



## **Contribution for the European Commission's stakeholders' consultation on the European Strategy on clean and energy-efficient vehicles.**

### **Key message**

The electric bicycle business is a significant sector in the European economy, with significant employment, investment, research and development and a strong multiplier effect. So far, electric bicycles are not part of CARS 21 or any other EU policy pertaining to clean and efficient vehicles. ETRA believes this is a serious gap that needs to be filled by the forthcoming Strategy and Communication.

The inclusion of electric bicycles in the European Strategy on clean and energy-efficient vehicles would be a fundamental step in rating the potential of electric bicycles at their true value and in giving these vehicles the recognition they deserve in European policies. We urge the European Commission not to miss out on this opportunity.

### **Presentation of ETRA**

The European Two-wheel Retailers' Association (ETRA) is the trade-association for independent (electric) bicycle, moped and motorcycle dealers. ETRA represents some 5,000 companies, which employ approximately 11,500 people in Belgium, the Czech Republic, Denmark, France, Germany, the Netherlands and the United Kingdom. Furthermore, ETRA has 21 associated members. These are international companies/organisations active in the two-wheeler field who believe in ETRA's work and who have therefore chosen to support that work through their membership. Of these 21 associated members, 13 are active in the field of electric bicycles. ETRA is also an associate member of the European Association of Craft, Small and Medium-sized Enterprises (UEAPME).

Since 1998, ETRA is a member of DG Enterprise's working group "motorcycles". ETRA has always actively participated in the working group. In September 2009, ETRA has submitted a proposal, largely supported by the electric bike industry, for better-adapted legislation on electric bicycles in the framework of the review of the European type-approval legislation for two- or three-wheeled motor vehicles. (see: <http://www.etra-eu.com/newsitem.asp?type=3&id=7933772>)

Finally, ETRA is a partner in Presto (Promoting Cycling for Everyone as a Daily Transport Mode), a project of the EU's Intelligent Energy – Europe Programme granted by the Executive Agency for Competitiveness and Innovation (EACI). The Presto project has 3 pillars: cycling infrastructure, cycling promotion and electric bicycles. ETRA is responsible for the pillar "electric bicycles". In this framework, ETRA has published a policy guide on "electric bicycles" (see: <http://www.etra-eu.com/newsitem.asp?type=3&id=6805232>).

This contribution includes an Annex with more information on electric bicycles and their specific contribution to the European Strategy on clean and energy-efficient Vehicles.

## Commission's questions

### 1. Should the vision agreed in the CARS 21 mid-term review be now adjusted?

Yes, the vision needs adjustment to include electric bicycles in view of the importance of the existing market and the potential of the future market. Electric bicycles have a huge potential to contribute to the Commission's objectives in the field of climate change, decarbonisation of transport, air quality, dependency on fossil fuels, industry restructuring, clean vehicle technologies as new sources of economic growth and cohesion for Europe. For further argumentation, see below.

### 2. What is the potential of different clean automotive propulsion technologies (improved fuel efficiency, hybridisation and alternative powertrains) for contributing to decarbonisation objective in the short, medium and long term?

The potential of electric bicycles for contributing to decarbonisation is described below in points 1, 2 and 3 under the heading "Electric bicycles in the framework of the future European Strategy on clean and energy-efficient Vehicles".

### 3. What are the implications of new propulsion technologies in a lifecycle analysis perspective as regards vehicles, and in a well-to-wheel perspective as regards energy supply chains? What are the resource implications in introducing innovative propulsion technologies?

Most electric bicycles in the EU are equipped with a Lithium-ion (Li-ion) battery. The use of Nickel-Metal-Hydrate (NiMH) batteries is decreasing. The lifetime for NiMH batteries and for Li-ion batteries are in the range of 500 complete cycles. Next to the life span expressed in cycles, the battery also has a limited life in absolute time. Typically, the ageing of the battery becomes more and more noticeable after about five years because the useful energy capacity starts to drop significantly (below 80% of its rated capacity) and the self-discharge of the battery increases.

According to Eurostat, the price of household electricity in the first semester of 2009 was € 16.58 per 100 kWh for the EU-27.<sup>1</sup> Thus to recharge a 200 watt-hour electric bicycle battery would cost only € 0.033. An electric bicycle might travel 60 km with one charge so the cost per km would only be € 0.00055. For a combustion engine four-wheel vehicle, fuel cost per km would be around € 0.095. **As a result, the electric bicycle is 172 times less costly for fuel than a combustion engine four-wheel vehicle.**

As for the electricity needed to charge the batteries, much depends on the type of power plant supplying the energy. The table below states CO<sub>2</sub> emissions per type of energy source:

Energy source	CO <sub>2</sub> -emissions (gram / kWh)
Wind	9 - 25
Water	8 - 33
Sun (PV-system)	50 - 60
Nuclear energy	3,5 - 100
Biomass	0 - 540
Gas	350 - 450
Coal	850 - 1000

Source: [www.milieucentraal.nl](http://www.milieucentraal.nl)

<sup>1</sup> [http://epp.eurostat.ec.europa.eu/cache/ITY\\_OFFPUB/KS-QA-09-048/EN/KS-QA-09-048-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-QA-09-048/EN/KS-QA-09-048-EN.PDF)

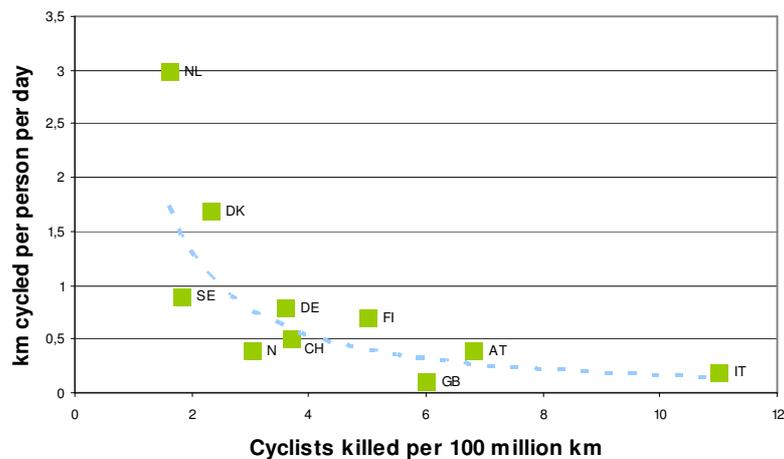
In the case of a 200 watt-hours battery, producing the energy to charge the battery will lead to 0 CO<sup>2</sup> in the best case (biomass) and 0.17 to 0.2 kg in the worst case (coal). As a result, if the charge allows for 60 km range, this vehicle will in the best case cause no CO<sup>2</sup> emission at all, whereas in the worst case it will cause over a 100 km trip 0.333 kg of CO<sup>2</sup>. For comparison, a car with a CO<sup>2</sup> emission of 0.12 kg per kilometre will emit 12 kg of CO<sup>2</sup> over 100 km.

Electric bicycles fall under the scope of the Battery Directive (2006/66/EC) and the WEEE Directive (Directive 2002/95/EC).

**4. What are the state of play and the future scenarios of technological developments in alternative powertrains (electric and hydrogen) and their market penetration? What are major risks and opportunities associated for different stakeholders? What will be the economic, societal, employment and environmental impacts brought by these developments?**

See heading “Electric bicycles in the framework of the future European Strategy on Clean and energy-efficient Vehicles”. However, we would like to add one final remark. Making four-wheeled vehicles more sustainable through electric and hydrogen technologies still does not solve a number of problems caused by four-wheeled vehicles, i.e. congestion, road safety issues, land use, impact on quality of life ... **The use of electric bicycles does remedy these problems.**

As far as road safety is concerned, it is proved again and again that the more cyclists, the less accidents. Pucher and Buehler state: “There is also reason to believe that more cycling facilitates safer cycling. The phenomenon of ‘safety in numbers’ has consistently been found to hold over time and across cities and countries. Fatality rates per trip and per km are much lower for countries and cities with high bicycling shares of total travel, and fatality rates fall for any given country or city as cycling levels rise (Jacobsen, 2003).”<sup>2</sup> There is no reason to believe that the trend would be different in the case of rising numbers of electric bicycles.



The figure above shows the correlation between accident rates (cyclists killed per 100 million km) and kilometres cycled per person per country and demonstrates that the more kilometres per person per day are cycled, the less fatalities among cyclists.<sup>3</sup>

Studies have shown that there is also financial return on investment in implementing cycling measures focusing on increasing the number of cyclists. Cycling England examined examples of cycling interventions (e.g. Bike IT, Cycle Training or London Cycle Network) and found that both infrastructure and promotion measures produce positive return on investment. The study indicates that if an interaction leads to an increase in cycling trips, this can alleviate congestion and reduce pollution and health service costs. The authors also provide concrete figures and thus a

<sup>2</sup> Buehler Ralph, Pucher John, 2008, “Making Cycling Irresistible: Lessons from The Netherlands, Denmark and Germany”, Transport Reviews, Vol. 28, No. 4, 495–528.

<sup>3</sup> Generated through Walcying 1998, quoted from Tolley, Rodney 2003: Sustainable transport: planning for walking and cycling in urban environments.

tangible justification for investments in cycling. They conclude: the more older people (45+) switch to the bicycle (in particular in urban areas), the higher is the monetary value per year related in part to health benefits and congestion. Switching for example 160 trips of 3.9 km per year from car to bike saves £382 (ca. €420).

Finally, as for land-use, the table and photograph below speak for themselves

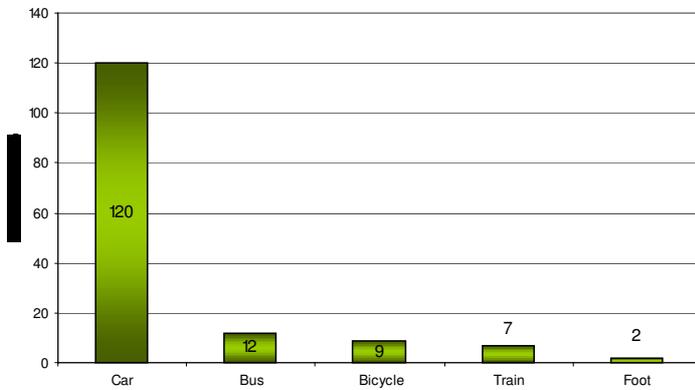
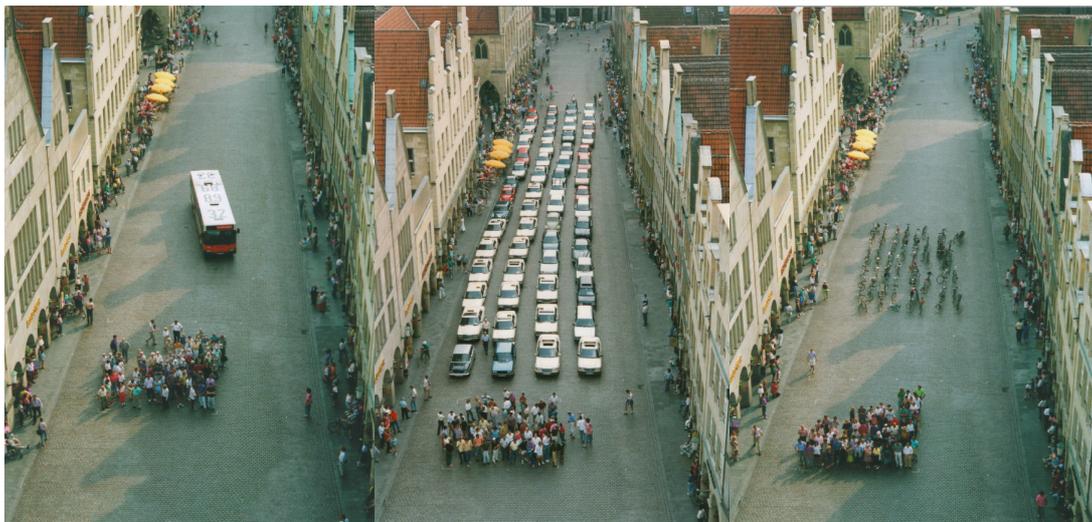


Illustration of how land-use varies by transport mode<sup>4</sup>



Photograph showing required space per transport mode

<sup>4</sup> Whitelegg, John 1997, 124: Critical Mass: transport, environment and society in the twenty first century, Pluto press, London.

## Annex – Electric bicycles and the European Strategy on clean and energy-efficient Vehicles

### Electric bicycle terminology

“Electric bicycle” is a term, which covers two different concepts of vehicles with an auxiliary electric motor. On the one hand, there are cycles equipped with an auxiliary motor that cannot be exclusively propelled by that motor only. For the motor to assist, the cyclist has to pedal. The term “pedelec” is commonly applied for these vehicle types. On the other hand, there are cycles equipped with an auxiliary electric motor that can be exclusively propelled by that motor. The cyclist is not necessarily required to pedal. These vehicles are generally called E-bikes.

Pedelecs and E-bikes are not always two-wheeled. There are vehicles with 3 or 4 wheels. Legal definitions always have the term “cycles” in order to cover all vehicles, irrespective of their number of wheels.

European legislation stipulates that only pedelecs “*which are equipped with an auxiliary electric motor having a maximum continuous rated power of 0.25 kW, of which the output is progressively reduced and finally cut off as the vehicle reaches a speed of 25 km/h, or sooner, if the cyclist stops pedaling*”<sup>5</sup> are classified as bicycles. For these vehicle types, the European standard EN 15194 (EPAC – Electrically Power Assisted Cycles) has been implemented. E-bikes and pedelecs of which the motor output exceeds 0.25 KW and/or the motor assists beyond 25 km/h are classified as mopeds. They have to comply with the type-approval legislation as laid down in Directive 2002/24/EC and all accompanying Directives.

### The current market of electric bicycles

Last year, an estimated 750,000 electric bicycles have been sold in the European Union. That number is expected to rise to 1 million this year. Worldwide sales of electric bicycles in 2009 were over 22 million.

	2007	2008	2009	2010	2011	2012
China	21,000,000	22,000,000	21,000,000	22,000,000	23,000,000	25,000,000
India	85,000	20,000	7,500	10,000	15,000	17,500
Japan	300,000	300,000	300,000	325,000	350,000	350,000
<b>EU</b>	<b>250,000</b>	<b>500,000</b>	<b>750,000</b>	<b>1,000,000</b>	<b>1,350,000</b>	<b>2,200,000</b>
Taiwan	10,000	10,000	11,000	12,000	14,000	15,000
SE Asia	200,000	500,000	400,000	600,000	800,000	1,000,000
USA	120,000	170,000	150,000	300,000	400,000	500,000
<b>Total</b>	<b>21,965,000</b>	<b>23,500,000</b>	<b>22,618,500</b>	<b>24,247,000</b>	<b>25,929,000</b>	<b>29,082,500</b>

Source: Frank Jamerson & Ed Benjamin, 2010 update to the 2009 edition of the Electric Bikes Worldwide Reports

The European Union is now the second largest market in the world after China. The very high sales volume in China is due to the fact that a large number of cities have legally banned petrol engine mopeds and scooters. People had no other choice than to opt for electric bicycles.

It is important to note that since 2007, growth in the EU is vigorous. The Netherlands is leading the way in this trend. In 2008, almost 140,000 electric bikes were sold at an average retail price of € 1,900. Thus electric bicycles have generated 1/3 of the total revenue from sales of new bikes in the Netherlands. In the first half of 2009, sales

<sup>5</sup> Directive 2002/24/EC of the European Parliament and of the Council of 18 March 2002 relating to the type-approval of two or three-wheel motor vehicles and repealing Council Directive 92/61/EEC, article 1(h)

grew further by 49% to 105,000. Average price was just over € 2,000, whilst electric bikes achieved a 12% share in the total bicycle sales.

The Dutch example shows that growth of the electric bicycle market is to a large extent driven by commuters who use the electric bicycle because it is cheaper, faster and healthier than the car. Their cost-benefit analysis is positive and they believe travelling by electric bicycle offers advantages over travelling by car. The cost of car usage is increasing everywhere in the EU, whereas the problems of congestion, pollution and deteriorating public health exist in all member states. This creates a real chance for the diffusion of electric bicycles throughout Europe.

Today, commuters, elderly and physically impaired people are the most important user groups. Nevertheless, many other groups can be targeted and are effectively taking up electric cycling: car drivers in general, parents and shoppers, professional groups who need to travel a lot over short distances, emergency services, civil servants and politicians, tourists ... Full details on these target groups are in the above-mentioned Presto policy guide.

Today, the European market of electric bicycles consists almost exclusively of pedelecs (see explanation on terminology above).

Current employment in the European (electric) bicycle business is estimated at 110,000, i.e. 90,000 at the level of independent bicycle dealers (IBD) and 20,000 in manufacturing. A significant number of jobs also exists in the field of import and distribution to retailers. Total employment generated by cycling is of course much more important. Next to directly linked manufacturing, distributing and retailing there is also employment in constructing, maintaining and exploiting cycling infrastructure and facilities (i.e. cycle hire schemes, cycle paths, cycle parkings, street furniture for bicycles, ...) , in the promotion of cycling (local administrations, ngo's, bicycle exhibitions, printers, translators, website developers, specialised press...), cycle tourism (tour operators, cycle-friendly lodgings, ...), etc.

Total retail employment, IBDs included, could be easily doubled to 200,000 by stimulating (electric) cycle usage for utilitarian purposes. Total employment generated by cycling can be expected to grow accordingly.

## **Electric bicycles in the framework of the future European Strategy on clean and energy-efficient Vehicles**

The electric bicycle fully fits into the second pillar of the European Strategy on clean and energy-efficient Vehicles, which aims at "promoting and facilitating the market uptake of alternative vehicle propulsion technologies, which is expected to lead to a step change in mobility" with a "main focus [...] on fully electric and plug-in hybrid vehicles". Electric bicycles are a readily available alternative to many trips in vehicles with traditional propulsion technology, and already have a strong market presence in the EU and worldwide. Furthermore they provide a unique contribution to sustainable mobility systems, encouraging the switch from car driving to cycling and a healthier and greener lifestyle. A European Strategy that includes electric bicycles will accelerate and increase that contribution. The paragraphs below detail how electric bicycles will contribute to the specific objectives which the European Commission has set out in its background document on the future European Strategy on Clean and Energy Efficient Vehicles.

### **1. A response to the challenge of sustainable mobility**

Sustainable mobility refers to a use of transport, which has a positive impact not only on the environment but also on the economy and quality of life of the community in which it is used. Electric bicycles can contribute to these objectives by helping not only to cut emissions but also to boost employment and to induce a lifestyle change by encouraging cycle use.

According to the European Commission's Statistical Pocketbook 2001 "EU Energy and Transport in Figures", every European makes circa 3 trips per day of which about half are up to 3 km. Moreover, about half of all car trips are 6 km or shorter. These figures clearly demonstrate that the potential for substituting car trips by (electric) cycling is huge. The electric bike is particularly appropriate for convincing die-hard car drivers to leave their vehicle aside for short distances because it overcomes a number of "popular" objections against cycling. Interest in electric bicycles springs to a large extent from the fact that they make cycling easier and more comfortable.

The Swiss study “Elektro-Zweiräder - Auswirkungen auf das Mobilitätsverhalten” (Electric Two-Wheelers – Effects on Mobility) shows that the use of pedelecs resulted in 5.2% less car kilometres. What’s more, the study has found that pedelecs incite people to think about routines in their transport behaviour.<sup>6</sup>

A 2008 special Eurobarometer on attitudes towards the environment<sup>7</sup> shows that European citizens attach great value to the environment and are increasingly aware of the role that the environment plays in their lives. Asked about the actions they take for environmental reasons, 28% indicate choosing an environmentally friendly way of travelling (foot, bicycle, public transport). In conclusion, the growing concern for the environment and the rising cost of car usage clearly creates opportunities to convince car drivers of swapping their car for an electric bike for certain trips.

Electric bicycles could also significantly help reduce **congestion** in many cities, which according to the European Commission has a yearly cost in the EU of around € 1 billion, or 1% of EU GDP. The Australian Bureau of Transport and Regional Economics has found that the primary cause of congestion in Australia is private automobile use. The Bureau<sup>8</sup> also found that the cost of *avoidable* congestion in 2005 was almost € 6 billion. Avoidable congestion is described as situations where the benefits to drivers of travel in congested conditions are less than the costs imposed on other members of the community. This cost is composed of: business time costs (€ 2.28 billion), private time costs (€ 2.22 billion), extra vehicle operating costs (€ 0.76 billion) and extra air pollution (€ 0.7 billion). Commuter cycling reduces the cost of congestion by approximately € 40.47 million per year. Therefore encouragement of cycling is a cost effective response to the challenge posed by traffic congestion. This is all the more true since congestion intensity is at its greatest in the areas most suitable for cycling – urban areas, where trip distances are likely to be shorter.

The Dutch report “Electric Cycling: market research and exploration of prospects”<sup>9</sup> has found the following mobility effects of electric bicycles use:

- Whereas Dutch bike commuters travel on average 6.3 km to and from work, with an electric bike, that distance increases to 9.8 km.
- For more than half of the trips up to 4 km, Dutch people use a bike. With an electric bike, people will choose the bike for more than half of the trips up to 6 km.
- As a result, the total distance cycled in Holland is expected to increase by up to 10%.
- The total distance cycled by commuters in Holland is expected to increase by up to 20%
- The use of electric bikes will to a considerable extent substitute short car trips.

## **2. Climate change action and improving air quality**

Electric bicycles produce no emissions and present an alternative to many car rides. As far as CO<sub>2</sub> emissions are concerned, according to New Ride, the Swiss government programme for the promotion of electric two-wheelers, every electric bicycle on the road results in 900 km less car kilometres per year.<sup>10</sup> The European Union has a stated objective to reduce CO<sub>2</sub> emissions from new passenger cars to an average of 120 grams per kilometre by 2012.<sup>11</sup> Consequently, if this objective is to be achieved, every electric bicycle that avoids the above-mentioned 900 km car kilometres should yield a reduction of 108 kg CO<sub>2</sub> per year. Following these calculations, the estimated 2.5 million electric bicycles sold by the end of 2010 may result in 270,000 tons less CO<sub>2</sub>. The estimated 6 million sold by the end of 2012 may result in 648,000 tons less CO<sub>2</sub>.

## **3. Europe’s dependency on fossil fuels**

Based on the same assumption as above, i.e. 1 electric bicycle avoids 900 km of car usage, the estimated 2.5 million pedelecs to be sold in the EU by the end of 2010 will prevent the use of 191.25 million litres of petrol, which equals € 213.75 million. That will also save 1,687.5 kWh electricity, which equals € 279.80 million. This results in a total saving of almost € 494 million. The estimated total of 6 million to be sold by the end of 2012 may result in

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<sup>6</sup> Schwegler Urs, et al., 2003, “Auswirkungen elektrischer Zweiräder auf das Mobilitätsverhalten. Schlussbericht des Schweizer Projekts im Rahmen von: Electric Two-Wheelers On Urban Roads (E-TOUR, 5. Eu-Rahmenprogramm)”, University of Bern.

<sup>7</sup> European Commission, Directorate General Environment, 2008, “Attitudes of European citizens towards the environment”, Special Eurobarometer 295.

<sup>8</sup> Cycling Promotion Fund, 2008, “Economic Benefits of Cycling for Australia”

<sup>9</sup> Hendriksen Ingrid, Engbers Luuk, Schrijver Jeroen, van Gijlswijk Rene, Weltevreden Jesse (BOVAG), Wilting Jaap (BOVAG), 2008, “Rapport Elektrisch Fietsen – Marktonderzoek en verkenning toekomstmogelijkheden”.

<sup>10</sup> Schneider Bernhard, “Energieeffizienz lohnt sich – für die Umwelt und fürs Portemonnaie”, New Ride

<sup>11</sup> [http://ec.europa.eu/environment/air/transport/co2/co2\\_home.htm](http://ec.europa.eu/environment/air/transport/co2/co2_home.htm)

preventing the use of 459 million litres of petrol, which equals € 513 million. It will also save 4,050 kWh electricity, which equals € 671.50 million. That results in a total saving of almost € 1.2 billion.

#### 4. **Successfully restructuring the industry**

As stated, current employment in the European (electric) bicycle business is estimated at 110,000, i.e. 90,000 at the level of independent bike dealers (IBD) and 20,000 in manufacturing with further jobs in import and distribution to retailers. Total employment generated by cycling is much more important. Total retail employment, IBDs included, could be easily doubled to 200,000 by stimulating (electric) cycle usage for utilitarian purposes. Total employment generated by cycling can be expected to grow accordingly.

Conventional bicycle manufacturers who enter the electric bicycle market logically use their existing network of independent bicycle dealers for the distribution of their electric bikes. Manufacturers who were previously not involved in the production of conventional bicycles tend to use other/new distribution networks. Today, new types of companies effectively arise: mobility centres, electric vehicle shops, eco-mobility shops, ... They do not profile themselves as vendors of specific vehicles, but as suppliers of cleaner, better, more sustainable ... mobility solutions. **Electric bicycles have accelerated the awakening of the bicycle business in general to the opportunities arising from greening transport.**

However IBD numbers are sinking due to the fact that many retire and are not replaced. A rationalization process is also taking place within the remaining businesses, with surviving businesses tending to grow bigger, though this varies according to Member State. There is a very strong job potential in the (electric) bicycle sector, with candidates needed for both the occupation of independent (electric) bicycle dealer as well as for sales and technical staff for independent (electric) bicycle shops. However investments will be necessary in training and education to attract new candidates, as education and existing training schemes are either not effective enough or simply inexistent, though again this varies according to Member State and is largely linked to the cycle usage in the country.

An inadequate network of competent IBDs hampers the distribution of quality (electric) bicycles, quality components and accessories. This creates a vicious circle: since there are not enough competent IBDs, there is insufficient offer of quality (electric) bicycle shops and products, therefore people are not incited to cycle (rather than to use less sustainable means of transport). This is particularly the case in the EU-12, however even in older Member States with high cycle usage such as the Netherlands or Denmark, training of bicycle dealers is very much focussed on technical aspects. There is a great need for training in the field of business management and business development.

**One possibility to fill in the vacancies could be the retraining of workers made redundant in the car industry and other metallurgical industries. Following the restructuring waves which will necessarily take place when mass production of electric vehicles will start, workers from the car industry which already possess mechanical skills can be retrained to work in the industry-intensive bicycle manufacturing industry or in the retail industry, thus providing alternative occupation for some of the workforce.**

Country	Number of dealers	IBD network density (number of inhabitants for 1 IBD)	IBD share in sales volume	Average number of (E)- bicycles sold per IBD	Population (X 1,000,000)
Belgium	1,450	7,400	75%	260	10.75
Czech Republic	800	13,000	62%	230	10.46
Denmark	650	8,500	63%	580	5.51
France	5500	11,700	24.5%	150	64.35
Germany	5600	14,600	63%	485	82
Italy	3,000	20,000			60.04
Luxemburg	12	40,800			0.49
Slovenia	145	13,800	50%		2.03
Sweden	780	11,900			9.26
The Netherlands	2,200	7,500	85%	500	16.49
United Kingdom	2,000	28,000			61.63
EU total	30,000 to 35,000				499.72

## **5. Optimum allocation of resources, better regulations, involvement of all stakeholders**

There is often a lack of knowledge of and interest in (electric) bicycles among authorities who develop programmes to stimulate business activities and green mobility. They do not know or underestimate the potential effects of (electric) bicycle usage on mobility, environment and public health. Furthermore, they focus on electric four-wheelers only because they believe their economic weight in terms of employment and sales is far more important than two-wheelers. They may also believe that public opinion is more sensitive to the promotion of electric cars and vans than (electric) bicycles.

So far, electric bicycles are not part of any EU policy pertaining to clean and energy-efficient vehicles. ETRA believes this is a serious gap that needs to be filled by the forthcoming Strategy. Electric bicycles are missing in among other things:

- Cars 21
- the European Green Cars Initiative
- Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles
- Employment in Europe 2009

...

Consequently, the electric bike sector is not involved as a stakeholder in the relevant legislative processes, whereas resources are not allocated to the electric bike sector. The two following examples prove our point.

In November 2008, the President of the European Commission has announced the European Green Cars Initiative as one of the three Public Private Partnerships of the European Economic Recovery Plan. The objective of the initiative is to support R&D on technologies and infrastructures that are essential for achieving breakthroughs in the use of renewable and non-polluting energy sources, safety and traffic fluidity. Despite its name the Green Cars Initiative is not only for passenger cars. Under the Green Cars Initiative, the topics include research on trucks, internal combustion engines, bio-methane use, and logistics. However a main focus is on the electrification of mobility and road transport. Nevertheless, the Green Cars Initiative does not include two-wheelers. In June 2009 the European Commission held an Expert Workshop seeking to understand the landscape of ongoing initiatives at national levels in Europe related to development of fully electric vehicles and the required infrastructure.<sup>12</sup> At this meeting, Polis stressed the need to consider all modes of transport, including two-wheelers, when talking about electrification. So far this advice has not been followed.

The Directorate-General for Energy and Transport will support a large European "electromobility" demonstration project on electric vehicles and related infrastructure with a total budget of around € 50 million as part of the Green Car Initiative. This does not include two-wheelers either.<sup>13</sup>

At national level, some member states do start to take electric bicycles into account in the development of their policies related to clean and energy-efficient transport. A very significant example in this respect is Germany's programme "Modellregionen Elektromobilität in Deutschland"<sup>14</sup> (model regions electro-mobility in Germany) launched in 2009. With this programme, the German Transport Ministry supports 8 regions with a total of € 115 million until the end of 2011. Further support till 2020 is anticipated. The programme is aimed at accelerating the introduction of electric vehicles with a view to making Germany leader in the electric mobility market. Electric bicycles were included in the call for proposals. Of the 8 selected regions, 4 have planned activities involving electric bicycles.

**ETRA urges the European Commission to follow this German example and not to miss out on the opportunity of the forthcoming communication to include two electric two-wheelers.**

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<sup>12</sup> European Commission, 2009, "Report on a European Commission Workshop: European Commissions' and Member States' R&D Programmes for the Electric Vehicle", Draft Version 1.0 / 15 November 2009.

<sup>13</sup> [http://ec.europa.eu/transport/urban/vehicles/road/electric\\_en.htm](http://ec.europa.eu/transport/urban/vehicles/road/electric_en.htm)

<sup>14</sup> <http://www.bmvbs.de/artikel-,302.1092406/Modellregionen-Elektromobilita.htm>

## **6. Clean vehicle technologies as new sources of economic growth and cohesion for Europe**

The development of the market of electric bicycles as explained above is a clear source of economic growth; what's more growth is exponential. Both sales volumes and turnover are going up, whilst new companies and new jobs are created.

At the 2009 Eurobike-show in Friedrichshafen<sup>15</sup>, which is the most important international show for the bicycle industry, a total of 82 electric bicycle manufacturers exhibited. Of these, some 30 companies started off in the conventional bicycle business, whereas more than 50 companies were newcomers in the electric cycle industry. The companies were not only originating from the EU but also from the Far East and from America. Next to them, 9 battery producers were also present in Friedrichshafen.

Unfortunately it is not possible to provide accurate information on turnover, production, import, export, nor the total number of people employed in the production of electric cycles and related components and accessories. The only possible estimate is the following. Suppose the estimated 2.5 million vehicles sold up to 2010 have an average sales price of € 1,500, then this results in a European wide revenue of € 3.75 billion. The estimated 6 million vehicles by 2010 would yield € 9 billion.

The electric bicycle industry consists of only a few large companies and many small and even micro companies. The activities of a large number of companies are still in an R&D phase, whereas companies with effective production still have relatively high R&D costs. In the wake of the economic crisis banks have been reluctant to lend to new business ventures thus making start-up of new enterprises more difficult. Furthermore, it proves to be difficult, especially for small companies, to participate in government programmes aimed at promoting R&D, technological innovation, sustainability, ... Information on these programmes does not reach the companies or they do not have sufficient staff and/or know-how to deal with applications. Increased attention to SMEs, which constitute the bulk of businesses in the electric bicycle sector, in the framework of funding for R&D would therefore have a positive effect on economic growth through the growth of the bicycle industry. Effects on employment have been described above. An increase in sales of electric bicycles will further accelerate these effects.

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<sup>15</sup> <http://www.eurobike-show.de/>