



Interreg Project ITA-AUT

Akku₄Future

**Strategies and proposals for further projects
in the region of South Tyrol**

TIS Techno innovation South Tyrol KAG

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Strategy E-Mobility

The goal of the following strategy outline is to illustrate the potentials within the region of South Tyrol and the proposal for future transnational strategies and projects in the field of E-Mobility.

The focus is made on the region of South Tyrol, where TIS innovation park is situated and had made an exclusive analysis on local data source and industry network.

1.1 International, national and regional Strategies

Starting point of the strategy outline was a research about the local business environment around the rising topic of e-mobility. Through analysis of local data information and various interviews with different stake holders different papers have been realized. A descriptive summary of identified measures and a visualization of the most important players in the field of e-mobility can be find in the attachment.

For the project region of South Tyrol the strategy outline E-Mobility is mainly based on the following strategy papers:

- **European Comission:** White Paper - Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system, March 2011 - Find out more... [LINK](#)
- **Italian Ministry of Transportation and Infrastructure** – National transport strategy [LINK](#) to the web site (Italian version)
- **Euregio –Grüner Brenner Korridor (Green Corridor Brennero):** Sustainable measures for traffic and other fields. Find out more.... [LINK](#) (German version)
- **The Alpine Convention** is an international treaty between the Alpine countries (Austria, France, Germany, Italy, Liechtenstein, Monaco, Slovenia and Switzerland) as well as the EU. Find out more... [LINK](#)
- **Department for mobility in South Tyrol** (Abteilung Mobilität der Autonomen Provinz Bozen Südtirol) – Green Mobility – Find out more... [LINK](#)
- **Department for Environment (Landesagentur für Umwelt)** - Publication of Climate strategy for 2050 (Klimaplan 2050). Find out more... [LINK](#) (German version)
- **Business Location Südtirol** – Coordinator of Strategy for „Green Mobility“, and coordination of the project - Roadmap for sustainable Alpine Mobility (SAM) written by Fraunhofer Italia

1.2 The goals of the region

The goals of the region derives from the overall strategy “Green Region South Tyrol” set by the regional government and by the multi annual program of the government in place and the capabilities of the region.

1.3 Strategy and subject fields, players and supporters

All strategies have in common: The technology E-Mobility is one important part of a bunch of measures, which should lead to a sustainable mobility system in the future. Therefore, E-Mobility cannot be treated as a single topic. The following structure of strategy and subject fields, players and supporters has been evolved during the analysis of various strategy papers. The classification serves as a foundation for the assignment of the measures.

- The Strategy fields **ENERGY – MOBILITY-TECHNOLOGY-COOPERATION** are the headline of the structure and indicate the correlation of (built) environment (SPACE), the demand and providing of ENERGY and the requirement of MOBILITY.
- The players and supporters **POLICY - RESEARCH - ECONOMY - SOCIETY** implement, receive and support the measures.
- The superior subject fields eMobility **MANAGEMENT, INFORMATION, NETWORKING, INFRASTRUCTURE - REGULATORY MEASURES - AWARENESS-RAISING ACTIVITIES, STRATIGIC PLANNING** contain leading measures, which enable, accompany and support the specific subject fields.
- The specific subject fields **MOBILITYMANAGEMENT, LAND-USE and TRAFFIC PLANING – INFRASTRUCTURE PROVISIONING, TEHCNOLOGY-DEVELOPMENT** are the basis. They represent the definite measures relating to the strategy fields ENERGY – MOBILITY – TECHNOLOGY - COOPERATION and therefore correlate with each other.

Strategy fields for mobility		
ENERGY - Green MOBILITY Management - New TECHNOLOGY - COOPERATION		
Players and supporters		
POLICY - RESEARCH - ECONOMY - SOCIETY		
superior subject fields		
Mobility MANAGEMENT, INFORMATION, NETWORKING, INFRASTRUCTURE		
REGULATORY MEASURES (laws, fiscal incentives, stimulation, information, etc.)		
AWARENESS-RAISING ACTIVITIES, STRATIGIC PLANNING;		
specific subject fields		
MOBILITY-MANAGEMENT LAND-USE- and TRAFFIC PLANNING Planning of overall traffic infrastructure, priority mapping, strategic management plan for micro and micro zones, strategic communication of common goals to avoid and reduce traffic		INFRASTRUCTURE PROVISIONING Smart grid, sustainable energy system; intelligent traffic systems; charge stations; smart communication
		TECHNOLOGY-DEVELOPMENT Attractive sharing system; new TECH for vehicle- and infrastructure, efficient use of resources, business cooperation, international exchange

1.4 The capabilities of the regions

The potentials of the region Carinthia (Austria) were analysed by a survey. The potentials of the region Veneto (Italy) were inferred from the study: Ph.D. Eng. Mattia Morandin, Electromobility Analysis in Veneto Region, Draft Version, Electric Drives Laboratory - University of Padova. The potentials of the region of South Tyrol (Italy) have been elaborated, analysed and defined from analysing all the different sources, like research data, interviews with stake holder and surveys.

1.4.1 South Tyrol (I)

South Tyrol's outlook and strategy for electro-mobility

Business, towns and municipalities are looking for sure guidelines in a new sustainable mobility concept for South Tyrol and are working on a common strategy in order to orient themselves in an increasingly complex system of rapid technological development, growing environmental demands and changing user needs. The requirements for an overall concept are influenced by drivers at global and regional level such as megatrends or political regulations. The Autonomous Province of Bolzano-South Tyrol aims to position itself clearly in this process of change and, with the topic of "Green Mobility", to place another important building block in the implementation of a model green region in the Alps. This is of course only possible with a systematic draft paper and clear strategic priorities.

The last two years have seen work carried out in the province on a strategic guide for the Green Mobility project in South Tyrol. The Provincial Council for Mobility and the Mobility Department have commissioned the Business Location South Tyrol organisation and Fraunhofer Italia to create a roadmap. This has been drawn up with various partners and will be presented by the end of 2014. The roadmap illustrates and examines the topic of sustainable mobility in highly diverse contexts, analysing both strengths and weaknesses and the potential for mobility in South Tyrol. Special attention was paid to the topic of electro-mobility and specific strategic measures proposed.

The following strategic topics have emerged from the data gathered and from numerous interviews and surveys on electro-mobility conducted with stakeholders and companies in South Tyrol.

A) Infrastructure & energy

- Energy management: ensuring sustainable electro-mobility means implementing environmentally conscious energy production and a sustainable energy management system. The smart grid and intelligent networks are important topics for the future.
- Information and communication technology: the ICT system must be developed to meet the latest standards. Future-oriented investments must be made to guarantee a sustainable strategy and long-term quality management in terms of excellent service and outstanding safety. From navigation systems to internet connections, the age of networked mobility is upon us.

- Charging stations: these must be designed to meet traffic needs (traffic flows) and local requirements. Technological developments in batteries and cars, including applicable standards, are just as important as additional offers that give added value to waiting times.
- Transport infrastructure (road surfaces, crash barriers, signs, etc.): in future everything will link modern traffic usage patterns with electro-mobility to create an intelligent networked system, all in the sense of mobility that is modern, comfortable, safe and above all “convenient” (sharing, socially sustainable).

B) Mobility management

- New mobility in future also needs better planning and management owing to the high demands imposed on people and technology. Complexity is rapidly increasing due to new interfaces to various topics and through the age of networking. Good strategic planning should take account both of “soft facts” (smart systems, ICT, information services, security systems, IT & software) and “hard facts” (infrastructures, automotive technologies and new technology). This includes the consistent requirement for high specialisation (training) of local experts, as only in this way can a modern mobility system be systematically and comprehensively created with very different interfaces and development potential.
- Optimise the design of spatial planning measures and strategies and communicate them in harmony with new technology and advanced skills (know-how).

C) Awareness-raising & communication

- General communication work (PR) on the topic of electro-mobility among the population and young people.
- Specific awareness-raising of the population in cities or rural communities as regards local mobility topics.
- Proactive information for and exchanges with road users.
- Underpinning communication with measures (consistent implementation and presentation of the impact of measures, e.g. improving quality of life).
- Encouraging motivation and positive thinking.

D) Inter-sector co-operation / International collaboration

- Interregional and international co-operation on sustainable mobility and new mobility systems.
- Using synergy effects from similar initial positions with neighbouring regions (joint financing, joint systems thinking, standardisation of interfaces and standards, proactive communication and exchanges)
- Comparison of objectives, rules and sustainable strategic planning via networking and clear intention to co-operate.
- Co-operation with various interest groups, business sectors and social levels.

The following measures are emerging from today's perspective in these various strategic areas, to be implemented according to priority following further crystallisation into an implementation plan:

- ❖ Concrete awareness-raising of electro-mobility issues via information and training:
 - Information events and PR campaigns (press work).
 - Infopoint in a mobility centre for electro-mobility / sustainable mobility issues.
 - Targeted training of appropriate professional groups / students in electro-mobility (mechatronics, high-performance electronics, battery management).
 - Website dedicated to Green Mobility South Tyrol, with page on electro-mobility in South Tyrol (e.g. information on charging stations and mobility offerings).

Example: raising public awareness through local institutions, politics or other stakeholders via targeted events such as trade fairs, road shows or information events on electro-mobility. New events, such as electric bike races, e-gocarts, electric car races, e.g. at the Safety Park or on safe routes.

- ❖ Spatial and transport planning as a means to regulate mobility:
 - Electrification of local public passenger transport – e.g. the Vinschgerbahn railway, expanding and integrating aerial ropeways for urban transport, low-emission hybrid buses, etc.
 - Targeted integration of mobility in spatial planning in order to reduce traffic congestion via the conversion/dismantling of roads.
 - Traffic calming / reduction measures in sensitive Alpine areas – traffic regulation on valley routes and mountain passes – time windows or preference to be given to electric and eco-friendly vehicles.

Example: introduction of eDrive corridors through sensitive areas such as certain Dolomite passes or side valleys (minor routes). Clear rules, guidelines and limits that give priority to environmentally friendly vehicles. Considerably higher tolls for “dirty” vehicles on mountain passes with transit allowed only at certain times of the day or on certain days of the week.

- ❖ Development and creation of infrastructure for electro-mobility (system construction):
 - Expansion and development of the charging station network (electro-filling stations) in South Tyrol
 - Integration of car-sharing with electric cars or into car-sharing fleets.
 - Service centre for sustainable mobility with showrooms for e-mobility.

- E-mobility hubs in rural areas with e-taxi ranks, e-car rental, e-bike rental; development of e-rental stations especially for the “last mile”.
- Interregional – Green Corridor – installation of charging stations for electric vehicles along the Brenner autobahn (north-south axis) and along South Tyrol’s main routes (*KlimaLand* South Tyrol); construction of green, car-free recreation areas.

Example 1: use of electric, hydrogen or hybrid vehicles in the taxi fleets of e.g. Bolzano or Merano. In addition to the vehicles, the corresponding (charging) infrastructure is required. To ensure the necessary range (approx. 200 km per shift), intelligent route planning, planning of journey and charging profiles and appropriate training of employees must all be implemented (see e-vehicles for municipal services E8). The higher cost of vehicles will be offset through suitable promotion by the Province as part of a model trial. The funding body therefore achieves increased public visibility for the general suitability of electric vehicles. Passenger transport is emission-free (or emission-reduced) and eco-friendly. Additional action to raise awareness could e.g. involve an award to Bolzano’s most eco-friendly taxi driver (least CO₂ emissions per passenger carried). Expansion of the hydrogen-powered fleet increases the use of hydrogen filling stations. Similar model experiments are already running in several major cities, such as Munich and Cologne, in co-operation with local taxi offices.

Example 2: development of charging stations for electric vehicles (EV) in order to further increase their attractiveness and reduce pollution; reduction of inner-city traffic, especially in rush hours, by building charging infrastructure at nodes outside the city with connections to public transport or e-mobility rental points for the last mile.

- ❖ New sustainable offerings / Mobility service for business and tourism
 - Cargo bikes for inner-city areas
 - Guided city tours with electric vehicles
 - Rentals – e-mobility service providers
 - E-mobility services for tourism

Example 1 (tourism): development of tourism offers based on pedelecs, e-scooters and Segways, e.g. city tours, shorter excursions or adventure courses. Set tours (themed trails) could be planned and developed for this purpose, leading past tourist attractions (restaurants, cheese dairies, Alpine pastures, etc.). It would be possible to recharge batteries at these places or swap them for freshly charged batteries. This could promote growth in the tourist industry. Examples can now be found in Ratschings/Racines and Überetsch/Oltradige.

Example 2 (logistics): certain cities ban traffic from the centre during the day, e.g. Bolzano’s old town. It therefore surely makes sense to focus on the actual possibilities for alternative delivery and mobility systems (micro-mobility, e.g. cargo bikes or pedelecs). These are of benefit to the local population, traders and tourists alike.

❖ Systematic fleet management and vehicle park management in terms of sustainable mobility and electro-mobility:

- Authorities and institutions – restructure and reduce fleets → move towards sharing concepts
- Electrify special service vehicles in municipalities
- Companies, industry and agriculture (involving all sectors)

Example 1: purchase or conversion of municipal service vehicles (waste disposal, road sweepers, etc.) to emission-free and low-noise standards. Use of electric, hydrogen or hybrid vehicles for municipal waste disposal in e.g. Bolzano, Merano or Lana. The test phase also requires (charging) infrastructure in addition to vehicles. The higher purchase price of vehicles could be offset via promotion by the Province / EU in the context of a model trial.

Example 2: exhaust pollution can be reduced via business and municipal use of electric vehicles in fleets. Such vehicles can be a useful complement to conventional vehicles as they can make emission-free shorter trips, reducing both noise and pollution of e.g. city tours.

❖ Encourage electro-mobility (incentives and promotion):

- Assistance in developing a comprehensive and modern charging infrastructure, particularly in combination with renewable energy sources.
- Assistance in the purchase and implementation of smart technologies (software, system control, networks, etc.).
- Funding for the purchase of electric or hybrid vehicles (in particular special vehicles).
- Creation of pilot areas for tests and studies, in particular scientific studies e.g. on electro-mobility in alpine and rural areas using local conditions and requirements as a potential, e.g. by establishing a South Tyrol pilot municipality fully converted to electro-mobility (incl. farming) with public funding.
- Establishment of a comprehensive e-car-sharing system by:
 - promoting the integration of e-car-sharing in corporate and municipal fleets
 - increasing the attractiveness of locations / reducing barriers for e-car-sharing providers especially in inner-city areas by funding initiatives in the ICT sector, construction of charging stations, purchase of electric vehicles
 - integrating e-car-sharing with local public passenger transport services

❖ Measures for the economy that will promote / expand electro-mobility:

- General adaptation of framework conditions for a “glocal” strategy in South Tyrol’s automotive and electromotive sectors.

- Support for the relocation and founding of companies in the electric vehicle sector, as well as of associated suppliers.
- Development and bundling of local expertise via a skills centre in South Tyrol to be built up and managed by local industry, business and committed partners, both national and international.
- Developing knowledge and training for specialists in the electric vehicle sector.
- Incentives for cross-sector collaboration on electro-mobility and system solutions.
- Networking with surrounding regions in order to work together on a specialisation and economic strategy (keyword: Euregio).

Example: promotion of use of electric vehicles (electrification of landscaping and construction equipment as well as snow groomers) in a wide range of sectors can reduce noise and emissions. Agriculture, construction and Alpine technologies on the one hand play an important (economic) role in South Tyrol while, on the other hand, noise and exhaust gases from construction vehicles, tractors and snow groomers all reduce the quality of life and of recreation. Using electric lift platforms, converting tractors to electric operation, fitting snow groomers with electric/hybrid/CIFA drives or using electric concrete mixers can all help solve such problems. The following measures can help encourage innovations in this area:

- Specifications or bonus points for eco-friendly construction vehicles in public tenders.
- Targeted funding for the development and market rollout of electro-mobility applications in agriculture, construction, and ski areas across South Tyrol (e.g. Office for Commerce and Services, Office for Innovation).
- Establishment of a South Tyrolean pilot municipality fully converted to electro-mobility (incl. farming) with public funding.

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