



Annex XI: Electric Cycles

Work plan

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1 Introduction

1.1 Electric Cycles as a sustainable element in urban transportation systems

City governments see it as an important part of their responsibilities to improve mobility in their urban areas. The constraints they face are more general than just reducing emissions or oil consumption, because in most cities the limited amount of space available for vehicles, traffic safety, and noise reduction are key issues. Generally, city governments have to take a wide range of measures including the improvement of public transit, facilitation of non-motorized transport (walking and 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 overall the inhabitants can conveniently reach all their many destinations within a city.

Within this context, electric two wheelers can be an important component of an overall programme to improve mobility. They require very little space, they cause no pollution, and they make no noise. They can replace not only bicycle trips, but more importantly some specific short vehicle trips.

Energy issues are concerned in two ways by electric two wheelers: First they reduce energy consumption generally, secondly they can run on renewable energies.

1.2 The state of the art

There are various types of electric two wheelers existing in different market places. They can be subdivided into two categories:

- E-bikes (bicycles with a power assistance): The range of technological approaches reaches from a drive train kit which can be mounted on a conventional bicycle up to specially designed vehicles with components adapted to the higher requirements. They are on the road almost all over the world, although in most countries their proportion of the overall number of bicycles is still very small. In China, however, there are now more than 1 million electric bicycles on the road.
- Motorbikes (mopeds and scooters) with an electric drive train instead of combustion engine: In contrast to the electric bicycles, there are only few manufacturers, namely in Taiwan, France and Italy. Although the benefits compared to conventional scooters (which are very popular) are obvious and the disadvantages for the user small, they are still far away from a market breakthrough.

There are different fields of applications for these different vehicle categories. There are a lot of factors either favouring or hindering their introduction and use, they may be in the fields of policy, economy, mentality, climate, topography etc. Perhaps the most important advantages are environmental, public health (exercise), and the reduction of traffic congestion by replacing car trips. The disadvantages include purchase costs, concerns about safety of the rider, security of the vehicle (against theft) and unsuitability in severe climates. Analysing these factors, and developing approaches to

overcome the barriers, will improve the transferability of the success stories and finally help to establish these vehicles in urban transport in various locations.

1.3 Manufacturers entering into new markets

In the last few years the technology of electric two wheelers has developed quite dramatically. The battery industry is offering new technologies such as NiMH, Li-Ion or Li-Polymer batteries. For the other components of the drive train new advanced solutions are appearing, too. However, the manufacturers have to compete in a very cost sensitive market segment, so they have to be careful in applying these new technologies.

When exporting these vehicles, the manufacturers have to respect the external factors which often are quite different. Their analysis is indispensable but time and cost consuming.

Finding importers in foreign countries is another crucial issue. The existing importers are usually reluctant, because they are not familiar with electric drive trains and don't believe in the market potential due to the high cost level compared to conventional bicycles (although e-bikes are a completely different means of transport) and scooters.

Finally the distribution networks have to be established first. The traditional bicycle and motorcycle dealers may be the most suitable professionals to sell electric two wheelers. But often they are not familiar with electric drive trains (motorcycle dealers) or even motors at all (bicycle dealers). Furthermore, most of them seem to be not very receptive to innovation in general. Alternative ways for distribution such as the internet don't seem to be suitable, as the advisor/motivator role of the salesman or dealer is not provided enough, as well as the after sales service.

1.4 The public awareness of electric two wheelers

At the present time, public awareness of electric two wheelers is still poor. And even if people know about them, they often have a bad and wrong image, especially of e-bikes. They think that they are only useful for old and handicapped people and they can't imagine the "fun-to-drive" factor of power assistance. That's why after a first test drive most of the people are surprised and excited.

1.5 The role of Cities

Once cities become aware of their advantages and disadvantages, they can provide an important support in the introduction of electric two wheelers. Recommending the purchase and the use of these vehicles, they can support their public awareness and help to reduce environmental impacts. The field of activities is wide and includes:

- . Leaflets with a general description of electric two wheelers including user benefits, list of dealers, list of vehicles available in the city, events with possibilities for ride & drive,
- . Infrastructure: parking facilities, public charging stations, etc.
- . Organising exhibitions with ride & drive together with the dealers,
- . Vouchers for test rentals,

- . Media reports,
- . Introduction of electric two wheelers in governmental fleets,
- . Leading and supporting demonstration projects: Postal delivery with e-bikes, Pizza courier with e-scooters etc,

Several cities in different countries have acquired some experience with electric two wheelers. Bringing this experience together, and sharing it with other interested urban decision makers, their efforts can become much more effective and efficient at the same time.

1.6 Lack of coordination in market introduction

This rough overview of the present situation shows the big potential of electric two wheelers. However, some important actors are not committed enough. The overlapping of the three circles – users, industry, governments – doesn't work in a satisfying way. First to be mentioned are the potential customers, who just misjudge the benefits of these vehicles. In addition, importers and dealers are not prepared to engage in active marketing efforts. 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 the manufacturers – the supposed leaders in market introduction – seem to have not enough insight in the market systems, because 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, if only the different actors and their various activities could be coordinated better.

2 Objectives

2.1 Overall Objective

The overall objective is to identify barriers which hindered the market penetration until now and to develop and to test ways to overcome them. This will 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 list shows the key questions which will be subject of the subtasks to be undertaken in this Annex:

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

3 System boundaries

3.1 Vehicle types covered by this Annex

This Annex deals with electric bicycles and electric motorcycles (mostly e-scooters). Not included will be electric micro scooters, which are not considered to be significant for urban transportation systems.

Electric three wheelers might be relevant, esp. in some developing countries (India, Nepal), where they could replace their counterparts with combustion engine (mainly two stroke), responsible for very bad air quality, but also new mobility elements like power assisted electric tricycles are of great interest (like the Smart trike in Netherlands). At this time, they are not included within the proposed scope of the Annex. However, the methodological approach developed in this Annex could be adapted to this vehicle category in a second stage.

The same can be applied to electric light vehicles which are well known in the USA as neighbourhood electric vehicles (NEV).

3.2 Geographical coverage

Basically, there is no geographical limitation for the participation in this Annex. However there are different levels of participation (see section 5, Organisation). A special focus will be put on the link between the Asian mass market and both, the European and the American life style.

3.3 Open questions – future work

With two years, the work period for this Annex is planned to be rather short, but intensive. All questions that can't be answered in this time will be collected in a list of open questions in order to get indications for future work (inside the IEA or outside).

4 Subtask description

4.1 Subtask 1: Energy saving and market potentials

Partners involved	main contribution	Labour days
CyclElectric (USA)	<ul style="list-style-type: none"> . 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.	60
AVERE (BE), CycleElectric (USA), ITRI (TW), NewRide (CH), Tokyo R&D (JP), Arsenal Research (AT)	General information & reviewing	10 each

Background:

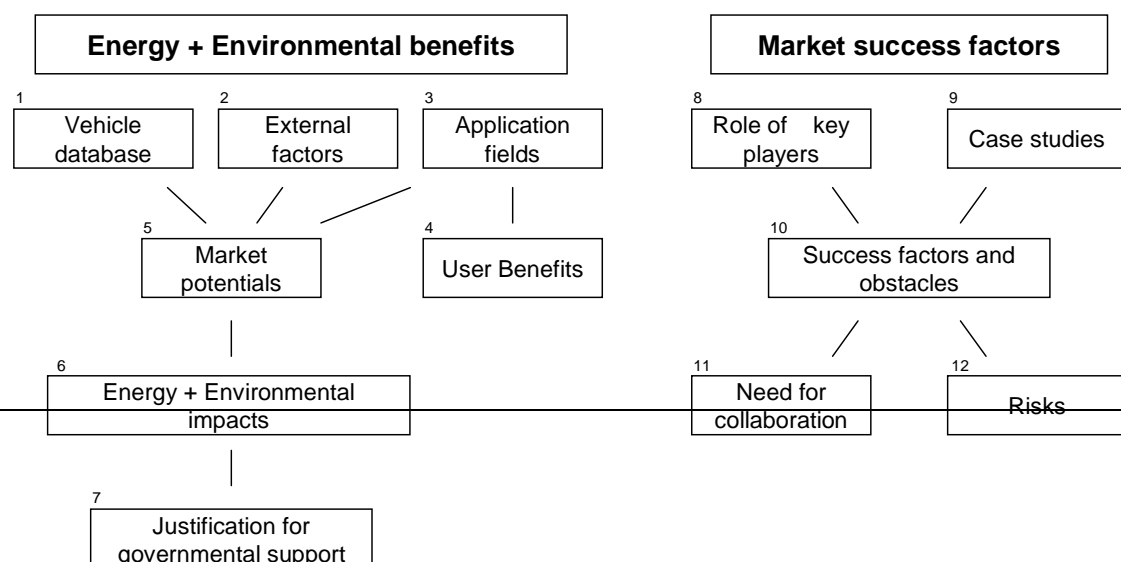
There is a wide variety of electric two wheelers all over the world, most of them serving niche markets. As the transportation systems are quite different from country to country, one specific vehicle type cannot be transferred into other areas without considering the corresponding market conditions and overall transportation system. This makes it difficult for manufacturers to enter in new markets.

Objectives:

This Subtasks 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.

Work description:



(1) A vehicle database (two sets: market products and prototypes) with the most relevant characteristics will illustrate the huge variety of the vehicle offer worldwide.

(2) Based on a comparison among the participating countries, an overview on the external factors for the market introduction of electric two wheelers will be developed. This will contain (among others):

- Regulations, homologation, safety: Harmonisation
- Urban transportation systems (city size, traffic flow), incl. intermodalities between the existing transportation systems ("chain-mobility")
- Cycling infrastructure (bicycle lanes, parking facilities)
- Cycling (and mobility) culture (number of bicycles/scooters per capita)
- Climate (weather, air pollution)
- Geographical characteristics (topography, river-crossing etc.)

(3) Based on this database, an investigation of the main application fields of the different vehicle types in different areas will show the user benefits (4) and give indications on the market potentials (5).

As a conclusion of these market potentials, the assessment of the environmental impacts (6) will justify governmental support (7) for the market introduction of electric two wheelers.

(8) The partners in this Subtask are expected to be some kind of key players in the market introduction in their country. Each of them will analyse his role as well as the one of the partners involved.

(9) As another approach some national programmes and projects will be analysed.

(10) This will result in a list of market success factors, which will show the need for collaboration (11) and give helpful indications on risks (12).

Methodology:

One representative of each country is collecting the vehicle data. The Swiss NewRide programme, (www.newride.ch) might serve as an exemple. Sources may be national statistics, bicycle and motorcycle associations, manufacturers or specific investigations. Important vehicles from other countries are added if data collection is affordable.

The partners in this subtask are collecting and providing the data required for the investigation of the external factors, the application fields and the role of the key players, based on a guideline developed in the group.

National programmes and projects as case studies.

Deliverables:

Vehicle inventory, version 1 (month 6)

Input for intermediate report (month 11)

Input for final report (month 23)

Vehicle inventory, version 2 (month 23)

Budget:

(To be defined according to partners involved)

4.2 Subtask 2: Market introduction

Partners involved	main contribution	Labour days)
NewRide (CH)	Analysis of former studies and projects. Analysis of the role of the different market actors in the countries represented in Annex XI. Recommendations for the four most important market actors regarding market introduction of electric two wheelers.	60
AVERE (BE)	Data collection on projects dealing with market introduction	3
CyclElectric (USA)		3
ITRI (TW)		3
Tokyo R&D (JP)		3

Background:

Electric two wheelers are not just a product which can be launched using existing distribution networks. Bicycle as well as motorcycle dealers usually have neither the required skill nor commitment to actively promote these vehicles – they often show a great lack of interest.

There are a lot of approaches to import electric two wheelers in various countries around the world. Many of them failed. The reasons are – besides quality, performance and cost, which do meet user requirements – an insufficient knowledge or a disregard of the market conditions.

Objectives:

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” developed in Subtask 1.

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

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 (e.g. awareness campaigns, exhibitions with collective booths and ride & drive opportunities, incentives for buyers as well as for dealers).

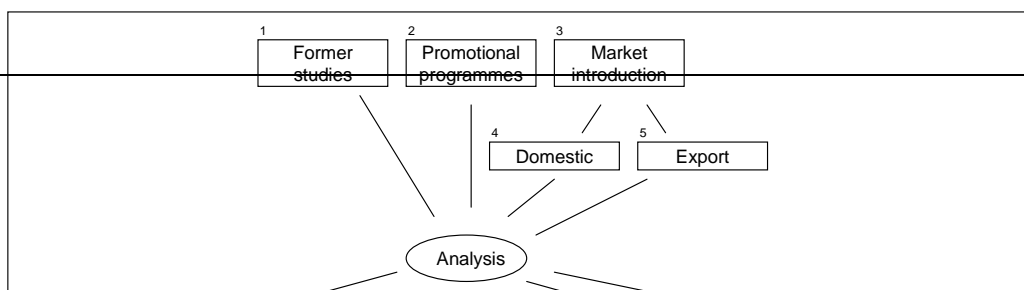
Work description:

A comparative study will be carried out analyzing

- (1) Former studies which investigated successful approaches for the market introduction of clean vehicles such as Annex VIII (Deployment Strategies for Hybrid, Electric and Alternative Fuel Vehicles), the EU supported projects UTOPIA (Urban Transport: Options for Propulsion Systems and Instruments for Analysis), E-TOUR (Electric Two Wheelers on Urban Roads) etc.
- (2) Promotional programmes such as the NewRide and VEL2 in Switzerland,
- (3) Experiences of market introduction of industry partners in the Annex both, in the domestic market (4) and export (5) as case studies.

The study will result in four sets of recommendations:

- (6) Recommendations for national authorities to support the market introduction of electric two wheelers.



- (7) Recommendations for local authorities to support the market introduction of electric two wheelers.
- (8) Recommendations for manufacturers for the market introduction of their products in the domestic as well as in other countries.
- (9) Recommendations for importers who want to introduce electric two wheelers produced in other countries in their country.

In addition, a guideline will give helpful advice for the collaboration of the main market actors:

- (10) Guideline for establishing national and local networks. Key actors of such networks include manufacturers, importers, dealers, governments at national and local levels, electric utilities etc.

The draft version of these recommendations will be reviewed and tested in the Partner countries of Annex XI:

- (11) Revision of the recommendations by the Partners involved in Annex XI based on their own experience and on stakeholder meetings (interviews, workshops etc.).
- (12) Final version of the recommendation set, based on the revision of the Partners.

Methodology:

Fictitious transfer of the Swiss promotion programme “NewRide” into the countries of the other partners of this subtask.

Analysing the results of former studies (Annex VIII, “Deployment strategies”, E-TOUR, UTOPIA etc.).

Experience of industry partners as case studies.

Developing 4 sets of recommendations (see above).

Applying these recommendations on projects represented by the partners in Annex XI.

Revise the recommendations based upon the test mentioned above.

Input by the subtask partners:

The partners of this subtask are requested to provide the following input to the subtask leader:

- all relevant documents on programmes on electric bicycles and scooters in their country,
- all relevant legislations on electric bicycles and scooters in their country,
- organisation of a stakeholder meetings in order to present and discuss the recommendation sets.

Coordination with other subtasks:

Subtask 1:

- The market success factors, the legislation and the application fields including the corresponding differences in the participating countries will be an important basis for the recommendation sets.

- The analysis of national programmes and projects will be useful for both, Subtask 1 and 2.

Subtask 3:

- The different technological requirements in the participating countries will have an influence on the recommendation sets.

Subtask 5:

- Establishing a platform for sharing experience among market actors is expected to be one important recommendation.

Deliverables (see section 6):

D2 Guideline "Collaboration of policy and industry in the market introduction of electric two wheelers", version 1 (month 2).

D6 Input for intermediate report including Guideline "Collaboration of policy and industry in the market introduction of electric two wheelers", version 2 (month 11).

D11 Input for final report including Guideline "Collaboration of policy and industry in the market introduction of electric two wheelers", version 3 Recommendations for national authorities (month 22).

Effort (man month):

(To be defined according to partners involved)

4.3 Subtask 3: Technology Improvements

Partners involved	main contribution	Labour days
ITRI (TW)	<ul style="list-style-type: none"> - 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). <p>Identify off-board infrastructure (chargers, battery exchange stations) and define needed on-board technology standards to help higher dissemination of two wheelers.</p>	120
AVERE (BE), CycleElectric (USA), ITRI (TW), NewRide (CH), Tokyo R&D (JP), Arsenal Research (AT)	General information & reviewing	10 each
<p>Background:</p> <p>Existing electric two wheelers meet the requirement of specific market segments. Often players in these market segments wait for the introduction of more advanced or powerful developments (e.g. if it could do "xy" better we would buy much more...) before they will introduce electric two wheelers. The identification of these technological needs is therefore required.</p> <p>Electric two wheelers up to today are often isolated developments with relatively low standardization. Battery packs as an example are often used in combination with proprietary chargers and the size as well as the electrical characteristics of the battery pack do not allow exchangeability between different products. A set of minimum standards could therefore boost the production numbers of electrical subcomponents and as a consequence lower price and/or increase performance.</p>		
<p>Objectives:</p> <ul style="list-style-type: none"> - 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. 		
<p>Work description:</p> <ul style="list-style-type: none"> - What Lifetime of batteries and vehicles can be expected? What is the state of the art? (This question is important for the total cost of vehicles). - What range and power can be expected? Will the requirements of the average customer be achieved? - How can battery exchange be expanded over a large amount of different products from different manufacturers? - How much improvement is in the near future possible and how will it affect the total system price? 		
<p>Methodology:</p> <ul style="list-style-type: none"> - Roadmap 		

- Value Performance Curves (Perceived Value plotted against Deliverable Costs)
Deliverables: Input for intermediate report (month 11) Input for final report (month 23)
Budget: (To be defined according to partners involved)

4.4 Subtask 4: Infrastructure

Partners involved	main contribution	Labour days
NewRide	Investigate the infrastructure requirement needed to remove the market introduction barriers that their lack could present for introduction of electric cycle Farer, identify how they could become an asset Make relevant and related recommendations	60
AVERE (BE), CycleElectric (USA), ITRI (TW), NewRide (CH), Tokyo R&D (JP), Arsenal Research (AT)	General information & reviewing	10 each
<p>Background:</p> <p>Whereas the battery packages can be removed from most of the e-bikes, e-scooters need charging stations close to the parking lots. For users living in apartment houses, the connection to the grid can be a problem.</p> <p>As the Battery packages are rather small, a battery exchange system could make sense in order to extend the autonomy with one battery charge resp. to shorten the time needed for charging.</p> <p>The energy consumption per charge is very small (< 1 kWh for an e-bike, 2 – 5 kWh for an e-scooter). This doesn't justify expensive electricity meters. If the electricity suppliers can't (or won't) offer this small amounts of current for free, a low cost solution should be developed.</p> <p>Preferred parking facilities should be investigated as an effective user benefit.</p> <p>Another field of infrastructure for electric two wheelers is the road dedicated to special vehicle categories (bicycle lanes etc.)</p>		
<p>Objectives:</p> <p>E-bikes: Safety of parking places. Adaptation of the existing road networks to the specific requirements of E-bikes (speed etc.).</p> <p>E-scooters: Public charging infrastructure for users living in apartment houses with no access to sockets inside the house.</p> <p>Environmental zones</p>		
<p>Work description:</p>		
<p>Methodology:</p>		
<p>Deliverables:</p> <p>Input for intermediate report (month 11)</p> <p>Input for final report (month 23)</p>		
<p>Budget:</p> <p>(To be defined according to partners involved)</p>		

4.5 Subtask 5: Sharing experience

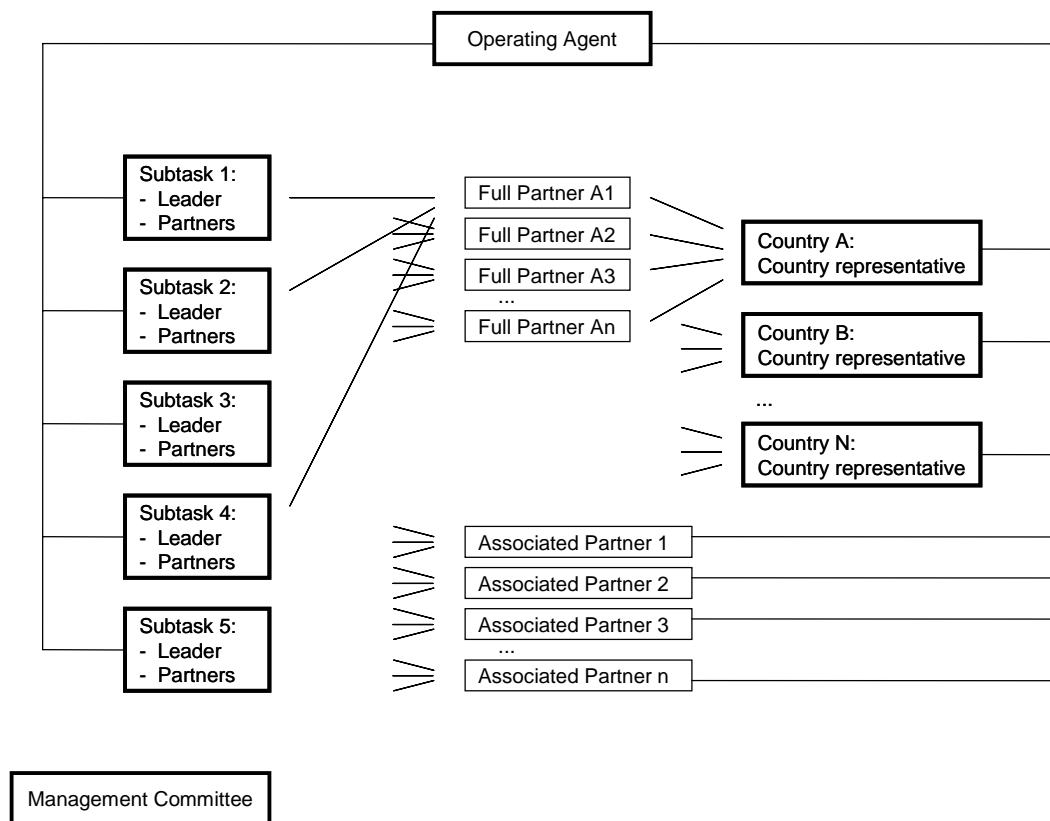
Partners involved	main contribution	Labour days
AVERE (EU)	Organisation of on experts meeting incl. technical visit in Europe Coordination and reports on the technical visits Issuance of guideline for technical visits	60
Urs Schwegler (CH)	Organisation of one experts meeting incl. technical visit in Switzerland	5
ITRI	Organisation of one experts meeting incl. technical visit in Taiwan	5
Tokyo R&D	Organisation of one experts meeting incl. technical visit in Japan	5
CyclElectric	Organisation of one experts meeting incl. technical visit in USA	5
<p>Background:</p> <p>There are a lot of activities going on around the world to promote electric two wheelers. However there's only little coordination which could create synergies and avoid repeating mistakes.</p> <p>Whereas Subtask 1 – 4 of this Annex aim at investigating the technical and scientific background in the most important areas, Subtask 6 is dealing with the implementation and coordination of sharing experience.</p>		
<p>Objectives:</p> <p>Establish a platform for sharing experience among project managers with an option for continuation beyond the Annex XI period.</p>		
<p>Work description:</p> <p>The work will mainly be based on technical visits which will be organized in the context of the quarterly meetings. They can be either technology oriented (vehicles, components etc.) or market oriented (demonstration programmes, City programs, research institutes). Conferences can be another kind of useful supplement to the quarterly meetings. All these technical visits will serve as case studies for the information exchange and at the same time improve the information exchange directly.</p> <p>A guideline for the organisation and evaluation of these visits will be developed during the Annex' period. A first version of a guideline for the organisation will be available at the beginning of the Annex. Based on the experiences of the technical visits during the projects period, the guideline will be further developed.</p> <p>A study on existing information platforms on similar matters will serve as a base for the guideline for technical visits.</p> <p>Finally, a structured reporting on these visits will make the experience accessible for the public.</p>		
<p>Methodology:</p> <p>Interactive development of a guideline for the organisation and evaluation of technical visits: A draft version will be applied to the technical visits carried out in the context of the quarterly meetings. After each quarterly meeting, the guideline will be revised, based on the experience of these visits.</p> <p>The technical visits will be organized by the Subtask Leader, supported by project managers of the projects visited and the partners in this Subtask in the corresponding countries.</p>		
<p>Deliverables:</p> <p>Guideline for technical visits, version 1 (month 2)</p> <p>Input for intermediate report (month 11)</p> <p>Guideline for technical visits, version 2 (month 12)</p> <p>Work plan for the platform management beyond the Annex II period (month 23)</p> <p>Input for final report (month 23)</p> <p>Guideline for technical visits, version 3 (month 24)</p>		

Budget:

(To be defined according to partners involved)

5 Organisation

The Structure of the organisation is shown in the figure below.



5.1 Management committee

Members of the management committee are the Operating Agent, the Subtask Leaders and the Country Representatives.

The management committee is responsible for the admission of new members (Full Partners, Sponsors).

It supervises and coordinates the work in the subtasks.

It reviews the intermediate and the final report.

It fixes the locations and dates of the quarterly meetings incl. the corresponding technical visits.

The management committee meets at the Annex' quarterly meetings.

5.2 Operating Agent

The Operating Agent is responsible for the project management. This includes:

- Cost statements, supervision of the deliverables, etc.,
- Presenting the state of work to the Executive Committee of the Implementing Agreement at its official meetings,
- Presenting an intermediate report at the end of month 12 and the final report at the end of month 24,
- Organizing, leading and reporting of the quarterly meetings in coordination with the technical visits. The organisation of the technical visits, however, will be done by the Leader of subtask 5,
- Providing inputs to the website of the Annex,
- Coordination of the dissemination activities.

The Operating Agent is the leader of the management committee.

5.3 Subtask Leaders

The Subtask Leaders are responsible for the work of the corresponding subtask. They present the work progress at the quarterly meetings.

A Subtask Leader calls a substitute which can replace him at the quarterly meetings.

The Subtask Leader provides the input for the intermediate report and the final report to the Operating Agent (month 11 and 23).

5.4 Contracting parties

Each country which is participating in the Implementing Agreement for Electric and Hybrid Vehicles can join the Annex XI as a main partner. These countries are paying an 5000 EURO annual fee for the project management which gives free access to Annex XI to any partner based in the corresponding country.

Each contracting parties is calling one of its partners as a member of the management committee and coordinator of the national activities according Annex XI (country representative) and a substitute.

The admission of new member countries has to be approved by the Executive Committee.

- , in the present case Austria, Switzerland and USA, contributing each EURO 5000 per year to the management cost and being the official representatives with right for voting;
- sponsor, in the present case Tokyo R&D and AVERE, contributing each EURO 3000 per year to the management cost and having no right for voting;
- third parties, in the present case ITRI, contributing EURO 3000 per year to the management cost and having no right for voting.

Partners can be representatives from industry, demonstration projects, governmental organisations at all levels, associations or research institutes

and can participate in one or more Subtasks. They provide the required input to the Subtask Leaders in time.

and can participate in the technical visits (see Subtask 5) without paying a fee.

Partners are responsible for funding their participation in the Annex XI.

The admission of additional contracting parties during the projects period has to be approved by the management committee.

5.5 Sponsors

Sponsors are partners of Annex XI outside the countries participating Annex XI.

Sponsors can be representatives from industry, demonstration projects, governmental organisations at all levels, associations or research institutes.

Sponsors can participate in one or more Subtasks. They provide the required input to the Subtask Leaders in time.

They can participate in the quarterly meetings as well as in the technical visits (see Subtask 5) without paying a fee. They have free access to the results of Annex XI. They are mentioned in all Deliverables.

Sponsors are responsible for funding their participation in the Annex XI. In addition, they pay an annual fee of € 3'000 for the project management.

The admission of Sponsors has to be approved by the management committee.

5.6 Third parties

Representatives from industry, demonstration projects, governmental organisations at all levels, associations or research institutes and not corresponding to one of the two above mentioned categories may participate in the annex as third party.

They contribute EURO 3000 per year to the management cost and having no right for voting.

5.7 Partner profiles

AVERE (Belgium)

AVERE, the European Association for Battery, Hybrid and Fuel Cell Electric Vehicles is a non profit-making association, founded in 1978 under the aegis of the European Community, as a European network of industrial manufacturers and suppliers for electric vehicles. The Association's goal is to promote the use of Battery, Hybrid and Fuel cell electric vehicle and to rationalize the efforts of its member companies in the

scientific and technological developments. It has consequently efficient and sufficient know-how of the market, the product and all other relevant actors.

AVERE is composed by an increasing number of national Associations dealing with Electric Vehicles, 13 up to now, representing over 500 companies active in the field. The network has consequently great potential for information collection.

It should be noted that AVERE, together with the “Electric Drive Transportation Association” (USA-Canada) and the “Electric Vehicle Association of Asia Pacific” hosted by JARI, constitutes the “World Electric Vehicle Association” (WEVA) which organizes every year the EVS Symposium, gathering over 1500 specialists in the field of Battery, Hybrid and Fuel cell Electric vehicles. EVS is the world’s premier event in the field and surely constitutes another important dissemination tool.

AVERE has a long lasting action in the field of standardization for electric driven vehicles. Its first activity on this subject took place in the framework of the action COST302 (1980-1983). More recently the association was deeply involved in the work of HarmonHy, of which it was in charge of the coordination.

AVERE was also the coordinator of ELEDRIVE, the Thematic Network on Fuel Cells and their applications for Electric & Hybrid Vehicles, gathering 41 partners". More recently, AVERE also coordinated the successful SUBAT study.

Further more it is involved in different projects related to Hydrogen (HYSOCIETY) or mobility management (IMMACULATE).

These three aspects show that management and networking co-ordination is a great part of AVERE's activities and justifies that the Association would ensure the management of Annex XI.

NewRide (Switzerland)

NewRide is a Swiss association for the promotion of electric two wheelers www.newride.ch. It initiated in 2001 with the support of the Swiss Federal Office of Energy. The two main objectives are the raising of the awareness of electric two wheelers and the support of the suppliers (manufacturers, importers and dealers) in their professional education and marketing. It is locally implemented by some 30 “NewRide-Cities”.

NewRide will be represented in Annex XI by Urs Schwegler bureau for transportation planning is a consultancy institute based in Fischingen (CH). It will be represented by Urs Schwegler. He has studied transportation engineering at the Swiss Federal Technology Institute of Zurich and has a long experience in the promotion of energy-efficient road vehicles. He was and still is involved in several demonstration projects such as the Large Scale Fleet Test with Lightweight Electric Vehicles in Mendrisio or NewRide, the Swiss promotion programme for electric two wheelers.

Urs Schwegler participated in various international research projects which are relevant for Annex XI (HEV-Annex II, Environmental Impacts of Electric Vehicles, UTOPIA, E-TOUR ...). He is member of the management of e'mobile, the Swiss section of the World Electric Vehicle Association WEVA.

Industrial Technology Research Institute (Taiwan)

The Industrial Technology Research Institute - ITRI - is a non-profit R&D organization engaging in applied research and technical service(<http://www.itri.org.tw>).

It was founded in 1973 by the Ministry of Economic Affairs (MOEA) to attend to the technological needs of Taiwan's industrial development. By year 2001 it has grown to a 6000 people operation, and serves as the technical center for industry and an unofficial arm of the government's industrial policies in Taiwan.

Backed by its broad research scope and close industrial ties, ITRI is becoming an increasingly active member in the global industrial R&D community. ITRI has been involved in various fields of clean energy and its application technology research such as hybrid electric vehicle, renewable energy, advanced battery, light electric vehicle etc.

Since 1990s ITRI has been participating in government electric two wheel vehicle research and promotion project including regulation drafting, fleet demonstration, infrastructure development and public education.

Tokyo R&D (Japan)

CyclElectric (USA)

Arsenal Research

Arsenal research is a subsidiary of the Austrian Research Centers (ARC), Austria's main research organization for applied research. Within the ARC arsenal research focuses on mobility and electrical energy issues. With more than 50 years of experience in laboratory development, research and accredited testing, international research activities are the basis for an extensive collaboration with industry.

In the context of energy technologies arsenal research provides focused expertise and cutting-edge technology for the development, testing and optimization of electrical drives and facilities. Special emphasis is placed on sophisticated simulation tools on system level (vehicles, stationary energy production systems, etc.) as well as on components level (electric auxiliaries), high-quality measurement and testing services and interdisciplinary know-how for development of innovative electrical components. In this context a comprising development and simulation environment was set up for intelligent electric components. This wide range of competences and services has made arsenal research a central point of contact for both power engineering and drive technologies.

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6 List of Deliverables

D1	Work plan	month 2
D2	Guideline “Collaboration of policy and industry in the market introduction of electric two wheelers”, version 1	month 2
D3	Guideline for technical visits, version 1	month 2
D4	Structure for website on Annex XI	month 4
D5	Vehicle inventory, version 1	month 6
D6	Guideline “Collaboration of policy and industry in the market introduction of electric two wheelers”, version 2	month 11
D7	Intermediate Report	month 12
D8	Guideline for technical visits, version 2	month 12
D9	Work plan for the platform management beyond the Annex II period	month 23
D10	Vehicle inventory, version 2	month 22
D11	Guideline “Collaboration of policy and industry in the market introduction of electric two wheelers”, version 3	month 22
D12	Guideline for technical visits, version 3	month 22
D13	Final report incl. an Executive Summary	month 24
D14	Brochure describing the highlights of the Annex	month 24

7 Dissemination

7.1 Reporting

The reports on the work carried out in Annex XI are described in section 6 (above). They are put on the internet for free download and can be ordered for free at the Secretary of the Implementing Agreement.

The reports will be distributed whenever the Annex XI will be presented incl. the technical visits (see Subtask 5).

7.2 Internet

A new section on Annex XI will be added to the existing Website of the Implementing Agreement (www.ieahev.org), including:

- Project description (work plan)
- Deliverables (for download)
- Agenda on coming events with a focus on technical visits (see Subtask 5).

The website will be hosted by the the Secretary of the Implementing Agreement or by the Annex 1.

7.3 Conferences

The Operating Agent coordinates the presentation of the results of Annex XI at important conferences considering cost-efficiency.

7.4 Media

Reporting on Annex XI in national and international media by all partners will be part of the future market introduction of electric two wheelers. Therefore the Operating Agent will provide text modules and pictures to the partners.

8 Schedule

The project will last 24 months after the approval by the Executive Committee of the Implementing Agreement.

9 Budget summary

9.1 Project management only

The annual costs for the project management as described in section 5.2 are estimated as follows (in €):

- Cost statements, supervision of the deliverables, etc.	2'000
- Presenting the state of work to the Executive Committee at its official meetings (twice a year)	4'000
- Presenting an intermediate report at the end of month 12 and the final report at the end of month 24, incl. Brochure (average of two years)	10'000
- Organizing, leading and reporting of 4 quarterly meetings in coordination with the technical visits. The organisation of the technical visits however will be done by the Leader of subtask 5	12'000
- Coordination of the dissemination activities	<u>5'000</u>
- Total	<u>33'000</u>

The participating countries pay an annual fee of 5'000 € for the project management, managed by the Operating Agent. This amount covers the participation of all partners in the corresponding countries (full partners).

Sponsors (partners from outside the countries participating in the HEV Implementing Agreement) pay an annual fee of 3'000 € for the project management, managed by the Operating Agent.

This budget may be revised according to the amount funded by the number of partners.