International Energy Agency:
Implementing Agreement for Hybrid and Electric Vehicle Technologies and Programmes

Annex XI: Electric Two Wheelers:

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Light Electric Vehicle International Conference
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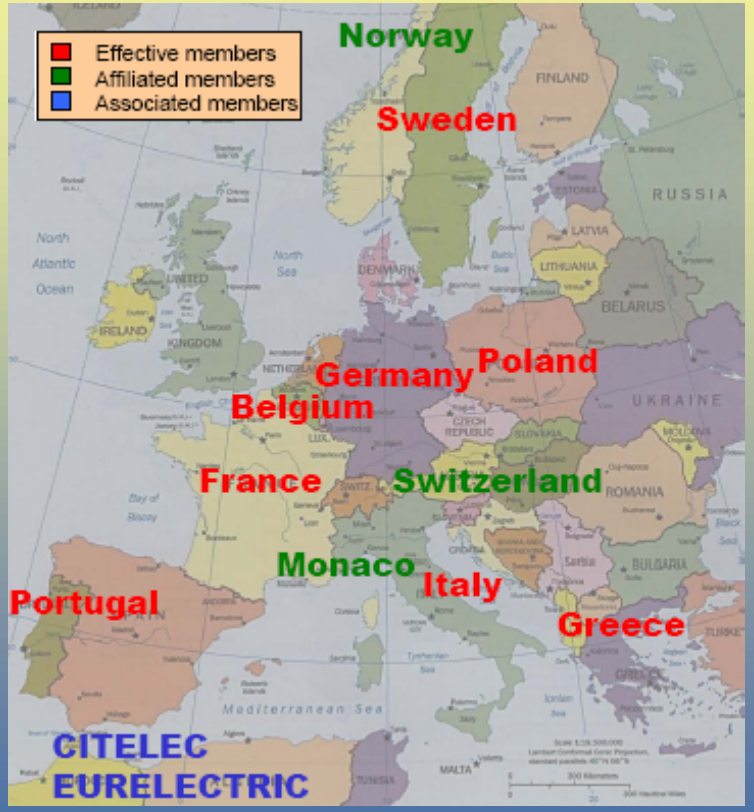
AVERE,
The European Association for Battery, Hybrid and Fuel Cell Electric Vehicles

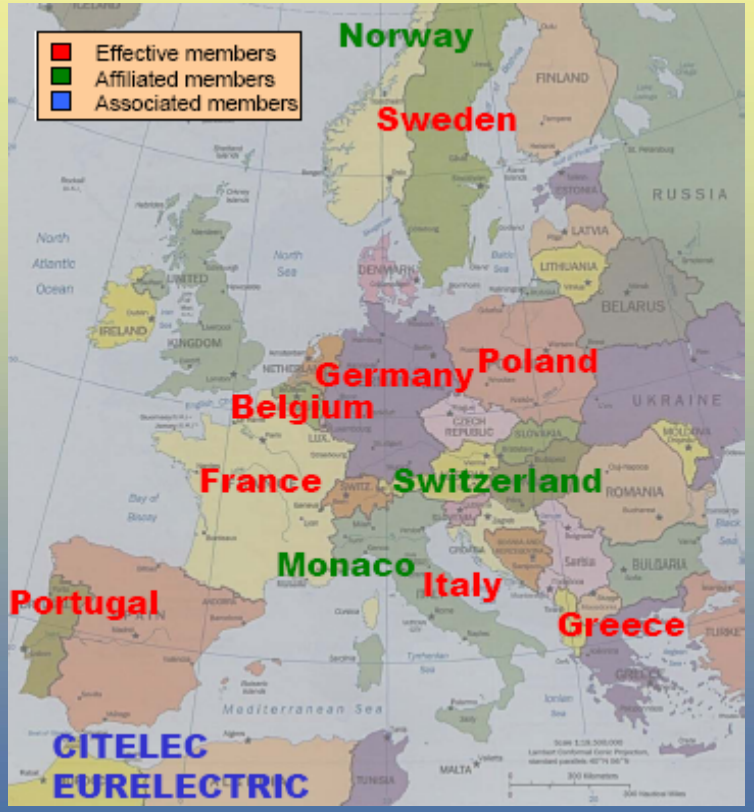
- 11 national sections
- Indirectly over 500 members
- European network of industrial manufacturers and suppliers for electric vehicles
- Non profit-making association created in 1978 under the aegis of the European Union



AVERE,
The European Association for Battery, Hybrid and Fuel Cell Electric Vehicles (cont.)

- Promoting the use of Battery, Hybrid and Fuel Cell Electric Vehicles and to rationalize the efforts of its member companies in the scientific and technological developments

- Forming, with EDTA and EVAAP, the World Electric Vehicle Association



Some key facts in Europe

- 2 trips on 3 are done per car
- Pedestrian and bike trips reduced by 33% between 1982 and 1994 and by another 33% during the last ten years
- Cycling commuting to work: 32% in 1959 – 14% in 1994 and 6% in 2004
- Half of the households has no bike
- Bicycles and scooters only used for 3% of the trips
- … in spite of increasing infrastructure's quality

However the trend is changing

- Good sportive image
- Health concern
- Ecologically friendly (global and local)
- Noise pollution
- Costs of “traditional” trips
- Congestion

Electric motorization will speed up the process

- Bicycles: reduced physical effort
- Scooters: no noise and no pollution on the spot
  (much lower than conventional cars on a global scale and possibility to run on renewable)

The advantages of electric two-wheelers are obvious as they operate fully emission free, are silent and require much less road space than cars

Therefore, these vehicles are a key factor in sustainable mobility for the city of tomorrow

Barriers – e-scooters

- Range of up to 45 km travel per single charge
- Recharging time
- Limited non-modifiable speed
- Battery performance
- Legislative context

Barriers – e-bikes

- Considered as targeting a group of people with reduced biking capacity
- Assistance often considered as too weak in a number of cases and for some types of bicycles

Barriers

In order to be marketable electric two-wheelers have to compete in terms of performance, price, reliability and maintenance costs, with any existing gas version

Expectations from the manufacturers

- For future applications, the product improvement of electric two-wheelers is crucial, in particular more reliable and better performing batteries
- The price of e-bikes and e-scooters remains an obstacle. This also concerns mainly the price of batteries
- To avoid too optimistic figures

Expectations from the public authorities

(all levels)

- To emphasize their desire for a future with clean vehicles
- To introducing beneficial incentives for buying as well as using them
- To favor areas, closed to ICE vehicles, like city centers and other environmentally sensitive areas like small islands that are a perfect setting for the use of electric two- and three-wheelers
- To demonstrate the suitability of these vehicles as a practical mobility means in urban and/or other restricted areas

Expectations from the IEA Annex

- To foster the market take off
- To analyse factors favouring or hindering electric two-wheelers introduction and use
- To create synergies to help manufacturers entering into new markets
- To foster emergence of new manufacturers
- To increase public awareness of electric two wheelers
- To develop best practices and the role of cities
- To foster cooperation and coordination in market introduction

Background

- Electric motorcycles and bicycles can replace trips of cars and motorcycles with internal combustion engines.
- Thus, they can reduce energy consumption and environmental impacts.
- Several governments have supported market introduction, not all with success.
- Some vehicles sale well in some countries but fail in other countries

Background

- Lack of knowledge in marketing
- Lack of coordination between policy and industry
- Lack of awareness?

Objective

- Specify success factors and obstacles to market penetration
- Develop means and ways to successful market introduction
- Point out energy and environmental potentials as justification for governmental support
- Institutionalize experience exchange on an international level

Project outline

- 5 Partners so far (AVERE, NewRide, Cycle Electric, ITRI, Tokyo R&D
- Possibility to join
- 5 Subtasks
- Project period: spring 2006 – spring 2008

5 Sub tasks

- Energy saving and market potential
- Market introduction
- Vehicle technology
- Infrastructure
- Sharing experience

Subtask 1: Energy saving and market potentials

This Subtask analyses the theoretical background of the market of electric two wheelers, namely:

- Specifying the relevant factors which determine the market introduction of electric two wheelers.
- Description of these factors in the participating countries.
- Analysis of the roles of the key players in the market introduction of electric two wheelers.
- Justification of governmental support.

Subtask 2: Market introduction

Integration of electric two wheelers into the existing urban transportation systems.

Recommendations on how to create “favourable conditions for the market introduction of electric two wheelers”

Recommendations to manufacturers on the export of electric two wheelers into countries with market conditions which differ from those in the domestic market.

Subtask 2: Market introduction (cont.)

Guideline for establishing national and local networks which help to overcome the barriers for market introduction.

Developing promotional measures in order to improve the conditions for market introduction

Subtask 3: Vehicle technology

Define actual and desired requirements of electric and hybrid drive systems for two wheelers.

Identify elements of highest leverage (biggest increase of customer satisfaction for lowest amount of money).

Identify the main technological developments in related fields (batteries, electric drives, control electronics) and develop cost and performance curves over the next years (roadmap).

Identify off-board infrastructure (chargers, battery exchange stations) and define needed on-board technology standards to help higher dissemination of two wheelers.

Subtask 4: Infrastructure

E-bikes: Safety of parking places. Adaptation of the existing road networks to the specific requirements of E-bikes (speed etc.).

E-scooters: Public charging infrastructure for users living in apartment houses with no access to sockets inside the house.

Environmental zones

Subtask 5: Sharing Experience

Organizing meetings in combination with technical visits with the objective to:

- Coordinate work progress
- Establish a platform for sharing experience
- Incl. technical visits to exhibitions, research institutes, manufacturers, demonstration projects etc.

Maximize benefit for participants in meetings and technical visits

Levels of partnership

1 Operating Agent	→	**AVERE**
5 Subtask Leaders	→	1 Market potentials **CycleElectric** 2 Market introduction **NewRide** 3 Vehicle technology **ITRI** 4 Infrastructure Tba 5 Sharing experience **AVERE**
≈ 30 Partners in 5 – 10 countries		
≈ 10 Sponsors		
≈ contact list		

Contracting Parties, Partners and Sponsors

IA-HEV member states

- Austria
- Belgium
- Finland
- France
- Italy
- The Netherlands
- Sweden
- Switzerland
- USA

Member states of IA- HEV, participating for EURO 5 000 each, are Contracting Parties

All partners from such a country participate for free as Partners

Interested parties from outside a Contracting Party participate as Sponsor for EURO 3‘000 p.a.

Providing input to subtask work:

- Labour cost

Attend experts meetings (at least two per year):

- Travel cost
- Labour cost
- No fees at technical meetings

Benefits for governments

- Learning from experience in other countries and cities
- Host meetings: Present programmes to an international audience
- Collaboration with domestic industry in market introduction
- Insight in worldwide state of the art and trends
- Arguments for justification of support
- Learn from simple 2 wheeler technology for bigger vehicles

Benefits for industry

- Market success factors
- External conditions for market introduction in foreign countries
- Contact to industrial partners
- Worldwide market overview
- Technology trends (confidentiality!)
- Present their company to wider audience (technical visits)
- Contact to government

Support by governments

- Product standards, homologation
- Regulations (restricted access to inner cities etc.)
- Infrastructure
- Independent and reliable information (websites etc.)
- Exhibitions with Ride&Drive
- Demonstration projects
- Electric two wheelers in governmental fleets
- Subsidies

Events for experts meetings

2006	Mar 8-11	Taipei Cycle Show: Kick-off meeting
	Oct 22-28	Electric Vehicle Symposium EVS-22, Yokohama
2007	Mar / Apr	AVERE conference (Europe)
2007	Dec	Electric Vehicle Symposium EVS-23, California

AVERE

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