

Reversing lifestyles. Future energy technologies as a focus for analysing future energy behaviour

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Synopsis

„Lifestyles“ are not only incorporated in human beings. „Lifestyles,“ i.e. hypotheses about human behaviour, are also inscribed in technical objects. This has consequences for policy-making.

Abstract

Lifestyles is an issue of growing importance for energy policy makers and energy modelers. It concerns the study of the (aggregated) energy behaviour of people, in order to assess potential energy demand and eventually adapt energy policies and technologies to this behaviour. Recent innovation studies propose however that *any* energy policy measure or technology in itself implicitly incorporates a hypothesis about such behaviour. Hence, the issue of energy lifestyles can also be reversed. Instead of determining how, for instance, a „statistically significant“ person drives a car, washes his/her clothes or uses the television, it appears possible to analyse the socio-technical hypotheses which engineers and policy makers inscribe into the designs of such objects. Proposing an electric car for inner city transport presupposes that people start to use electricity stations, gain a certain competence in recharging batteries instead of filling a gas tank, and do not want to accelerate too quickly. The energy saving programme of a washing machine presupposes that the person who washes clothes not only understands how to push the right buttons but also uses it. The television stand-by mode in principle allows people to consume energy even when they are not watching. In other words, people's lifestyles are largely inscribed in the different objects they use every day. Based on this view of socio-technical relationships, and drawing upon some researched examples of technologies now 'in the making', this paper proposes a complementary way of dealing with the issue of energy lifestyles.

Introduction

Lifestyles is an issue of growing importance for energy policy makers and energy modelers. It concerns the study of the (aggregated) energy behaviour of people, in order to assess potential energy demand and eventually adapt energy policies and technologies to this behaviour. This paper proposes a complementary view to the issue of lifestyle analysis by arguing that lifestyles are inscribed, not only in human beings, but also in the technical objects that surround them. Consequently, technologies now „in the making“ make hypotheses about future lifestyles. This has consequences for policy making.

Rather than being a strict research paper („method-results-discussion-conclusion“), this paper aims to raise some general issues regarding the concept of lifestyles. Also, it will suggest that some recent insights in innovation theory might be beneficial to „lifestyle“-thinking and associated policies. It is based upon literature and concepts which evolved from the analysis of the research projects of a national energy agency. The paper is constructed as follows. First some hypotheses underlying lifestyle analysis will be discussed. It will then be argued that the world is not inhabited by social individuals or human beings alone, but also (more and more!) by objects of all kinds. It is argued that such objects define lifestyles, meaning that the social, or socio-technical environment in which they are to function is inscribed in them. If the results of life style analysis are to be used in order to define policy measures and/or new technologies to be implemented *in the future* one has thus to be able to think about how objects in the future relate to eventual lifestyles. In order to do so, borrowing from the sociology of innovation,

the last part of the paper proposes the notion of fictive script. This point-of-view makes it possible to bring closer together two branches of energy policy support which thus far were relatively disconnected from each other: analysis of „social behaviour“ vs. analysis of „technical developments.“

Three implicit hypotheses underlying lifestyles

The idea of „lifestyles“ is probably most known for its use in marketing research. Although marketing in its current and highly instrumentalised form is relatively new, the term „lifestyle“ is relatively old. According to Cathelat, one of France’s main lifestyle analysts, it was already used by Weber as a marker of status, and as a feature allowing one to determine the social group to which a person belongs. It has also been used by Adler in psychology, being the effort with which an individual tries to adapt to a social group, thus linking the concept more to the individual person than to a collective.¹

„Lifestyles“ as methodological concept however only came into being from the beginning of 1970s on and was of special relevance to professionals in marketing and commerce, i.e. the aim of lifestyle investigations was not to contribute to social theory. Currently, the concept of lifestyles refers to a very broad set of methods which, in one way or another, all aim to identify the behaviour of (individuals within) social groups.² For marketing it is used to analyse consumer behaviour and the practices of such groups.

Although recently lifestyle-scholars have expressed doubts on the use, validity and reliability of lifestyles methodology,³ not so long ago the energy field has taken up the concept in order to grasp the energy consumption behaviour of people.⁴ Results of such studies are used either to serve as a basis for modeling of energy demand, to build new energy policies or both.

In order to understand the possible use of lifestyle analysis for policy making – and how a lifestyles view might be enriched, it is important to know about the underlying hypotheses. I claim that the following three implicit hypotheses underly the concept of „lifestyle“:

1. behavioural features are inherent to or incorporated into individual human beings and are expressed in relatively regular patterns,
2. such features can be traced throughout sets or groups of human beings, and thus, groups of humans can be characterised by their commonly shared lifestyles;
3. if used in policy making it is hypothesized that a causal relationship exists between the policy measure and the behaviour meant under the previous two points.

These hypotheses will be discussed in turn below.

Inherent regular behavioural features

A first hypothesis made by life style analysis is that human beings express a certain behaviour, have certain values, opinions, habits, and so forth. Human practices are to a certain extent regular and constant, at least over a certain period of time, and can thus be analysed at the level of the individual.

In the case of energy this refers for instance to the specific moments at which a certain form of transport is chosen by an individual – bus, bike, car, foot – and to which individual activities different such types of transport relate (shopping, going to work, to friends, going out etc.). Behaviour could also concern the question whether one washes at 30, 40, 60 or 90°C, whether one separates organic waste from other waste, or whether one turns off the light upon leaving a room. Related to this, values (or opinions) concern „why“ questions. They refer to the justifications people give for their behaviour and – eventually – how they justify changes in their (future) behaviour.

On the one hand, making the hypothesis that regular behaviour exists seems highly justified: everyone will experience that s/he expresses some types of behaviour over time and that behaviour comes back time and again – even if we often do not know exactly why (or have ever asked ourselves the question). On the other hand, everybody will agree that such behaviour is not perfectly regular – sometimes far from it. Behaviour can thus not be said a priori to be governed by „natural laws“ – or, let me say that at least I do not have the impression that it is.

If one says that behaviour, values, opinions are *incorporated*, one tends to forget that these depend on and are expressed in specific and concrete situations encountered by individuals „in the *outside world*.“ Behaviour will especially depend on which devices or other humans we come across in such encounters. In other words it depends on human/human, or human/non-human interactions and relations. For instance, the turning knob on a central heating offers you the *possibility* to turn it lower, a burglar sweating with nerves and screaming „turn it off!“ while pointing a gun at you will *oblige* you to simply turn it down, and a thermostat will *do it for you* automatically. So, the precise situation in which a certain behaviour is expressed is at least as important to take into account as the regular and incorporated behaviour expressed before the questionnaire of the lifestyle analyst – and there is nothing that a priori can tell if and how the two types of behaviour are related.

Typologies and homogenous categories

The second hypothesis made by lifestyle analysts is that not only do individuals express regular behaviour, but that the same type of behaviour can be identified at „higher levels“, i.e. throughout groups of people. This allows for its quantification and aggregation.

At first sight, this hypothesis is again not surprising. Are we not all transporting ourselves by plane, train, car, bike, or on foot, ...; don't we all put on the light when it's getting dark and put it off when it gets lighter; or turn on the heating when we are cold in winter and use it less frequently when in summer the sun shines more often? But such things are not only determined by physical items – we do a lot of things in the same way as our neighbour, our family, our friends. Our activities might well be „culturally determined.“

In this regard, some statistics can surely be established. In fact all kinds of such statistics already exist and take a prominent place in our society.⁵ For an electricity company for instance it is practical to know that energy consumption is peaking in the morning when everyone gets up, takes showers, makes coffee and breakfast, or that it peaks again in the beginning of the evening when everyone comes home. The same company might also want to know that students or unemployed get up later and so will not participate in the peaks previously mentioned, that blue collar workers work in „trois-huit,“ and thus might consume energy more spread through the day, or yuppies all have a computer and a fax, and thus might consume more and differently than the other groups. Similarly, for a city council it will be very useful to know how many cars are lining up every morning, and whether this happens in the rich or poor parts of town, or in the center or the suburbs, in order to see where and whether carpooling or biking might decrease congestion. The examples are invented, but the point is clear: certain types of behaviour will be identifiable and quantifiable for larger „social groups.“

There is however a danger in quantifying lifestyles. This danger is that lifestyles conceptually come to mean more than mere statistics. By attributing „behaviours“ to groups of people lifestyle analysis assumes that homogenous, measurable and clearly quantifiable cultures would really exist. It is this feature which allows them to make statements like: there are x types of households, y types of television watching, and z types of cooking, making x times y times z different lifestyles. I apologise for the simplistic view expressed here but this is typically the essence of constituting social groups, whether this is in lifestyles analysis or, generally, in marketing,⁶ and independent of the level of sophistication of the models used.

In such cases it is easy to do the test and pick out one element of the sample. Compared to a second element of the sample, it will most of the time appear that the two will not behave in the same way, and have a different lifestyle. The individual lifestyles cannot be found back in the classes determined by the aggregation. Each individual element of the sample will combine elements of different categories, and thus break down general typologies. It might even show behaviour which was counted as statistically not significant, but which might well become so in the future (e.g. environmental values). In other words, one should be aware that lifestyles do not confuse the individual and the aggregate (as often in the social sciences when the adherents of „quantitative“ research and the adherents of „qualitative“ research struggle together). The individual and the aggregate are two completely different things. And „lifestyle“ is an aggregate.

The question, then, is not so much to know whether the aggregate represents the individuals well, from a statistical point of view. Should each individual recognise him or herself in the typology given by the aggregate? In

order to understand lifestyle analysis here, the meaning of „aggregation“ should be shifted and in this I propose to follow Latour.⁷ For the natural sciences he speaks of *referenc* and *re-presentation* lifestyles are not to be confused with the way in which you and I concretely live, precisely like the virus studied by a biologist is not to be confused with the graph in the article she publishes in *Nature*. Instead, the results of lifestyle analysis constitute new entities, produced by lifestyle analysts through a very long chain of subsequent transformations: of hypotheses about behaviour transformed into a closed questionnaire, next, the transformation of „real“ individuals' behaviour and values into words, these words transformed into answers transformed into boxes ticked on the questionnaire, into numbers, then transformed into bits in the computer, transformed into clouds-on-a-graph-with-a-calculation-of-statistical-significance, transformed into descriptions of lifestyles, transformed into a report submitted to the energy ministry... The categories finally obtained by the lifestyle analyst constitute new entities, which represent, i.e. present anew, the individuals s/he started the analysis with.

Lifestyle policies

This finally brings me to the use of lifestyles in policy making. In marketing, lifestyle analysis is used for defining a firm's consumer strategy. In the energy field lifestyles seem to be used in two different ways. On the one hand, similar to its use by firms, lifestyle analysis is sometimes directly used in policy making and used as a representation of the energy consumption behaviour of people. On the other hand results of life style analyses are used as input to models to assess future energy demand. This can also lead to policy making, but now indirectly, i.e. if the results of the models are used making energy policy upon.

Depending on the results of a lifestyle analysis (whether its results are obtained in the one or other way), policy might choose to undertake a certain action. It might implement economic incentives (taxes, fiscal regulation, ...) to lower energy consumption of certain types of individuals. It could also propose new laws, taxes, levies, subsidies, public campaigns or other measures to change or halt undesired lifestyles of certain groups of people, or to stimulate desired lifestyles in new directions.

Using lifestyle analysis for such purposes suggests that one has made a very strong hypothesis about both the capacities of humans and of lifestyle analysis, of which the validity remains to be seen. First of all, it is expected that the aggregated results which are the results of a long transformational chain (see above), in some way still represent individual energy consumers. In other words, through all the steps something must have remained constant since the hypothesis is made that the energy consumer is, in some way, „still present in the results.“ Added to this, by deriving policy measures from the findings of a lifestyle analysis,⁸ it is supposed that a direct causal relationship exists between the measure proposed and the behaviour of individuals „in society“ represented through the analysis. Eventual changes in this behaviour stemming from the chosen policy should again be measurable by a similar analysis to the one which led to the proposed measure – i.e. by a new lifestyle analysis.

Precisely because of all the intermediaries existing between „the individual“, the „lifestyle analysis,“ „the policy measure,“ and back to the individual this double hypothesis seems a very risky one to me. The reason for this is that it implies a highly systemic, maybe even mechanistic, view of the world. My question is whether there are no other, less complicated, ways to think about lifestyles?

Shifting focus – towards a complementary view

Let us summarise the foregoing – maybe too compacted – discussion. It expressed three critiques on the issue of lifestyles. The first two concerned the „social theory“ underlying lifestyle concepts. Atomic individuals expressing regular, measurable behaviour do not exist (critique 1) – but neither do homogenous groups which can be „measured“ (critique 2). The social is constructed in micro-interactions, and through relations between actors. Lifestyles are not realistic. We should abandon and forget about the whole lifestyle issue rightaway.

Although I am less and less sure that performing large surveys among groups of people will teach us anything about their daily behaviour, or give effective clues for policy intervention I do not think that polemics are of great help here. That is, I do not intend to propose an alternative social theory to substitute the lifestyles issue. There is a twofold reason for this. First, to be honest, I simply do not have one at hand, nor do I pretend to be able to construct one. Second, in my opinion *the* decisive social theory will not be reached – and reaching one decisive theo-

ry should not even be our aim. I think that surveys are however important, simply since I observe that they have become an integral part of the way in which we build our society.

This brings me to a second, in my view somewhat more constructive, way to discuss the issue of lifestyle analysis: by looking at the „performativity“ of its results. I refer here to the type of studies like De Man’s regarding energy forecasting processes, or Van Lente’s concerning technological promises and expectations.⁹ Applied to lifestyles this would lead to the type of analyses that Bucciarelli already gave for the use of marketing studies in general:

... we do hear participants use a market vocabulary of efficiency and profits in their designing. They talk about costs, demand and customer needs. [...]

But while this vocabulary suggests a concern with the world beyond the firm [in which the object of study of the author was located. BdL], in most of these instances the attention of user needs and markets has an ad hoc character. Statements sound like rationalizations meant to buttress a proposal, and cost appears as a chip to wager in negotiations, used in a claim -rarely substantiated- intended to support a favored design alternative and deny another.

The prophecies of market studies, while given little credence by participants before the design is realized, are used in the same way. Toiling with different object worlds, participants cite them to justify their own individual proposals. The market, then, as construed and used in the process of design, is available to justify alternative forms. How can markets be determinate if this is the case? On the other hand, this scenario, in contrast to the one that relies on the dictates of science, presumes too much flexibility in the design process; it misses the constraining influences of social norms, technical constraints, and infrastructural limitations (Bucciarelli, 1994, p.186).

It suffices to replace „market studies“ by „lifestyle analysis“ to see the significance of such types of analysis for the lifestyle discussion. It is important, not in the least for lifestyle analysts themselves, to pay more attention to the constructive and performative character of their analyses within (policy, engineering or other) design environments: how do actors use these analyses as a basis for their action? Although I could have opted for a constructionist analysis of the lifestyle issue (and other policy support methodologies), this paper will take another turn. It proposes a complementary view to lifestyles.

It is often ignored that the world in which we live in, is densely populated, not only by humans, by individuals, or by social groups, but also (and more and more) by (technical) objects. Based upon investigations of scholars in the field of technology studies, the next section argues that lifestyles are incorporated, not, only (and perhaps) in individuals, but (for sure), in technical objects. This will shift the traditional analytical focus of „lifestyles“ to the analysis of the lifestyles inscribed in technical objects.

Socio-technical Scripts and Lifestyles

Socio-technical scripts

Whereas lifestyle analysis tries to find out how people, aggregated to a certain macro-level, behave, socio-technical analysis tries to find out which behaviour is expected from people by (technical) objects in concrete „micro“-situations. Akrich for instance has studied several energy technologies undergoing a process of so-called „technology transfer“ – of a Swedish cotton briquette burner to Nicaragua, of a French photovoltaic kit to the Ivory Coast, or again of a Gasogene implanted in Costa Rica.¹⁰ In all these cases the design of the object misrepresented the local situation in which it was expected to work. More precisely, the engineers had incorporated wrong hypotheses on the world. The wrongness of these hypotheses could only be discovered by investigating the local situation. For instance, the photovoltaic kit described by Akrich (1992, p.210) contained a prescription about the type of electrical current to be used locally. The kit produced direct current with non-equivalent poles. In the view of the contractor this made it risky to call on the local engineer, who would only be familiar with alternating current. Also, it had non-standard plugs making it difficult to adapt to local room size. Finally, the kit was waterproof meaning that any attempt to repair it destroyed its waterproof qualities. Despite being „technology transferred,“ the kit ended up not being used.

One could argue that this is understandable since the misfit simply represents a „cultural gap“ between European engineers and African or South-American users. Indeed, the *décalage* between designers of an object and its practical use, is the core of my argument. However, this has nothing to do with either the geographical or „cultural“ distance normally associated with the issue of technology transfer. In fact, one does not have to go far to see these disjunctions arise – they occur daily, in our immediate environment. Examples are now numerous,¹¹ but in order to stay close to the energy field, and moreover, close to the issue of lifestyles it seems good to cite Rabeharisoa, 1989. This author pushes the argument a little bit further in proposing that technical objects and measures incorporate a morality *vis-à-vis* those which are supposed to use them.

Rabeharisoa studied devices designed to measure and control heat in buildings (in French this discipline is called „domotique“). More precisely she sought to identify the typical users represented within such devices, since according to her „any of these devices defines collectives and individuals consuming energy, and attributes heat management competences and specific responsibilities to them“ (p.65; my translation). The engineers of the firm producing the devices anticipated that the inhabitants of the buildings did not care about saving energy. They therefore had to „discipline“ these inhabitants by incorporating restrictions into the heat regulating device. The technical measures they implemented, theoretically grounded in an energy model, prevented users from bypassing a certain maximum temperature. The inhabitants who wanted to have a room temperature of 25°C were *de facto* forbidden to turn the heating up that much.

Another such ‘moral’ control was inscribed in the device which made the inhabitant responsible for his own energy consumption (p.69). The inhabitant had access to three indicators: a heating index, and a measure of hot, and cold water consumption shown on a display in the hall of each apartment. In order to obtain his/her energy consumption in French Francs, the inhabitant had to type a personal code on the keyboard next to the display, note the consumption and then take the numbers to the housing association which possessed the index to convert them into Francs. Hence the inhabitant was made the sole manager of his own energy consumption. According to the engineers, this would lead to a reduction in energy consumption any time when the inhabitant found that he was overconsuming.

The story is more complicated than sketched here. For instance, several other devices were proposed to compensate for the fact that some apartments were „sandwiched“ between others and thus benefitted from the heat coming from other apartments, leading to lower energy consumption.¹² The main point to be remembered from this analysis is that any device presupposes a specific socio-technical configuration, which defines links between different actors, and gives a role and responsibility to each of them.¹³ From such a point-of-view, every technical object, but more generally also every policy measure, or a specific piece of regulation contains specific hypotheses about the settings in which they are used. And these hypotheses will differ from one device to another. The environment into which an object is to be inserted is thus inscribed in the object. Therefore, Akrich proposes that such devices contain a *socio-technical script*

Scripts and lifestyles

The observation that any object, any measure, any regulation contains a (partial) description of the world in which it is to function is important for the lifestyle discussion for at least two reasons. First, by asking people, through questionnaires, for their energy consumption pattern it is often ignored that these people do not live in a vacuum but that they are daily confronted with all sorts of objects for which stories like the above one can be told. Especially when they contain direct prescriptions regarding energy behaviour (as above), these objects should be taken into account in an energy lifestyle discussion. This would make it possible to narrow the gap which has thus far existed between, on the one hand, scholars mainly interested in future developments of energy *technologies* and scholars interested in the evolution of energy consumption from a behavioural viewpoint – and thus mainly lifestyles.

The idea of socio-technical script puts lifestyles in another perspective. Instead of determining how, for instance, a „statistically significant“ average person washes his or her clothes, it makes possible the analysis of the representations of users which engineers or policy makers inscribe into the designs of such objects. Now the trouble is that lifestyles evolve – and so do technical objects. The washing machine (one of the most beloved objects of

energy consumption analysts!) is indeed a good example of how socio-technical lifestyles change. If one looks at its evolution from 1890 to the present it is easy to observe that the changing machine incorporates a correspondingly changing user:¹⁴

- from a user strong enough to manually turn the wheel for turning the laundry around in the water as well as turning the handle of the laundry press,
- via this person being replaced by a rotating engine and a centrifuge incorporated into the machine,
- to, in our days, a user who is expected to eventually push an „economy“ button since s/he would be an ecologist.

In other words, the evolution of anticipated lifestyles can be read by reading the evolution of the the machine.

The two authors cited above have implicitly shown us that the socio-technical de-scription of technical objects is a perfect heuristic device for analysing lifestyles. On the one hand it shows which hypotheses engineers de facto make about the lifestyle of those who are to use their designs. On the other, by real life confrontation between the object and the user, one tests the existence of the latter. In other words, one verifies the robustness of the hypotheses inscribed in the objects which, again de facto, can be seen as a test whether one or another life style does or does not exist. Once one grasps this principle, such analysis can be performed in a retrospective manner: as for the washing machine example, the socio-technical script of a technical object can be described, and one can read the corresponding evolving lifestyles associated with it.

However, as said, lifestyle analysis serves policy making, and policy making deals with anticipating the future. The question then shifts to *future* lifestyles and the anticipation of future energy demand. If one adopts the viewpoint expressed above, then thinking over future lifestyles would shift from the analysis of anticipated future behaviour *sui generis* to the behaviour that is expected through technical objects which do not exist yet. I claim that the analytical focus of lifestyles can be reversed by investigating expectations about people's future energy behaviour which are inscribed in future technologies. In order to do so, one should look at „technology in the making.“

Technologies in the making: lifestyles for the future

Over the past few years I have been working with national energy agencies. One of the roles of such agencies is to finance research which can contribute to better energy management and improve energy efficiency. The aim of my work was to see if recent developments in technical innovation studies could assist in the development of tools for strategic management of the research carried out.¹⁵ The empirical material consisted of an analysis of the research projects financed by the agencies. It appeared that energy research often incorporates very strong hypotheses about how the future world should look, and thus how the present world should be reshaped.

More precisely, the main result of my research was the development of a conceptual framework and a methodology which allows us to describe *de facto* future scenarios which are defined by such agencies through the research they promote.¹⁶ This makes possible the analysis of, for instance, the new infrastructure or new industrial sectors which are projected de facto onto the future, sometimes explicitly, but often implicitly. The methodology also made it possible to reflect upon users who do not yet exist, but who are anticipated and given shape in the technologies that were the subject of the research projects at the agencies studied. These anticipated users can be identified for every technology in the making. I claim that this type of analysis helps in identifying different *new lifestyles* projected onto the future through different technological research projects.

A brief example will clarify the point: let us consider the different types of users, anticipated through different types of fuel, being considered for different types of automobiles for the future. Let us for instance compare the following three types of research:

- research into batteries for electric traction,
- research into fuel cells, also for electric traction,
- research into biofuels, for use in an internal combustion engine.

Research on all these three topics was financed by the agencies studied, but to different extents, and each with a different emphasis in the precise research subjects chosen. Neither of the three types of research can be said to have yet fully „reached the market.“ Leaving aside the question of infrastructure,¹⁷ it is easy to see that batteries,

fuel cells and the internal combustion engine define (at least) three different sets of users. These anticipated users are defined with regard to the different opinions they might have on the effort it should take to fuel a car, but they are also expected to have different values on environmental matters, on safety, or on maximum speed. In other words, they each anticipate to have different lifestyles.

These lifestyles can be read in the devices now still under development. The „fuel cell driver“ should be willing to use hydrogen, or methanol (a recently proposed fuel). It is however anticipated that he will be wary, as indicated by research financed by one of the agencies concerned about safe hydrogen storage. The „biofuel driver“ is someone who is expected to be favorable to rural development or clean air and will hence be interested in this type of fuel. This driver is also someone who sticks to the traditional car, to traditional ways of driving, and to filling the gas tank at a „normal“ gas station. The „biofuel“ lifestyle comes close to the one with which we are all familiar. This is not so for the „battery driver“: s/he seems to see no use in accelerating quickly at a green stopping light, and will take the time required to recharge the car. This lifestyle is one based on patience.

For reasons of space the analysis can here only be qualitative and not extended further. The reader will understand however that the above picture can be detailed and completed at will by anyone who wishes to do so and that *scripts for the future* are inscribed in any piece of current technical research.

Conclusion

Speaking of „lifestyles“ supposes that characteristics (values, behaviour, opinions, consumption, ...) are incorporated into humans, that such characteristics are relatively fixed and stable over periods of time, that they are recognisable amongst broader groups of humans, and thus can be analysed in order to inform energy policies. This paper argues that these hypotheses are rather strong and risky. The paper acknowledges that lifestyle analysis often ignores that the world we live in is not only populated with human beings expressing certain behaviours but also by technical objects which incorporate in themselves hypotheses about human behaviour. Energy consumption policies should therefore not solely rely upon lifestyle analyses and questionnaires – however fine-grained these may be. It is suggested that new policy options (new technologies, but also new regulative measures) should and can be systematically scrutinised with regard to the „life style hypotheses“ inscribed in them in order to understand which lifestyles are *de facto* projected onto the future. Finally, this point-of-view might bridge a gap between two branches of energy policy support: analysis of „social behaviour“ vs. analysis of „technical developments.“

Acknowledgments

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Notes

¹ Cathelat, 1990, p.179.

² The value method of Rokeach, VALS or LOV, Yankelivich' monitor, IPSOS, and so forth. See Cathelat, 1990, especially Chapter 7, for an extensive overview and discussion.

³ Valette-Florence, 1990, pp.9-13, or a recent workshop discussing the use of lifestyle methodology as a basis for energy modeling: Giovannini (organiser), 1995.

⁴ See for instance De Paauw, 1996.

⁵ On the development of statistics and their use in policy-making see Desrosières, 1994.

⁶ As well expressed by a recent study into the design of electrical appliances „Categorisation, classification, enumeration of culinary practices are the operations practised by marketing in its studies. The construction of categories supposes the definition of features, or criteria, and their limits, relevant to each type of activity of culinary preparation“ (Chabaud-Rychter, 1994, p.106, my translation).

⁷ See especially Latour, 1995b but see also Latour, 1995a for an example outside science (religion).

⁸ But the same is true for other types of „macro“ socio-economic analysis used in policy making: see Desrosières, op.cit.

⁹ See respectively: De Man, 1987; Van Lente, 1993.

¹⁰ See respectively: Akrich, 1989; Akrich, 1992; Akrich, 1993; see also Akrich, 1995.

¹¹ See for instance the collection of papers in Bijker & Law, 1992; Dierkes & Hoffmann, 1992.

¹² For instance the device that controlled room temperature in different apartments and controlled at the same time in which one of them the heating was on. With the help of a balancing coefficient the „net“-energy consumption could thus be calculated. This device does not define an individual, but typically a *collectivemorale*, as Rabeharisoa writes.

¹³ Here typically the individual inhabitant, the collective of inhabitants, the building manager, but if we expand the picture, one should naturally also take into account electricity companies, the producer of the energy saving devices, a particular energy policy aimed at energy saving, and so forth

¹⁴ As described by Delaunay, 1994. I especially refer here to the picture on pp.110-111 which in one glance shows this evolution. Delaunay's interesting story tells how the introduction of different new models of washing machines was from the early days on accompanied by „socio-economic agents,“ a kind of salesmen; moreover, through time different soaps to be used in the different washing machines were developed (powder soap for instance); their were publicity campaigns (in themselves also describing the lifestyles of potential consumers), and so forth: the machine – and the eventual lifestyle which is associated with it, can thus not be disconnected from the network of different actors and intermediaries in which it is embedded, or rather, through which it is constructed...

¹⁵ See De Laat, 1996b for an overview of this research.

¹⁶ See De Laat, 1996a for how this is used at the level of one single agency.

¹⁷ Which for reasons of „technological lock-in“ besides is highly relevant but falls outside the scope of this paper.

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