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Projektentwicklung - Consulting - Planung - Projektmanagement

Ressourcen Management Agentur GmbH

Akku4Future

(Acronym: Akku4Future – Dis)

E-Mobility Strategy Outline of the Akku4future project region

A summary of potentials and strategies of South Tyrol (I) – Veneto (I) – Carinthia (A)

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FUTURE



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1 Introduction

This study is part of the “Interreg IV project Akku4future “, thus founded by the European Union's European Regional Development Fund.

1.1 The goals of the study

The goal of the following strategy outline is to illustrate the potentials of the project region and to develop proposals for future transnational strategies and projects in the field of E-Mobility.

The project region is defined by the project partners of this Interreg IV project:

- South Tyrol: Fraunhofer Italy, TIS innovation park
- Veneto: Treviso Tecnologia (since 2014 t²i –trasferimento tecnologico e innovazione s.c. a r.l.)
- Carinthia: Fachhochschule Kärnten, Entwicklungsagentur Kärnten GmbH

1.2 The reports of the regions

This summary is based on the following reports:

Egebrecht, T. (2014). *Strategy E-Mobility South Tyrol*. Bolzano: TIS innovation park.

Karitnig, A., & Obernosterer, R. (2014). *Environmental Evaluation of Individual Road Transport in Carinthia*. Villach: Ressourcen Management Agentur GmbH on behalf of Entwicklungsagentur Kärnten GMBH.

Lepuschitz, B., & Obernosterer, R. (2014). *E-Mobility Strategy Outline for Carinhia*. Villach: Ressourcen Management Agentur GmbH on behalf of Entwicklungsagentur Kärnten GMBH.

Morandin, M. (2014). *Electromobility Analysis in Veneto Region, Draft Version*. Padova: Electric Drives Laboratory - University of Padova.

Morandin, M. (2014). *Electromobility Analysis in Veneto Region, Part 2*. Padova: Electric Drives Laboratory - University of Padova.

Obernosterer, R., Karitnig, A., & Kronhofer, A. (2013). *Akku4future - E-Mobility map*. Ressourcen Management Agentur GmbH on behalf of Entwicklungsagentur Kärnten GMBH, Villach.

2 The Analysis of the regions

2.1 South Tyrol (I)

2.1.1 Methods

1. Outline of an e-mobility strategy based on:
 - analysis of international, national and regional strategy papers
 - research data
 - interviews with stakeholders
 - surveys

2.1.2 Results

1. The following strategic topics of the e-mobility-strategy-outline have emerged from the investigations:
 - Infrastructure and energy
 - Mobility management
 - Awareness-raising & communication
 - Inter-sector co-operation / International collaboration

The following measures in these strategic topics have been identified as priority and should be transferred into an implementation plan:

- Concrete awareness-raising of electro-mobility issues via information and training
- Spatial and transport planning as a means to regulate mobility
- Development and creation of infrastructure for electro-mobility (system construction)
- New sustainable offerings / mobility services for business and tourism
- Systematic fleet management and vehicle park management in terms of sustainable mobility and electro-mobility
- Encourage electro-mobility (incentives and promotion)
- Measures for the economy that will promote / expand electro-mobility

2.2 Veneto Region (I)

2.2.1 Methods

1. State of Art Analysis in the electro mobility topic:
 - Analysis of vehicles number by typology
 - Analysis of a typical inhabitant journey
 - Italian legislative framework
 - Permanent measures in Veneto region

- Italian electro mobility market
2. Analysis of capabilities and potentials of the region Veneto. The following methods were implemented:
 - An investigation for projects, initiatives and funding programs in the field of e-mobility
 - An online search for actors in the field of e-mobility
 - A questionnaire
 - A workshop in collaboration with the Study Group on the Automation and Conversion Energy of Centro Produttivita' Veneto - CPV (Productivity Centre of Veneto Region).
 - 7 Interviews with relevant stakeholders

2.2.2 Results

1. State of Art Analysis in the electro mobility topic:
 - The market of hybrid and electric vehicles in Veneto region is very low (0.3 % and 0.002 % respectively) compared to the traditional one.
 - The average daily transfer need is about 13 km in length and 22 min in time, besides 78 % of car users drive less than 10; 000 km/year (i.e. about 30 km/day).
2. Analysis of the capabilities and potentials the Veneto region.
 - There are 94 (80 companies and 14 research institutions) actors in the field of e-mobility identified in this investigation.
 - About 50% of these actors are classified as e-mobility-priority in this study.
 - About 50 actors attended the workshop "16th edition AC Motor Drives Technology - State of the art, prospects and expectations of electromobility in the Veneto Region" on the 11th of June 2014.
 - 20 % of 94 actors filled out the questionnaire.
 - It could be crucial for future developments of this work that each Veneto Region company expresses its interest field within electro mobility sector.
 - The electro mobility topic could be a strategic sector for the company that operate in the field of power electronics and energy storage.
 - It can be stated that today the electric vehicle is already suitable for short trips, especially urban area, instead the hybrid vehicles or electric ones with range-extend are preferable for medium/long trips, extra-urban area.
 - The research in the new technologies derived from the development in the electro mobility field should have evidence in other crucial areas as Energy, Smart Grids and Traction.
 - The current storage systems are the major limitation to the expansion of electro mobility field.
 - The problem seems to be more political than technical because the national government invests lightly in start-up of small companies with big potential.

2.3 Carinthia (A)

2.3.1 Methods

1. The environmental evaluation of individual road transport in Carinthia was carried out based on 5 scenarios:
 - Scenario "Status quo"
 - 4 e-mobility scenarios (SZ1 – SZ4)
2. Analysis of capabilities and potentials of the region Carinthia. The following methods were implemented:
 - An online search for actors in the field of e-mobility
 - A questionnaire
 - A workshop
 - An online search for projects, initiatives and funding programs in the field of e-mobility.
3. Outline of an e-mobility strategy based on analyses of international, national and regional strategy papers and the investigations described above.

2.3.2 Results

1. The most important results of the environmental evaluation of individual road transport in Carinthia:
 - Currently fossil fuelled cars are predominantly responsible for the environmental effects of individual passenger transport (~97%) in Carinthia. Electro mobility only plays an insignificant role.
 - The carbon footprint of individual passenger transport in Carinthia is 1.087.000 tons of CO₂-equivalent, which is approximately 1,95 tons per capita.
 - The higher the E-mobility fraction, the greater the influence of the power generation on the environmental impact ("green electricity").
 - The higher the efficiency of vehicles and power generation, the more relevant is the vehicle production, maintenance and disposal (StatusQuo: ca 13%, scenario SZ4. ~ 43% of the environmental impact)
 - The production and disposal of the battery has significant influence on the life cycle results of an electric vehicle (production: 30%; disposal: about 60%).
 - Therefore intelligent concepts for vehicle batteries (recycling, reuse, etc.) are becoming increasingly important for a sustainable mobility system.
2. The analysis of the capabilities, potentials and strengths of the Carinthia region can be summarised as follows:
 - There are 116 actors in the field of e-mobility identified in this investigation.
 - About 50% of these actors are classified as e-mobility-priority in this study.
 - 30 actors attended the workshop "Akku4future" in Klagenfurt on the 18th of September.
 - 26 actors filled out the questionnaire.
 - There are already many best practise and pilot projects implemented
 - Other projects are in the implementation phase.

- The following subject fields are well addressed in this project:
 - Infrastructure Provisioning, especially charging stations
 - Awareness raising activities
 - Mobility-Management
 - Carinthia holds potential in the field of “Technology development”. The Carinthia University of Applied Sciences is one of the main players in this field.
3. The e-mobility-strategy-outline lists a bunch of measures, which are necessary and/or useful for a broad implementation of e-mobility in Carinthia. From a present-day perspective these are the most important one and therefore should be implemented next:
- Better cooperation between MANAGEMENT EVALUATION, NETWORKING and TECHNOLOGY DEVELOPMENT
 - Foundation of an e-mobility platform to interlink existing know-how and experiences in the field of e-mobility in Carinthia and beyond.
 - Analyses of mobility behaviour and requirements.
 - Development of strategies to integrate e-mobility in the existing public traffic system.
 - Funding for leading companies and institutions in the e-mobility technology development in Carinthia (Value chain in Carinthia).
 - TECHNOLOGY DEVELOPMENT
 - Carinthia should focus on applied research not on basic research in order to facilitate technology development.
 - The acquired data of this study does not enable a clustering of focus areas in the field of technology development in Carinthia. Therefore it is important to encourage companies to suggest concrete ways, potentials and goals of technology development in Carinthia
 - Further development of the Akku4future project outcomes.

3 Results and Outlook

In the three project regions several analyses have been implemented during this Interreg IV project. The methods were slightly different and so were the outcomes. Nevertheless some results all three regions have in common or affect them all:

- Currently fossil fuelled cars are predominantly responsible for the environmental effects of individual passenger transport. Electro mobility only plays an insignificant role.
- E-Mobility is one crucial topic of a bunch of measures, which should lead to a competitive and resource efficient transport system in the future.
- There are already many best practise and pilot projects implemented or in the implementation phase in all regions.
- There are many capabilities and potentials in the field of e-mobility in the regions, represented by several initiatives, companies and research institutions.

- Better cooperation between MANAGEMENT EVALUATION, NETWORKING and TECHNOLOGY DEVELOPMENT is considered as one of the most important strategies from now on (cooperation between policy, economy and research).
- Further development of the Akku4future project outcomes (for example a portable measuring device for batteries and their ecological assessment, further analyses of potentials of companies in the field of e-mobility, foundation of e-mobility platforms, etc.) can make a significant contribution to facilitate e-mobility in all three project regions.

These small regions cannot fulfil, implement or even invent all measures to implement e-mobility by their own. Therefore they have to expand their national, transboundary and international network and cooperation, thus enhancing their strengths.