

Planning sustainable e-mobility

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Abstract

A popular current topic for urban as well as for transport planning is e-mobility. In the foreseeable future, the electro vehicle will be used mainly for short distances, making it particularly interesting for urban mobility. Therefore, e-mobility seems to be the future path for a sustainable urban and transport development. The contribution challenges this assumption by presenting the results of a recent research project in Berlin. Within this project, the decision-making process of establishing the charging infrastructure was analysed. By combining a discourse analysis and a policy study, the proponents for e-mobility, as well as their intentions can be shown. The contribution will further show that particular interests promoting e-mobility do not necessarily coincide with a comprehensive planning strategy presenting a concept leading to sustainable urban and transport development.

Keywords: e-mobility, sustainable planning, discourse analysis, policy study, implementation process.

1 Introduction

A popular current topic for urban as well as for transport planning is e-mobility. In the foreseeable future, the electro vehicle will be used mainly for short distances making it particularly interesting for urban mobility. Therefore, e-mobility seems to be the future path for a sustainable urban and transport development. From this perspective, planning for e-mobility automatically appears as a sustainable planning strategy.

The contribution challenges this assumption by referring to the results of a recent research project in Berlin where the automobile manufacturer Daimler, and the energy provider RWE, in close collaboration with the local political and administrative representatives, started a fleet test with 100 electro Smarts [1]. Within this project the decision-making process of establishing the charging infrastructure was analysed.

By using the combination of a discourse analysis and a policy study it can be identified who argues for e-mobility and with what intention. The analysis presents different actors with particular interests trying to legitimize their strategy by alleged sustainable e-mobility. Particularly the interaction between RWE and the local political and administrative representatives reveals serious differences. One of the main problems, which will lead to numerous conflicts in the public realm, concerns the additional urban space needed by electro vehicles for their charging.

The contribution will show that particular interests promoting e-mobility do not necessarily coincide with a comprehensive planning strategy presenting a concept leading to sustainable urban and transport development.

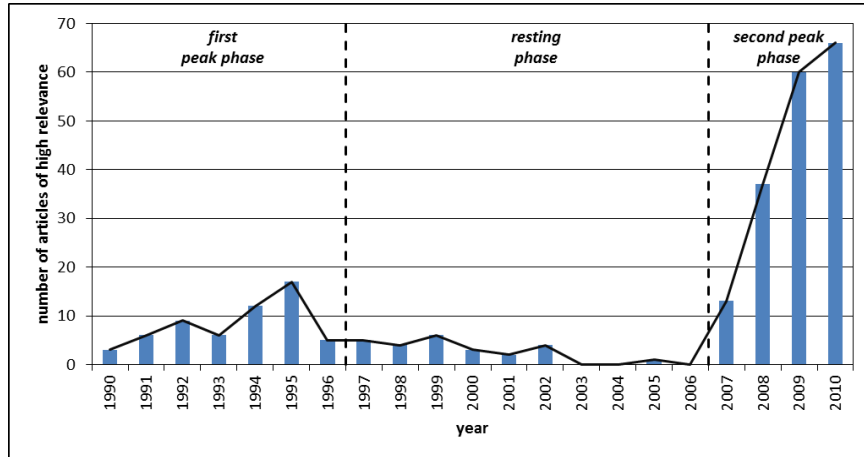
2 The discourse

To provide a better understanding of the recent debate about e-mobility in general, and the pilot Project in Berlin in particular, we have chosen the methodological approach of discourse analysis (2.1). On the one hand, it puts the e-mobility discourse into a societal context (2.2) and, on the other hand, it makes clear the argument in favour of e-mobility (2.3).

2.1 The Method

Following the approach of a critical discourse analysis in the tradition of Michel Foucault (e.g. Jäger [2]), we carried out a media analysis of three German national daily newspapers and two weekly newspapers [3]. Our analysis went as far back as the 1960s but focused on the period from 1990 to 2010. Moreover, we did a secondary data analysis of programmatic documents by key stake holders we identified with the media analysis. The first result was that we became aware of an e-mobility discourse having taken place in the 1990s, but then largely ignored for several years, before having been taken up again in 2007.

Figure 1: The discourse process



Against this background we particularly took into consideration the e-mobility discourse of the 1990s, comparing it with the current one in the context analysis to identify the commonalities and differences of both discourses.

2.2 The context

In comparing the e-mobility discourse of the 1990s with that of the present, we found clear similarities. In both cases it was an international phenomenon and the discourse was motivated by the coincidence of an economic crisis in the automotive industry and a peak in the environmental debate. The pressure by the economic crisis on the one side, and the need for legitimisation in the environmental debate on the other led the automotive industry to discussions with its critics (e.g. Schwedes [4]). A central topic was the question whether the automotive industry had to be transformed from a single car producer to a mobility service provider. Beside this fundamental reorganisation, car manufacturers were asked to invest into new drive engineering. In the early 1990s the US-State of California passed the *Zero-Emission-Vehicle-Mandate* which forced car manufacturers to develop electric vehicles (e.g. Westbrook [5]). This motivated General Motors to build the EV1 which was rented by 11,000 private users. Ford again invested into Pivco, the small Norwegian manufacturer of electric town vehicles. European car manufacturers were also engaged in inventing the e-vehicle. Germany, for example, started a research project on the island of Rügen (e.g. Hoogma et al. [6]). But at the same time that international

car manufacturers were putting much effort into developing electric vehicles they also took action against the *Zero-Emission-Vehicle-Mandate*. Ten years later, in 2003, the California law was drastically scaled back because of massive pressure from the automobile and oil industries (e.g. Collantes [7]). During the same year, General Motors took all EV1s from the market, Ford withdrew from its engagement in electric town vehicles in Norway, and the German research project on Rügen was canceled. Thus, while the first mobility discourse had slowed down considerably during the 1990s, it had virtually come to a stop by 2003.

The second e-mobility discourse started in 2007 under similar conditions. The automotive industry was again faced with a deep economic crisis and another peak of the environmental debate, this time about climate change (e.g. IPCC [8]). As in the case of the first e-mobility discourse not the automotive industry was the forerunner of e-vehicles, but the energy providers were expecting a new market. Because of the economic crisis in the automotive sector, and as a representative of one of the highest CO₂ emitters, the automotive industry was interested in e-vehicles to improve their image. As had been the case in the 1990s, they had to act from the defensive and, therefore, by announcing the imminent production of e-vehicles were providing a symbolic policy.

In the meantime, the societal context had changed again. The financial and economic crisis seemed to be over, especially in the automotive industry, and the discourse over climate change had calmed down, also because of the critique of the Climate Report of the International Panel of Climate Change. Against this background the question arises whether or not, as in the 1990s, the e-mobility discourse will once again fall silent. In contrast to the 1990s, apart from the economic and the ecologic debates, there is a new theme which might be strong enough to sustain the second e-mobility discourse: oil depletion.

2.3 The argument

Even if the e-mobility discourse continues to remain on the political agenda, it is open to debate whether or not it will be part of a sustainable planning strategy. On the one hand, it will depend on the argument put forward and, on the other, on the influence of the stakeholders in the field of transport policy (cf. chapter 3). A discourse is founded on terminology. Therefore stakeholders who possess a high power of definition will be able to influence the direction and form a discourse will take (e.g. Fairclough [9]). In the discourse on e-mobility, the term itself is striking. Mobility indicates a potential of free motion, has and should not to be confused with physical movement, which, per definition, is traffic. Thus, instead of e-mobility, we should talk about e-traffic even it does not have a very positive ring to it. But it is part of the e-mobility discourse to produce positive images about electric vehicles and their contribution to a sustainable transport development. In analysing the e-mobility discourse, e-vehicles appear as the great white hope for a sustainable transport development. In fact the e-mobility discourse is very much focused on private electric cars.

The central argument for e-vehicles already came in the 1990s from Pivco, the above-mentioned Norwegian manufacturer of electric town vehicles: „Surveys show that in urban settings most cars rarely travel for more than 50 km a trip, and on average carry less than two people (Pivco [10]).” The statement was the answer to the critique of the short distance of e-vehicles and is a central argument in the recent discourse as well. In other words, the shortcomings of the electric car as a technical artefact are used as an argument for the car as a perfect form of urban transport. With respect to the long lasting scientific debate about urban transport in Europe reaching back to the 1970s (e.g. Banister [11]), the e-mobility discourse executes a fundamental shift. Whereas the debate on urban transport during the last decades was shaped by a wide consensus about the problematic effects of cars in towns, particularly referring to the immense land consumption (e.g. Gärling [12]), the e-mobility discourse argues for a rehabilitation of the car in urban transport. This argument irritates city officials pursuing another transport policy, as we will see in the following analysis of the policy process.

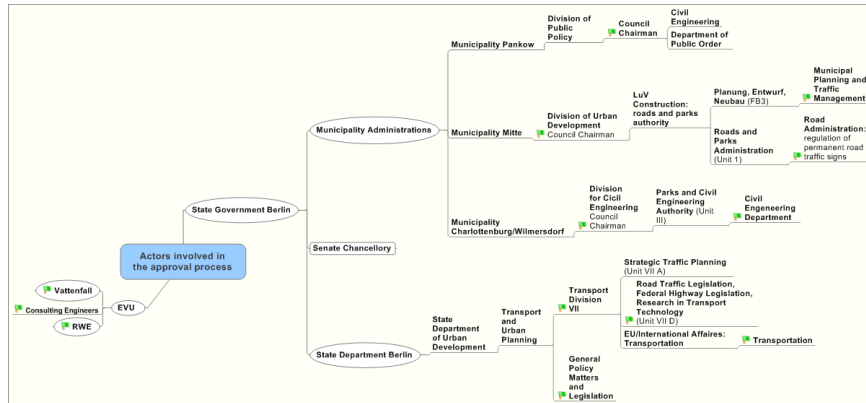
3 The policy process

In addition to the discourse analysis, we were studying the implementation of the charging infrastructure for e-vehicles in Berlin. In order to get insights into the policy process we performed an actor-based policy analysis (3.1). That leads us to a topography of the stakeholders and their particular interests (3.2), and an understanding of the special results at the end of the implementation process (3.3).

3.1 The method

The combination of discourse and policy analysis is an innovative approach (e.g. Kerchner [13]; Howarth [14]). The policy analysis pursues an actor- and structure-centred approach to explain the decision-making processes on the micro- and meso-level (e.g. Schubert [15]). The priority objective was the reconstruction of the problem-solving process which included the interaction of different stakeholders, each with their own particular interests and conflicting constellations. We carried out thirteen guided expert interviews with stakeholders from administration, politics, and industry, thereby enabling us to obtain a topography of the actors involved within the implementation process.

Figure 2: Topography of the actors



Starting with this mere static picture in analysing the implementation process, and with recourse to the discourse analysis, we went on to elaborate the figuration of social power structures during the decision making process.

3.2 The implementation process

The e-mobility project in Berlin must be analysed in the context of the e-mobility discourse. As an answer to the economic crisis, the German government started the biggest business activity support programme of the post-war period. One component in this programme is e-mobility as formulated in the National Development Plan Electric Mobility [16]. The most active economic players in Germany are the four big energy providers, first and foremost of these being RWE [17]. RWE has announced its intention to build up a nationwide charging infrastructure for electro-vehicles. In 2009 they started the pilot project in Berlin with about 100 charging points in two areas [18]. With a letter from the management board to the governing mayor of Berlin, RWE was the driving force behind the implementation process. In accordance with the federal government and its Development Plan Electric Mobility, the governing mayor of Berlin immediately gave the corresponding instructions to his administration. At this point, the first conflict appeared when the external energy provider RWE claimed the rights to an exclusive representation in Berlin. That was unacceptable for the Berlin administration, as well as for the local energy provider Vattenfall, which was initiating its own e-mobility project. The unfair compromise was an agreement on an exclusive representation of RWE and Vattenfall which excluded other energy providers.

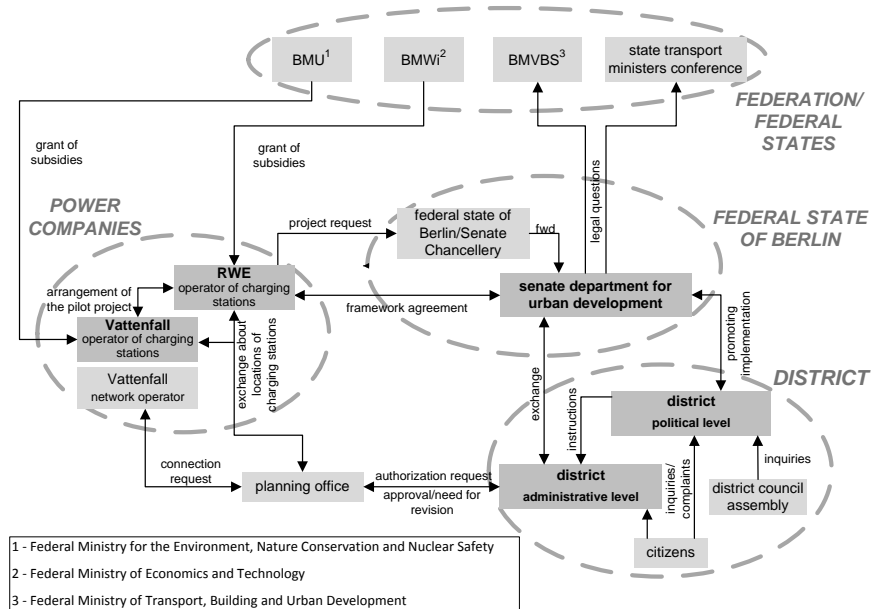
The land Berlin then had to convince the local authorities of the two municipalities Mitte and Charlottenburg/Wilmersdorf. This was the second

stumbling block in the implementation process provoking a conflict between the land Berlin and the two municipalities. As in the case of the economic rivals RWE and Vattenfall, the land Berlin and the municipalities were competing for political responsibility (e.g. Nissen [19]). Thus the local authorities were sceptical about the instruction from the land. However, faced with the exceptional circumstances of the economic crisis, and the resulting time pressure, the municipalities fulfilled the land Berlin's request.

In the next step, the energy provider RWE and the municipalities got into contact. The relationship was burdened by RWE's ignorance of the political system, RWE being unable to understand the operation of a city state such as Berlin with two political levels. RWE did not accept the local authorities as negotiating partners but treated them as subcontractors of the land Berlin. As we will see, this misperception probably led to the most lasting conflict of the whole implementation process, because it widely ignored the special local interests.

Finally, the local authorities had to explain to their citizens that public parking space had to be designated as charging areas for e-vehicles. For most people this privilege for e-vehicles was hard to understand, also because these free parking places were left unused as a result of a delivery delay. What happened was a legal action by inhabitants against parking places designated for e-vehicles.

Figure 3: Diagram of the Implementation Process



3.3 The result

As a result of the conflicts described above, the implementation process was blocked. This was articulated by the local authorities in October 2010 at a hearing to which the land Berlin invited the municipalities to report their experience with the realization of the charging infrastructure by RWE. Referring to the local authorities, the main trouble spot is the multiple-use conflict of the public realm. There was a wide consensus about the public urban space as a common good which has to be managed for the good of all inhabitants. If the parking places to be used for charging e-vehicles reflects the public good, it must be discussed politically and balanced with a range of other types of use in the context of an integrated planning strategy followed by the land Berlin and its municipalities (e.g. SenStadt [20]).

The integrated planning strategy includes a number of measures combined to achieve a sustainable transport development. One main target is the reduction of car traffic, starting with parking space management, the reservation of parking space for Carsharing and bike rental systems. But even with a view to private bicycles, there is a large gap between the supply and the need for parking space: 22,000 existing cycle parking areas compared with the 60,000 required. Moreover, the land Berlin and its municipalities have adapted to the needs of all users by decreasing areas formerly used primarily for roadways. Two- or three-lane roads have systematically been reconstructed by decreasing the space allotted to motor traffic in order to establish specially marked bicycle paths and pedestrian walkways.

It is anything but clear how e-vehicles will be integrated into the comprehensive planning strategy and what their contribution can be to a sustainable transport development. The land Berlin and the local authorities are very much afraid that private e-vehicles will be used as second cars and so undermine their planning efforts for a sustainable transport development.

The alternative strategy of the land Berlin is based on three pillars: (1) the integration of e-vehicles in carsharing fleets; (2) the integration of e-vehicles in urban commercial transport; and (3) the integration of e-vehicles in public fleets of housing estates (e.g. Blümel [21]). For every single application a charging infrastructure in the public urban space is probably not necessary.

4 Summary

The investigation of e-mobility by a combination of discourse and policy analysis revealed useful information for a sustainable planning process. First of all, the discourse analysis sensitizes us to the social character of the recent discourse compared to that of the 1990s. The astonishing parallels between both discourses, and the failure of the first one, relativise the current e-mobility discourse. Neither have the technical basic parameters changed in a way that

could explain an updated success of e-mobility nor have the arguments become more convincing than they were in the 1990s in regard to the economic crisis or the environment. Oil depletion might be the one and only exception and perhaps it will lead e-mobility to become a success story. But even then, the discourse analysis shows that e-mobility will not necessarily contribute to a sustainable transport development as it will focus primarily on private urban vehicles. Such a contribution would depend on the specific position of e-mobility within an integrated transport planning strategy.

The policy analysis in turn demonstrates different actors involved with their particular interests. It reveals specific lines of conflict which have to be recognised by an implementation or rather planning process. Otherwise, as was demonstrated with the e-mobility pilot project in Berlin, the implementation process could be blocked and, in fact, could endanger the potential of e-mobility for a sustainable transport planning process. This again raises the old question of the possibilities and limits of an integrated transport policy (e.d. Schöller-Schwedes [22]).

5 Conclusion

E-mobility is a complex topic including much more than the mere technical dimension. Thus, current discourse cannot be explained by technological innovations alone. In order to ascertain whether or not e-mobility will contribute to a sustainable urban and transport development, it must be put into the right context. This starts with the term itself: e-mobility refers to e-transport or more accurately, e-cars. Therefore, the question has to be reformulated to ask if and how e-cars will contribute to a sustainable urban and transport development. This conceptualisation will open up a debate about the e-vehicle as one element amongst others in an integrated urban and transport development strategy. In consequence it would be a much more sensible and realistic future perspective. Behind the e-mobility discourse in analysing the e-mobility project in Berlin we identified certain actors who are following particular strategies in their own interest. It was shown that an undirected process might endanger the goal of a sustainable transport development. If e-cars are to be included in a comprehensive approach of sustainable urban and transport development, the described political conditions must be taken into account. In view of a sustainable urban and transport development, the crucial question will be how the different stakeholders can be committed to an integrated planning strategy. For this the discourse and the policy analysis both give valuable insights which can be used for planning sustainable e-mobility.

6 References

- [1] www.ikt-em.de/de/e-mobility.php
- [2] Jäger, M. & Jäger, S., *Deutungskämpfe. Theorie und Praxis Kritischer Diskursanalyse*, VS Verlag für Sozialwissenschaften: Wiesbaden, 2007.
- [3] Frankfurter Rundschau, Frankfurter Allgemeine Zeitung, Süddeutsche Zeitung, Die Zeit and Der Spiegel.
- [4] Schwedes, O., The Field of Transport Policy: An Initial Approach. German Policy Studies, 7(1), 2011 (forthcoming).
- [5] Westbrook, M. H., *The Electric Car: Development and future of battery, hybrid and fuel-cell cars*, The Institution of Engineering and Technology: London, UK, 2007.
- [6] Hoogma, R., René K., Johan Sch., Bernhard T., Experimenting for Sustainable Transport. The approach of Strategic Niche Management, E&F Spon Publisher: London, 2002.
- [7] Collantes, G. O., *The California Zero-Emission Vehicle Mandate: A Study of the Policy Process*, Dissertation at the University of California Davis, 2006.
- [8] IPCC – International Panel on Climate Change, *Climate Change 2007: Mitigation of Climate Change*, Cambridge University Press: Cambridge and New York, 2007.
- [9] Fairclough, N., *Critical Discourse Analysis: The Critical Study of Language*, Longman: London, 2010².
- [10] Pivco, <http://www.thinkev.com/The-THINK-City>
- [11] Banister, D., *Unsustainable Transport. City Transport in the New Century*, Routledge: Oxfordshire and New York, 2005.
- [12] Gärling, T., Steg, L., *Threats from Car Traffic to the Quality of Urban Life: Problems, Causes, and Solutions*, Elsevier: Oxford and Amsterdam, 2007.
- [13] Kerchner, B., Schneider, S. (eds.). *Foucault: Diskursanalyse der Politik*, VS Verlag: Wiesbaden, 2006.
- [14] Howarth, D., Stavrakakis, Y., Introducing discourse theory and political analysis (chapter 1). *Discourse Theory and Political Analysis. Identities*,

Hegemonies and Social Change ed. D. Howarth, A. J. Norval, Y. Stavrakakis, Manchester University Press: Manchester and New York, pp. 1–23, 2009.

[15] Schubert, K., Bandelow, N. C., *Lehrbuch der Politikfeldanalyse*, Oldenbourg: München et al., 2003.

[16] www.bmwi.de/Dateien/BMWi/PDF/nationaler-entwicklungsplan-elektromobilitaet-der-bundesregierung,property=pdf,bereich=bmwi,sprache=de,rwb=true.pdf

[17] The others are Vattenfall, EnBW, and EON.

[18] In the meanwhile RWE extended its activities in several other German Cities: www.rwe-mobility.com

[19] Nissen, S., *Die Regierbare Stadt. Metropolenpolitik als Konstruktion lösbarer Probleme. New York, London und Berlin im Vergleich*, Westdeutscher Verlag: Wiesbaden, 2002.

[20] SenStadt, www.stadtentwicklung.berlin.de

[21] Blümel, H., Planung und Genehmigung von Batterielade-, Fahrrad- sowie CarSharing-Stationen im öffentlichen Raum. Übersicht der Projektaktivitäten und-planungen. *Präsentation im Rahmen der Einladung der Bezirksstadträte durch die Senatsverwaltung für Stadtentwicklung zum Erfahrungs- und Informationsaustausch*, am 27.10.2011, in Berlin.

[22] Schöller-Schwedes, O., The failure of integrated transport policy in Germany: a historical perspective. *Journal of Transport Geography*, 18(1), pp. 85–96.