



## IEA-HEV-IA Annex XI on electric Cycles Newsletter n°1

### Edito

City governments see it as an important part of their responsibilities to improve mobility in their urban areas.

Their constraints are more than just reducing emissions or oil consumption. Because of limited available space per vehicles, traffic safety, and noise reduction urban mobility become a key issue.

Therefore city governments have to take a wide range of measures including the improvement of public transit, facilitation of non-motorized transport like walking or cycling and improvement of roads and parking facilities for vehicles.

Many solutions have to be adopted and the interface among these solutions has to be convenient and smooth so that inhabitants are not affected and can still benefit good quality of life.

Within this context, electric two wheelers are an important component of an overall programme to improve mobility. They require very little space, cause no pollution, and make no noise. They are therefore perfectly fitted to replace specific short vehicle trips.

Coming to the energy issue electric two wheelers are champion in two ways. They first reduce energy consumption but they can also run on renewable energies.

But why then are they not more to be seen on the roads?

One of the main reasons is that some important actors are not committed enough. The overlapping of the three majors, the users, industry and governments, doesn't work in a satisfying way.

First to be mentioned are the potential customers. They just misjudge the benefits of these vehicles. In addition, importers and dealers are not prepared to engage in active marketing efforts.

Secondly, authorities at the national and local level may recognize the benefits, but can obviously not take the leadership in market introduction.

Last but not least are the manufacturers, the supposed leaders in market introduction, that seem to have not enough insight in the market systems.

Probable reason is that these vary strongly from country to country.

In summary, there seems to be an attractive opportunity to integrate electric two wheelers as clean vehicles into the existing transportation systems but it is essential that these different actors and their various activities should be better coordinated.

In this context, the International Energy Agency has decided to set up a new annex dealing with electric cycles and to foster the market to take off.

The International Energy Agency is an autonomous body which was established in November 1974 within the framework of the Organization for Economic Cooperation and Development (OECD) and carries out a comprehensive program of energy cooperation among twenty six of the OECD's thirty member countries.

At its inception, the work of the IEA concentrated on issues related to oil, but since that time the Agency has broadened its work to include virtually all energy issues. An important objective of the IEA is to encourage the increased deployment of renewable energies,

and to collaborate on research and development in this area.

The IEA provides support for over 40 international co-operation and collaboration agreements in energy technology R&D, deployment and information dissemination. The objective of the Implementing Agreement on Hybrid and Electric Vehicles is to help hybrid and electric vehicle technologies reach their full market potential, with attendant advantages for diversification of energy supplies and environmental protection.

An Implementing Agreement sets up a number of task forces, called "Annexes" in the terms of the Agreement, which work on particular topics within the overall subject of the Agreement. Current Annexes of the Hybrid and Electric Vehicle Implementing Agreement are: Information Exchange on EV Technologies and Programmes (I), Hybrid Vehicles Information Exchange (VII), Electrochemical Power Sources and Energy Storage Systems for Electric and Hybrid Vehicles (X), and Electric Cycles (XI).

The objectives of this last is to identify barriers which hindered the market penetration until now and to develop and to test ways to overcome them. This should help to establish electric two wheelers as a sustainable means of transport in many countries. In this coordinated action, a wide range of synergies can be achieved.

The following key questions will be subject of the subtasks to be undertaken in this Annex:

- Assessing the role that two wheel electric vehicles can play in improving urban mobility, and their interaction with other transportation modes.
- Identifying energy saving potentials as justification of governmental support,
- Recommending market introduction strategies directed at manufacturers, importers, and dealers, as well as to authorities at all levels,
- Identifying needed technology improvements,
- Identifying infrastructure requirements
- Sharing experience and information obtained from on-going and completed projects (extended dissemination).

## Meetings

The kick-off meeting was held in Taipei, on 10<sup>th</sup> - 11<sup>th</sup> March 2006 in conjunction with the Light Electric Vehicle International Conference organized in the framework of the Taipei Cycle Show.



On the weekend, a delegation made a study trip to the central part of Taiwan to Sun Moon Lake, the biggest lake of Taiwan in the central mountains and a famous tourist attraction with exquisite scenery but also with rich cultural resources.

There, several electric cycles rental stations are to be found. Two of them offer the eGO Helio, an electric moped developed in USA and manufactured since two years in Taiwan. The manager of the manufactory himself guided the Annex XI group on the 33 km trip around the lake. This was an excellent opportunity to get a deeper insight in the strategy of this company.

Being still at the beginning of the market introduction, this kind of rentals in tourist resorts are considered as an efficient way to arise popularity. As the dealer network will be smoothly developed during the next three years, sales has been made by the manufacturer itself. Last year, some 2'000 units have been produced for several markets all around the world.

During this trip, the scooter proved to be very robust and powerful, although the top speed was limited to 25 km/h (instead of 37 km/h) due to safety reasons.

In Jiji, a well known city for weekend shopping with a lot of small shops along the streets, there are several bicycle rental stations. Many of them provide electric bicycles and electric scooters. The variety of vehicle types was surprising, esp. regarding scooters. The quality standard however was different. For most of the customers, this was a welcome opportunity to get a first contact with electric cycles.

A visit to ITRI, the Industrial Technology Institute, a non profit R&D organisation with 6'000 employees, and that is part of the IEA-IA-HEV Annex XI partnership, was also organised.

ITRI is engaged in 5 areas of applied research and industrial services:

- Information and Communication
- Material, Chemical and Nanotechnologies (incl. the Materials Research Laboratories with a high tech facility for developing and building various Lithium battery systems)
- Biomedical Technologies
- Advanced Manufacturing and Systems (incl. the Mechanical and Systems Research Laboratories which develop clean power systems, vehicle electronics, advanced vehicle systems, telematics, automobile engines and hybrid propulsion systems)
- Energy and environment

The Mechanical and Systems Research Laboratories have developed an electric scooter, using a 2 kWh Li-Ion battery pack developed by the Materials Research Laboratories at ITRI. The curb weight is 100 kg, the range 60 – 75 km (City mode). The 3 kW brushless hub-wheel motor allows a top speed of 60 km/h. Expecting a price reduction of Lithium batteries in the next years, the scooter will be ready for mass production.

The Mechanical and Systems Research Laboratories also was involved in the development of an electric scooter with two different battery types: one lead acid for the propulsion of the motor, one Lithium Ion for the energy supply.

The latter one can be removed and charged at any household outlet. The weight of batteries is 15 resp. 2.5 kg, both of them providing a range of 30 km approximately. Thus, the lack of charging stations in towns where most of the people live in apartment houses without a garage, can be overcome in a cost effective way.

ITRI is promoting new-venture initiative to augment the R&D output utilization, create emerging industries and boost industries advancement.

The 1<sup>st</sup> progress meeting has been held in Paris, on 13<sup>th</sup> June 2006, just after the Bibendum challenge that took place in Paris from 8<sup>th</sup> to 12<sup>th</sup> June 2006.

Combining the meeting with this event offered a unique opportunity to discuss items related to clean vehicles and to test and drive the latest battery, hybrid and fuel cell vehicles. The presence of two-wheelers was important and that they attracted lot of the public's attention, especially during the parade held at the Champ de Mars, just under the Eiffel Tower.

One of the round tables during the technical days was devoted to urban mobility and the expert present unanimously felt that this challenge could only be solved by the development of vehicles adapted to the cities and that, therefore, electric bicycles and scooters will have a critical role to play in the future.

Some urban vehicles were to be discovered at the exhibition and electric-assisted bicycles as well as electric scooters got a special attention by the press



Numerous brands were exhibited, including some Chinese ones. Some are still quite unknown in Europe, others not anymore, such as exhibited "Super Light" new-generation electric bicycles.

Less than a year after its diversification into light electric vehicle, and for the happiness of bicycles lovers, Matra Manufacturing & Services displays and sells 4 new electric bikes under the mythic Matra Sports brand.



The meeting series was closed by a visit of Paris... on electric bicycles obviously.



The 2<sup>nd</sup> Progress meeting was held in Tokyo, on 24<sup>th</sup> October 2006, just before EVS-22, the 22<sup>nd</sup> Worldwide International Battery, hybrid and Fuel Cell Electric Vehicle Symposium & Exhibition that took place from 25<sup>th</sup> to 28<sup>th</sup> October 2006 in Yokohama, Japan.

Many different light EVs will participate in EVS-22 ride and drive, so illustrating the growing importance of urban mobility and confirming that electric bicycles and scooters will have a critical role to play in the future.

In particular, it has to be noted that the Yamaha ECO2, that is just finishing its second year on sale in Japan, was exhibited.

With only a top speed of 30 kph and a range of 43 km, this mini scooter is just intended for very local commuting. It does have the ability to fold the handle bars down, allowing you to transport it in your car- if you want to have Zero emissions ridding at a distant location.

The 3<sup>rd</sup> Progress meeting of the group will take place on 24<sup>th</sup> March 2007 in conjunction with the LEV Conference to take place in Hsinchu, Taiwan.



### The Team

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- ITRI (TW), the Taiwanese Industrial Technology Research Institute, a non-profit R&D organization engaging in applied research and technical service; Bing-Ming Lin (bmlin@itri.org.tw).
- NewRide (CH), the Swiss association for the promotion of electric two wheelers; Urs Schwegler (urs.schwegler@newride.ch).
- Tokyo R&D (JP), a company specialized in research, planning, styling design, engineering design, prototype making, and evaluation of various kinds of vehicles; Masao Ono (mono@r-d.co.jp).
- Arsenal Research (AT), an enterprise of the Austrian research centres specialised in the Business field of Energy and Drive Technologies; Dr. Margit Noll MBA (noll@arsenal.ac.at).

### Events agenda

- **LEV Conference**, 22<sup>nd</sup> and 23<sup>rd</sup> March 2007 in Hsinchu, Taiwan
- **2nd European Ele-Drive Transportation Conference** to take place in Brussels, from 30<sup>th</sup> May to 1<sup>st</sup> June 2007. More info at <http://www.ele-drive.com>
- **Velo-city 2007**, München 12<sup>th</sup> to 15<sup>th</sup> June 2007. Info at <http://www.velo-city2007.com/>