does occur also elsewhere and (2) if something can be done.

With support from the BCEP, the occurrence of the obstacle will be investigated. If it occurs on a wider scale (at least several organisations, preferably in more than one EU member state) than the EP will actively assist in looking for solutions and addressing the obstacle at relevant national and international governments or branch organisations.

### **3.3.7 Support for new initiatives and joint ventures**

The creation of new initiatives and joint ventures as a result from the EP is not only welcomed but can, as one of the EP functions, also be supported. Support can for instance consist of:

- Indicating whether similar initiatives already exist within Europe;
- Giving advice on financing new initiatives or subsidies for new initiatives;
- Giving advice on how or where to find missing partners in new projects;
- Independently assessing the feasibility of new projects or market initiatives;
- Arranging/enabling collaboration between members and others if necessary
- Support (e.g. organising a working group) to set up or apply to an investment fund (maybe region specific) in order to support new initiatives with access to resources (equity)



## 4 How: Creation and maintenance of Biofuels Cities European Partnership

This Chapter describes how the BCEP is created and maintained using the underlying background document as a basis. This work will be performed as part of the European project as shortly described in Paragraph 1.3.

### 4.1 Public consultation

The background document will, together with a questionnaire, be sent to stakeholders in a public consultation in March 2007. The aim of this consultation is to have input from possible future members of the BCEP on its members and functions. The background document and consultation will be sent to:

- Participants to the VIEWLS virtual office [www.viewls.org](http://www.viewls.org);
- Local European governments in the network of ICLEI – Local Governments for Sustainability; .
- Small and medium scale enterprises and non-profit organisations through the International Network for Environmental Management (INEM); and
- Contact from the Biofuel Cities project partners.

The consultation will be performed early in the EU project when the network databases will not yet be complete. It is not aimed to consult all future members of the BCEP. Instead, the aim is to reach a representative sample of stakeholders.

### 4.2 Draft framework of Biofuels Cities European Partnership and follow-up meeting

The returned questionnaires will be analysed. This analysis is used to rewrite the background document into a draft framework for the BCEP. This draft framework will be presented on the website of the project and will be discussed with stakeholders in a follow-up meeting.

### 4.3 Establishment of a Secretariat office

In order to facilitate the operation of the BCEP, a Secretariat office will be established. The Secretariat will be responsible for the day-to-day management of the BCEP, with functions to be determined from the consultation, for example:

- (a) Information supply to members;
- (b) Information supply to non-members;
- (c) Registration of Members;
- (d) Arranging and assisting the collaboration between members in various committees;
- (e) Organising meetings on request of members , with financial support from these members, and using -where possible- the facilities of the European Commission;
- (f) Maintaining up-date information in the Members Area of the Virtual Biofuel City

The secretariat can be reached by e-mail and post:

Email address: .....

Postal address: .....

### 4.4 Launch event for Biofuels Cities European Partnership

The project partners will organise a launch event to announce the BCEP and its major activities. At this launch event, the BCEP will officially be started. The launch event will be accompanied by a public campaign including press releases and the official launch of the website.



#### **4.5 Evaluation after one year of operation**

After one year of operation of the BCEP an evaluation among the Members will be carried out to assess the positive and negative experiences of the partnership and investigate the conditions Members considered necessary to continue the partnership.

#### **4.6 Actions for continuation of EP after 3 year period**

During the 3 year period of the 6FP project, actions will be taken to enable the continuation of the EP also after the ending of the project. These actions will be defined in more detail in the second half of the project (2008 and first half of 2009).



## Appendix A – Background information to Biofuel Cities project

This Appendix contains two descriptions taken from the Work Programme of part 6.1 “Sustainable energy systems” of the EU Sixth Framework Programme (Revision 2, April 2004). These texts formed the basis for the Biofuel Cities project. The first part is copied as it was published in 2004, the second part (“Developments in alternative motor fuels”) is copied and updated as there have been further developments between 2004 and 2006.

### A.1 Biofuel Cities as part of “Research areas and topics for 2005”

The primary aim of this Call (“Call 2005.SM”) is to establish European partnerships for innovative demonstration of alternative fuels and energy efficient vehicles. In particular, one in the field of biofuels (European Partnership: **Biofuel-Cities**) and a second one in the field of hydrogen (European Partnership: **Hydrogen for transport**). These Partnerships could be composed of new projects financed by this call as well as on-going projects. The two Partnerships will be supported by Coordination Actions as described below. Each Partnership will constitute a coherent set of demonstration activities conducted through integrated projects and specific targeted research projects. In order to achieve this coherence, high quality projects may be clustered.

#### Biofuel-Cities

The purpose of Biofuel Cities is to demonstrate the use of new and innovative technologies that will permit extensive use of biofuels in cities covering the complete chain from feedstock to biofuels production, distribution and utilisation in vehicle fleets. The use of biofuels should focus on petrol or diesel blends higher than the present 5% biofuels so that such high blends or pure biofuels will be demonstrated at European scale. Projects should involve the issue of how to motivate end users and citizens to use biofuels for example through their local authorities and other local stakeholders.

All the new projects will be part of Biofuel Cities, in order to coordinate efforts and actively contribute to reaching the targets of Directive 2003/30/EC. Existing demonstration projects on biofuels production will be encouraged to join this Partnership.

Three types of proposal are invited:

- Priority will be given to Integrated Projects (IPs) that would address all the four topics a-bc-d described below embracing all the links of the Well to Wheel chain.
- Proposals for Specific Targeted Research Projects (STREPs) are invited for innovative biofuels production demonstrations (topic b-c-d, as below).
- Proposals for a Coordination Action (CA) are invited to provide a coherent link between the resulting IPs and STREPs from this call and other on-going initiatives and other European Union supported projects in the biofuels field. This horizontal action should develop the European Partnership for the demonstration of biofuels technologies in Europe, providing a framework for dissemination of results and active communication. It should also include an independent common assessment<sup>5</sup> and monitoring framework of the projects from a socio-economic, energy efficiency, environmental and safety perspective.

Topics:

- a. Demonstration of **alternative motor fuel vehicle fleets** such as: buses; post distribution; waste collection; taxis; local delivery; airport fleets; and passenger vehicles. These fleets should demonstrate **new ways of using biofuels in energy efficient vehicles**, with particular attention to high blends of bio-fuel (higher than 5%) and also the use of pure bio-fuels fleets. Introduction of innovative energy efficient concepts such as the combination of electric hybrid technologies with high blends of biofuels will be given priority. However, work on wholly electric vehicles will not be supported.
- b. **Innovative, energy efficient, cost-effective and safe large scale production, storage and distribution of biofuels** that could supply fuel to the abovementioned demonstration fleets.
- c. **Assessment and monitoring** from the perspectives of socio-economic, energy efficiency, environmental and safety perspective.
- d. **Communication and dissemination**.



## A.2 Developments in alternative motor fuels

Despite all efforts at the European, National, Regional and Local levels, greenhouse gas emissions from energy used in transport continue to grow. In addition, the transport sector remains almost exclusively dependent on oil. Activities under this heading of the work programme should contribute to the mitigation of both greenhouse gas emissions growth, over-dependence on oil and the promotion of biofuels for transport applications.

The Commission has suggested a policy objective of 20% petrol and diesel substitution by new/alternative fuels in road transport by 2020<sup>6</sup>. In the 2001 Commission Communication<sup>7</sup> on Alternative Motor Fuels three types of alternative motor fuels that could contribute to EU energy policy objectives were identified: *biofuels*, *natural gas* and *hydrogen*.

The Alternative Motor Fuel policy of the European Commission has given priority to **liquid and gaseous biofuels** in the short and medium term. Technically they are useable, according to existing legislation, either in low blends (<5%), or unblended (100%) in dedicated engines. Their introduction in the market is supported by Directive 2003/30/EC of 07.05.2003 that set indicative targets of 2% and 5.75% market shares for biofuels respectively for the years 2005 and 2010 as well as by Directive 2003/96/EC of 27.10.2003, which allows for their de-taxation up to 100% by the Member States. The European Commission is currently reviewing Directive 2003/30/EC. A public consultation has been held in 2006 ([http://ec.europa.eu/energy/res/legislation/biofuels\\_consultation\\_en.htm](http://ec.europa.eu/energy/res/legislation/biofuels_consultation_en.htm)), a summary of the responses is available (on same webpage). In January 2007 the Commission will come with its views on how to review this Directive.

The European Commission has also established a High Level Group on Biofuels called Biofuels Research Advisory Council (BIOFRAC), which presented a vision report by mid-2006 ([http://www.biofuelstp.eu/downloads/biofuels\\_vision\\_2030\\_en.pdf](http://www.biofuelstp.eu/downloads/biofuels_vision_2030_en.pdf)). This report outlines the current situation of biofuels and presents a long-term view on how to overcome the technical and non-technical barriers for biofuel deployment in the European Union and worldwide. Following the recommendation of the High Level Group, the European Commission has created a European Biofuels Technology Platform ([www.biofuelstp.eu](http://www.biofuelstp.eu)).

At present the **production** of biodiesel from seeds (such as rape and sunflower), bioethanol from starch (such as wheat or corn) or sugar (such as sugar beet) and biogas from effluents and organic waste streams (such as sewage sludge) is well demonstrated and the various processes are considered reliable and therefore industrial. However, there are new technologies being developed such as the production of biodiesel from animal tallow, and ethanol from lignocellulosics that require full scale demonstration in order to prove their technical and economic viability. The biomass gasification to synthesis gas route (biomass to liquid, BTL) has also attracted renewed interest although the technical hurdles still need careful attention before full scale demonstration can be achieved and several research projects have recently been initiated and supported under the first call of the sixth framework programme.

In the **market** biofuels face obstacles related to the low blend limitations and differences in their nature compared with petrol and diesel often give rise to problems such as increased volatile evaporative emissions or engine parts deterioration. However, options like BTL fuels face less demand side obstacles because there are no blending restrictions. Higher ethanol blends such as 10% (as in the USA) and 25% (as in Brazil) are widely applied by the industry and the market in some countries due to the use of dedicated vehicles. Pure ethanol is also in use in Brazil and has recently received high impetus. Fuel flexible vehicles using an 85% ethanol blend are widely introduced in both the USA and Brazil and have been used successfully since 2002 in Sweden. In the EU the use of unblended biodiesel has been demonstrated in captive fleets - mainly buses but also agricultural tractors. Buses have also been operated with diesel-ethanol blends and pure ethanol in large-scale projects in Sweden for more than 10 years.

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<sup>6</sup>: European Commission Green Paper: "Towards a European Strategy for the Security of Energy Supply". COM (2000) 769

<sup>7</sup>: COM (2001) 547. Commission Communication on Alternative Motor Fuels



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[www.biofuel-cities.eu](http://www.biofuel-cities.eu)



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