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How do different residential consumer groups react to monetary and unconventional non-monetary incentives to reduce their electricity consumption?

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Zusammenfassung

Zur Realisierung der Ziele der Energiestrategie 2050 gewinnt die Nachfragesteuerung von Verbrauchenden für Energieversorgungsunternehmen (EVU) zunehmend an Bedeutung. Energieeffizienz bedarf dabei nebst technischer Lösungen auch Ansätzen zur Verhaltensänderung. Anreize sind eine Möglichkeit für EVU, ihre Kundschaft zum Energiesparen zu motivieren. Im Projekt wird erforscht, ob unkonventionelle nicht-monetäre Anreize besonders geeignet sind, Haushalte zum Stromsparen zu bewegen. Dazu wurden im ersten Schritt qualitative Experteninterviews mit Vertretern von Energieunternehmen durchgeführt, um realitätsnahe Anreize zu identifizieren. Anschliessend prüften wir diese Anreize in zwei Online-Experimente (*N* = 805 und *N* = 1106) auf ihre Wirkung auf die Stromsparabsicht – sowohl allgemein wie auch für spezifische Verbrauchergruppen. Im ersten Experiment zeigte sich, dass Gebühren auf niedrige Akzeptanz trafen. Des Weiteren war die Energiespar-Absicht bei monetären und unkonventionellen Belohnungen nicht höher als bei blosser Aufforderung zum Energiesparen. Verschiedene sozioökonomische Gruppen reagierten gleich auf die Anreize. Jedoch reagierten Gruppen mit hohem Umweltbewusstsein besonders positiv auf Belohnungssysteme und Energiespar-Aufforderungen ohne Anreiz. Im zweiten Experiment wurde die Wirkung monetärer Anreize mit der Wirkung einer Auswahl von unkonventionellen Anreizen verglichen. Eine Auswahl zwischen Gutscheinen für alltägliche Dienstleistungen (z.B. öffentliche Verkehrsmittel, Lebensmittelgeschäfte) motivierte die Teilnehmenden am stärksten, Strom zu sparen. Verschiedene Belohnungen und die Aufforderung zum Energiesparen wirkten gleichermassen positiv auf die Loyalität der Verbrauchenden zum Energieunternehmen. Insgesamt schnitten bei Haushalten mit geringem Interesse an Energie-Themen unkonventionelle Anreize nicht besser ab als andere Anreizsysteme. Beide Experimente zeigten jedoch, dass Verbrauchende die Förderung von Energiesparverhalten durch EVU als positiv wahrnehmen. Auch zeigte sich, dass sie Interesse daran haben, mehr über ihren eigenen Energieverbrauch zu erfahren. Das Projekt bietet eine Grundlage, um verschiedene Ansätze der Sensibilisierung zum Energiesparen in der Realität anzuwenden und weiterzuentwickeln.

Résumé

Pour les fournisseurs d'énergie, la gestion de la demande joue un rôle croissant dans la réalisation des objectifs de la Stratégie énergétique 2050. Dans ce contexte, l'efficacité énergétique requiert des solutions techniques, mais aussi la volonté de changer de comportement. Les fournisseurs d'énergie peuvent se servir de mesures incitatives pour motiver les consommateurs à réaliser des économies. Le projet a cherché à savoir si les incitations non monétaires, moins conventionnelles, pouvaient contribuer à pousser les ménages à diminuer leur consommation d'énergie. Dans un premier temps, on a effectué des interviews qualitatives avec des représentants du secteur de l'énergie en vue d'identifier les mesures incitatives proches de la réalité. On a ensuite analysé l'impact, tant général que spécifique, de ces mesures sur les intentions d'économie d'énergie dans le cadre de deux campagnes en ligne (*N* = 805 et *N* = 1106). La première expérience a révélé que les taxes rencontrent une faible acceptation. Par ailleurs, les intentions d'économie d'énergie encouragées par des récompenses monétaires et non conventionnelles ne sont pas plus élevées que celles issues d'une simple exhortation à réduire sa consommation d'énergie. Les mesures incitatives ont suscité les mêmes réactions chez les différents groupes socioéconomiques. La deuxième expérience a comparé l'impact des incitations monétaires et celui d'un éventail de mesures incitatives non conventionnelles. La plus forte portée sur l'intention des participants à réaliser des économies d'énergie vient des bons pour des produits et services d'usage quotidien. Récompenses diverses et exhortations à diminuer sa consommation d'énergie ont le même effet positif sur la fidélité des consommateurs envers leur fournisseur d'énergie. Dans l'ensemble, les mesures incitatives non conventionnelles n'exercent pas une plus grande influence que d'autres trains de mesures auprès des ménages que les thèmes liés à l'énergie intéressent peu. Les deux expériences montrent cependant que les consommateurs perçoivent de façon positive l'encouragement, par les fournisseurs d'énergie, à adopter un comportement éco-responsable. De plus, les consommateurs sont intéressés à en apprendre plus sur leur consommation d'énergie. Le projet offre une plateforme à partir

de laquelle mettre en pratique et optimiser diverses mesures de sensibilisation aux économies d'énergie.

Summary

Demand-side management is becoming more relevant for energy utilities to reach the goals of the Swiss Energy Strategy 2050. Besides technical approaches to increase energy efficiency, approaches for behavioural change are also necessary. Here, energy utilities may use incentives to engage the public and their customers, in particular. The key idea of this project is to examine if unconventional non-monetary incentives are particularly successful in engaging households to save electricity through behavioural change. Therefore, we first conducted a series of qualitative expert interviews with representatives of energy utilities to identify suitable incentives. Subsequently, we conducted two large-scale online experiments (*N* = 805 and 1,106) to examine which incentive schemes are most effective in general, and for certain consumer groups. The first experiment revealed that fees receive low acceptance and energy-saving intentions were not higher when monetary or unconventional rewards were offered compared to a condition without incentives. Moreover, disparate socio-economic groups did not differ in their intention to change their behaviour for various incentives, in contrast to groups varying in their awareness of energy issues. The second experiment offered participants a choice of incentives. Here, a choice among coupons that can be used on a day-to-day basis (e.g. coupons for public transport and supermarkets) most motivated participants to change their behaviour. As in the first experiment, we found no alterations among socio-economic groups; incentives did not have a differing effect on participants' customer loyalty to the energy utility. Taken together, both experiments suggest that unconventional incentives are not more successful compared to other types of incentives to engage customers that, thus far, have been uninterested in energy issues. However, both experiments suggest that energy utilities' promotion of energy saving through behavioural change was highly welcomed by participants in general. In addition, both experiments suggest that participants are keen to learn about their own energy consumption. Hence, the project provides a rich basis for starting a real-world field trial to further explore the energy-saving potential of different types of incentives.

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1. Introduction

One pillar of the Swiss Energy Strategy 2050 ('new energy policy' scenario) is the reduction of per-capita energy demand. Private households account for 32% of overall electricity consumption in Switzerland (reference year: 2014; Swiss Federal Office of Energy, 2015). Therefore, energy utilities play an important role in realising the goals of the Energy Strategy 2050 (Swiss Federal Council, 2013), forming a link between policy levels and consumers (Pavan, 2012) as "agents for getting efficiency into homes" (Pyrko & Darby, 2011, p. 401). Swiss experts consider monetary tariff incentives an effective tool to reduce energy consumption, e.g. programmes giving refunds for consumption reduction (Blumer, Mühlebach, & Moser, 2014). However, utilities may be reluctant to start such programmes or launch products without having tested consumer responses on a small scale in advance.

The aim of this project is to investigate how varying incentive schemes can be used to motivate distinct consumer groups to engage in energy-efficient behaviours. More concretely, we investigate how different incentive schemes may trigger participants' intention to change their energy-related behaviour in different domains to save electricity, such as everyday electricity use in households (e.g. standby, cooking behaviour), investment decisions (e.g. purchase of appliances, consideration of energy efficiency in purchase decisions) and information seeking (e.g. on energy efficiency, lifestyle changes). This should be accomplished through variations in monetary and non-monetary incentives, where the latter may not be related to energy consumption at all. We examine the effect of monetary incentives (fees and rewards) via electricity bills and extend this to a more innovative operationalisation by focusing on unconventional non-monetary fees and rewards. The idea of offering unconventional non-monetary incentives to households in a domain that is not directly related to electricity consumption, such as coupons for public transport or a local weekly market, goes beyond the incentivising mechanisms for energy consumption behaviour examined so far. We expect that this strategy will be particularly effective for triggering behaviour change in those consumer groups that do not respond to conventional monetary incentive schemes and are thus difficult to reach for energy utilities.

We apply two large-scale psychological online experiments (N = 805 and N = 1,106) involving German- and French-speaking samples of the Swiss population. These provide a better understanding of how disparate consumer groups can be motivated to change their energy-related behaviour in households and whether incentives should differ among consumer groups. Thus, the research will not only contribute to a better understanding of the currently unrealised potential for inducing change in individual energy consumption, but will also support energy utilities to adopt their key role as promoters of energy efficiency in the Energy Strategy 2050. Additionally, the project serves as a starting point for pilot studies aiming to test the impact of more sophisticated incentive schemes on decisions with 'real' consequences for consumers.

The project consisted of four subsequent steps, each building on experiences and data of the previous steps (see Figure 1).

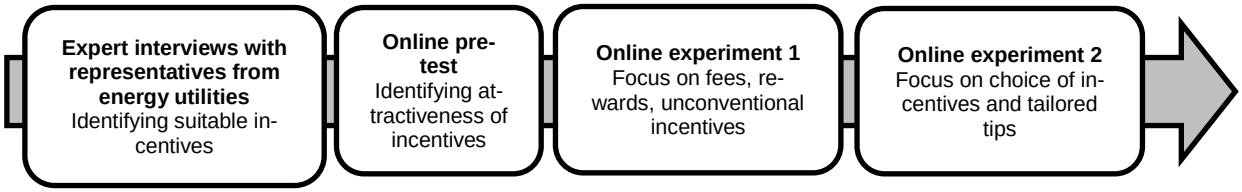

Figure 1: Overview of research steps.

1.1. Theoretical background

In the following, we provide a brief theoretical background on the effect of incentives on behaviour and how different electricity consumer groups might react to different types of incentives.

1.1.1. Incentives to motivate electricity-saving behaviour

Providing incentives is a popular approach to encourage households to save energy (Abrahamse, Steg, Vlek, & Rothengatter, 2005). By providing rewards, desired behaviours become more attractive, whereas fees render undesirable behaviours more unattractive. Classical incentive schemes focus on monetary rewards and fees. One basic idea of this study is to compare these monetary incentive schemes to more unconventional incentive schemes.

The effect of fees and rewards on behaviour

Incentives in the form of rewards and fees are widely used policy instruments, and they have been shown to be effective in public-good cooperation (Balliet, Mulder, & Van Lange, 2011), fostering pro-environmental behaviour (Abrahamse et al., 2005; Schultz, 2014; Steg & Vlek, 2009) or decision-making (e.g. choosing means of transport, Hilton, Charalambides, Demarque, Waroquier, & Raux, 2014). Thus, from an economic rational perspective, incentive schemes can guide the consumption behaviour of market actors, especially of economic organisations, and enhance targeted consumer behaviour. Yet from a psychological perspective, next to pure cost-benefit analyses, other factors such as intrinsic motivation (Gneezy, Meier, & Rey-Biel, 2011), social esteem (Ellingsen & Johannesson, 2008) or reactance (Kivetz, 2005) can jeopardise the outcome of incentive schemes on individual consumption.

A meta-analysis of the effects of punishment and reward on cooperation shows that a punishment is slightly more effective in fostering cooperative behaviour than a reward (Balliet et al., 2011). This may be because losses have a steeper value function compared to gains (following prospect theory; see Kahneman & Tversky, 1984). In line with that, an experiment with Swiss students found that demand response programmes are more effective in triggering participation if they are based on the avoidance of a fee (monetary punishment, if people fail to reach targets) compared to a striving for a reward (monetary reward, if people manage to reach targets; Gamma, Loock, & Cometta, submitted). Interestingly, this study found no negative side effects of fees as incentives, such as reduced loyalty to the energy provider. A further benefit for utilities may be that, compared to rewards, fees are usually less costly to implement. Yet in political practice, rewards are often favoured before punishments, as they are generally more accepted by the overall public.

Various environmental psychologists and behavioural economists argue that rewards are more effective in encouraging pro-environmental behaviour than sanctions, because rewards are associated with positive affect and attitudes that support behavioural changes, whereas fees are associated with low acceptance (Lehman & Geller, 2004). Rewards were shown to have a small-to-medium effect on pro-environmental behaviours during the incentive phase as well as in the long term after the removal of the reward scheme (Maki, Burns, Ha, & Rothman, 2016). At the same time, there is a large body of research documenting negative effects of rewards on motivation. Such negative effects induced by rewards include decreasing motivation and attitudes (Festinger & Carlsmith, 1959) and altering self-perception, e.g. towards ‘saving energy for monetary reasons’ (Bem, 1972). Research documents, for example that rewards lead to a crowding out of intrinsic motivation in the education system (Lepper, Greene, & Nisbett, 1973), for blood donation (Mellström & Johannesson, 2008) or pro-environmental behaviours (Beretti, Figuières, & Grolleau, 2013). Summarising these effects, Gneezy, Meier and Rey-Biel (2011) gave a broad overview of psychological effects incentives may have, apart from the simple benefit of (monetary) gains. They conclude their review citing many cases where monetary incentives tended to have negative impacts on effort; in many areas, the extrinsic reward of incentives can crowd out the intrinsic motivation to show a targeted behaviour. Accordingly, Hilton and colleagues (2014) found that environmental subsidies or taxes do have positive impacts through price effects and by signalling injunctive norms for environmentally friendly options. Yet, especially if financial incentives are high, they may crowd out intrinsic motivation. At the same time, such intrinsic motivation is essential to uphold habitual and long-term behaviour such as curtailment and energy-saving actions in the household.

Unconventional incentives

An essential question is, thus, if the positive effects of incentives to foster environmentally friendly behaviour (Abrahamse et al., 2005; Maki et al., 2016) can be applied without a crowding-out effect on intrinsic motivation. Some authors suggest non-monetary incentives to motivate behaviour. It is expected that such non-monetary incentives will not induce a monetary benefit-loss framing, which may result in decreased intrinsic motivation (e.g., Beretti et al., 2013). Confirming this idea, Heyman and Ariely (2004) found that people put more effort in a task when they are paid in non-monetary values than when they receive a low monetary payment: when payments were given in the form of gifts (e.g. chocolate bars) or when no payment was mentioned, effort seemed to stem from intrinsic motives and was, therefore, not influenced by the magnitude of a payment (a small or a big chocolate bar). In contrast, when payments were made in the form of cash, effort was adapted to what participants perceived as suitable to the magnitude of the payment. These authors, as well as Gneezy and colleagues (2011), argue that this reduction in effort happens due to a shift from a more social to a more monetary frame. Similarly, clients of a German energy provider showed more intention to save energy compared to a control group after receiving electricity-saving tips in combination with either monetary framing (savings in Euros) or environmental framing (Steinhorst, Klöckner, & Matthies, 2015). However, a spillover effect on climate-friendly intentions in domains other than energy saving was only found for the group with the environmental framing. Accordingly, a first argument supporting nonmonetary or unconventional incentives is that monetary cues of incentives can decrease or distract from the intrinsic motivation to save energy.

A second argument for unconventional incentives is that electricity is an abstract concept for most people, as it is invisible in daily life (Burgess & Nye, 2008). Therefore, electricity-saving programmes might be more successful if they are embedded in people's social realities. Shifting people's attention to non-monetary, more unconventional incentives that are not related to their electricity bill but to their everyday and leisure behaviour might be more effective in motivating people to save electricity compared to offering monetary incentives.

A third argument against monetary incentives is grounded in the currently low electricity prices: As long as these prices are as low as they are now, serious saving intentions will be hard to come by. Instead, low electricity prices may even act as disincentives to save electricity (Higginson, Thomson, & Bhamra, 2014). A monetary frame, therefore, might not be the most effective way to motivate people to save electricity. As shown above, financial incentives are effective, but their effect often diminishes when social norms are used (Dolan & Metcalfe, 2013). Compared to monetary incentives, nonmonetary incentives may maintain a motivating approach without raising the direct comparison between energy bill savings and saving efforts.

Lastly, the effect of incentive schemes is also largely dependent on the kind of pro-environmental behaviour in focus. For example, nonmonetary incentives seem to have the strongest effect on efficient travel behaviours, whereas monetary incentives had the biggest impact on recycling behaviours (Maki et al., 2016). It is, therefore, advisable to test different incentive schemes for the field of energy-saving behaviour.

The side effect of feedback

Reward or punishment systems are necessarily coupled with a behavioural target, and they are normally delivered when the target is reached. Therefore, most incentive systems inherently include a feedback system, in our case, regarding how well participants performed in saving electricity. As a by-product of incentive schemes, feedback regarding energy use is an effective mechanism for fostering energy saving, which was shown by a famous energy-saving campaign conducted by the electricity supplier Opower (Allcott, 2011; Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007). Feedback can further counteract the low visibility and awareness of energy consumption in everyday life (Burgess & Nye, 2008).

1.1.2. Different consumer groups and their reaction to varying types of incentives

It is expected that different groups of people react differently to fees and rewards, as well as to monetary and more unconventional incentives. This study aims to explore such group differences in more detail. In particular, it is of interest if groups that do not respond to monetary incentives can be motivated to perform electricity-saving behaviours through unconventional incentives.

There are various ways in which energy consumer groups have been categorised in the past: Sütterlin, Brunner and Siegrist (Sütterlin, Brunner, & Siegrist, 2011; Sütterlin & Siegrist, 2013) based their consumer segmentation on reported energy-related behaviour, attitudes, beliefs, acceptance of energy policy measures and knowledge. The authors identified six energy consumer segments: the idealistic, the selfless inconsequent, the thrifty, the materialistic, the convenience-oriented indifferent and the problem-aware well-being-oriented energy consumer. Other studies focus more strongly on socio-economic variables, such as household size and income (Abrahamse & Steg, 2009; Gatersleben, Steg, & Vlek, 2002; McLoughlin, Duffy, & Conlon, 2012; Nachreiner & Matthies, 2016). Socio-economic criteria are particularly relevant in determining energy-efficiency decisions (e.g. purchase of efficient household appliances, refurbishment), while psychological variables are important determinants of changes in everyday electricity behaviour (Abrahamse & Steg, 2009; Huddart Kennedy, Krahn, & Krogman, 2015).

Reactions to different incentive schemes probably depend on both psychological and socio-economic factors. In addition, for utilities it may be easier to collect socio-economic data about their customers compared to assessing psychological data. Some socio-economic data may even be available through public sources. However, acknowledging the importance of psychological variables for energy-related behaviour, this study focuses on a combination of both psychological and socio-economic criteria to identify different clusters of energy consumers. Besides often-used variables such as reported energy-related behaviour, attitudes, income, level of education and household size, the following socio-economic criteria are considered:

Ownership or rental of home: The literature has often found that tenants who rent their home are less likely to invest in energy-efficient appliances or refurbishment. This is commonly known as the landlord-tenant problem: Landlords may hesitate to invest in energy-efficient technologies since they may not regain money through an increase in rents while tenants profit from lower electricity bills. At the same time, tenants may not be motivated to invest in an energy-efficient infrastructure for a home that is not their own (Jaffe & Stavins, 1994). Tenants are, therefore, less likely to have energy-efficient refrigerators, washing machines, and dishwashers compared to people who own their home (Davis, 2012).

Type of home: Households in detached houses usually consume more electricity compared to households in multi-family houses (De Haan, Kissling, & Wolfensberger, 2012).

Number of people: The more people who live in a household, the less energy they use per capita. Yet, if adolescents live in the household, more energy is consumed (Wallis, Nachreiner, & Matthies, 2016).

Electrification: It is expected that households owning more appliances consume more electricity compared to households with fewer electricity-intensive appliances such as electric boilers, heat pumps, and tumble driers (ElCom, 2016).

Political preferences: The ideological and political background of households is related to the effectiveness of electricity-saving programmes: Electricity-saving nudges provided by consumption feedback worked with more liberal people; however, they backfired with more conservative people (Costa & Kahn, 2013).

1.2. Study goals, research questions and hypotheses

As mentioned above, there is a lack of research regarding i) how effective unconventional incentive schemes are compared to more conventional monetary incentive schemes, ii) how different electricity consumer groups react towards distinct incentive schemes to promote electricity-saving behaviour and iii) whether groups that do not respond to monetary incentives can be reached with more unconventional non-monetary incentives. Thus, the goal of this study is to investigate how monetary and more unconventional non-monetary incentive schemes can be used to motivate various consumer groups to engage in electricity-saving behaviour (see Figure 2).

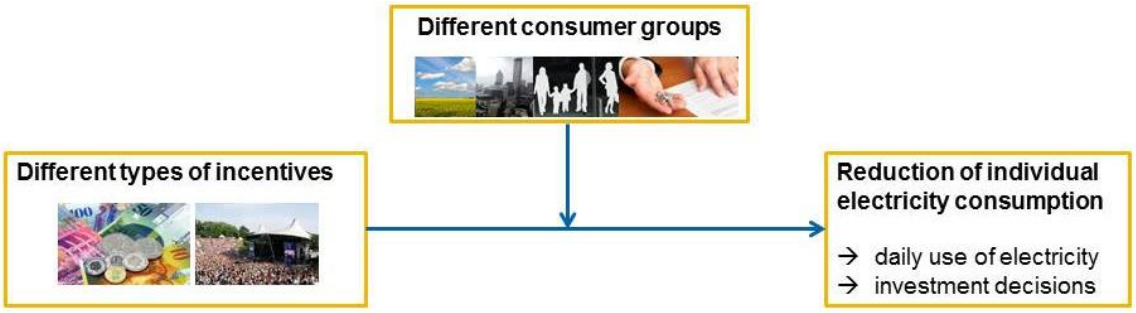

Figure 2: Study goals.

One important prerequisite of reaching this goal is the identification of different types of unconventional incentive schemes that are both innovative and practically relevant. Therefore, qualitative interviews were conducted with experts from different Swiss utilities. These interviews investigated the following research question (RQ):

RQ1: What experiences do utilities have regarding incentives to motivate the reduction of domestic electricity consumption, and what are suitable incentives to motivate the reduction of domestic electricity consumption?

Based on the insights of these interviews, a first experiment was designed to investigate the following RQs and hypotheses (H):

H1: The intention to change energy-related behaviour is greater if it is encouraged by the prospect of circumventing a monetary fee compared to gaining a monetary reward.

H2: The intention to change energy-related behaviour differs for varying consumer groups.

H3: Unconventional non-monetary incentives trigger a stronger intention to change energy-related behaviour compared to conventional (monetary) incentives (main effect: conventionality).

RQ2: Can unconventional non-monetary incentives trigger the intention to change energy-related behaviour in those groups that do not respond to conventional (monetary) incentives?

A second experiment was conducted to further refine insights gained from the first experiment and to deepen the understanding of the impact of different types of incentives on intentions to engage in electricity-saving behaviour.

In the following chapters, the methods and results of the research steps are presented in detail. Each research step is discussed briefly. The report closes with a general discussion.

2. Step 1: Interviews with experts from utilities to identify suitable incentives

2.1. Method

In this first step, we were interested in discussing our ideas for unconventional non-monetary incentives with experts from energy utility companies to gain insights about their experiences with and interest in the subject. In particular, answers to the following questions were of interest:

- Which target groups (within households) are the most relevant regarding energy-efficiency measures? How can these target groups be characterised?
- What types of incentives does the company use to promote energy efficiency in households? What are utilities' experiences with non-monetary incentives (e.g. coupons)?
- How do practitioners rate different types of conventional and unconventional non-monetary incentives (e.g. coupons/vouchers, cross-selling, social status, donations) in terms of suitability to reach efficiency targets or other goals their company might have?

We conducted four semi-structured interviews with six professionals from the following energy companies:

- Stadtwerk Winterthur: Head of Marketing, Head of Local Climate Fund and Product Manager for Electricity
- Elektrizitätswerk des Kantons Schaffhausen (EKS AG): Head of Sales and Energy Services
- Service Industriels de Genève (SIG): Head of Energy Efficiency Programme ECO21
- Swisspower Services AG, Zürich: CEO

The interviews allowed a broad yet not representative insight into activities in energy utilities and the practitioners' view of the issue of incentivising the energy savings of household consumers.

2.2. Key results

Utility experts mentioned several target groups worth engaging in efficiency promotions. Consumers of households that generate heat or warm water through electricity seem to be of primary interest, since their savings potential is still much higher compared to average households. The experts all agreed that homeowners have more possibilities to reduce their electricity consumption than tenants do. However, they reported that this gap might be reduced in the future because of technological progress that gives tenants similar possibilities to actively engage in reducing their electricity consumption. Moreover, those consumer groups that thus far showed no interest in their energy consumption are of particular interest as they are supposed to have a higher savings potential compared to more active consumers. It is assumed that this applies mostly to customers with a low-income, migration background or elderly people with high incomes.

While all experts were able to report particular examples of engaging consumers in energy savings, only a minority of the utilities seem to have extensive experiences with electricity-saving promotion measures for households. Apart from offering classic energy consultancy to consumers, most utilities also offered time-limited measures to partly refund consumers for substituting white good devices (e.g. a refrigerator) with energy-efficient types. Two of the companies interviewed offered an electronic customer portal supporting and incentivising households (with a coupon system) to reduce electricity consumption. Experiences seem to be mixed in this area, since the attraction of new participants after the launch was limited, and the actual impact on consumption seems difficult to track. The experts agreed that such measures share the lack of only reaching consumers with a high initial interest in energy issues and electricity conservation. An exception to this is SIG's energy-efficiency programme ECO21, which offers amongst other services the direct implementation of energy-saving measures to households, such as a free replacement of conventional light sources with LED lighting.

At least two utilities reported some experience in offering non-monetary unconventional incentives for electricity saving. A utility cooperated with local businesses and shops and offered coupons in a local currency supporting these businesses. In addition, prizes such as picking a Christmas tree in the local forest or a grill party for eight people were tendered in a competition for households that reached a specific activity rate on an energy-savings portal. Most of these prizes had a local reference and therefore triggered some response. However, it was stated that they could not raise significantly more interest than other rather conventional incentives in prize competitions.

Based on the qualitative expert interviews, a set of unconventional incentives (see Figure 3 for an overview) was tested for their motivational potential in a subsequent online study.

3. Step 2: Pretesting the motivational potential of different incentives

3.1. Method

We tested the motivational potential of different incentive schemes that have been identified in the interviews in an online study with 1,517 students from Zürich University of Applied Sciences (ZHAW). Of the sample, 58% were women, and the mean age of the sample was 25.8 years. Participants were presented with a list of different incentives (see Figure 3). For each incentive, they responded to this question: 'How strongly would you be motivated by the following incentive to reduce your household electricity consumption by 10%'? Respondents could choose answers on a scale ranging from 1 = not at all motivational to 7 = very motivational.

3.2. Key results

Out of 16 incentives, only six were rated motivational at all (mean value above mid-point of scale = 4): a coupon for local currency, lottery for a weekly vegetable box, a coupon from the local farmers' market, a cinema coupon, lottery for a backstage festival ticket or a donation to charity. Special or exclusive events, on the other hand, such as having your name engraved in the town square, a carriage ride, a tour with a forest ranger or a dinner with a famous person were not perceived as motivational on average. Nor was help in the household, babysitting or caretaking (see Figure 3).

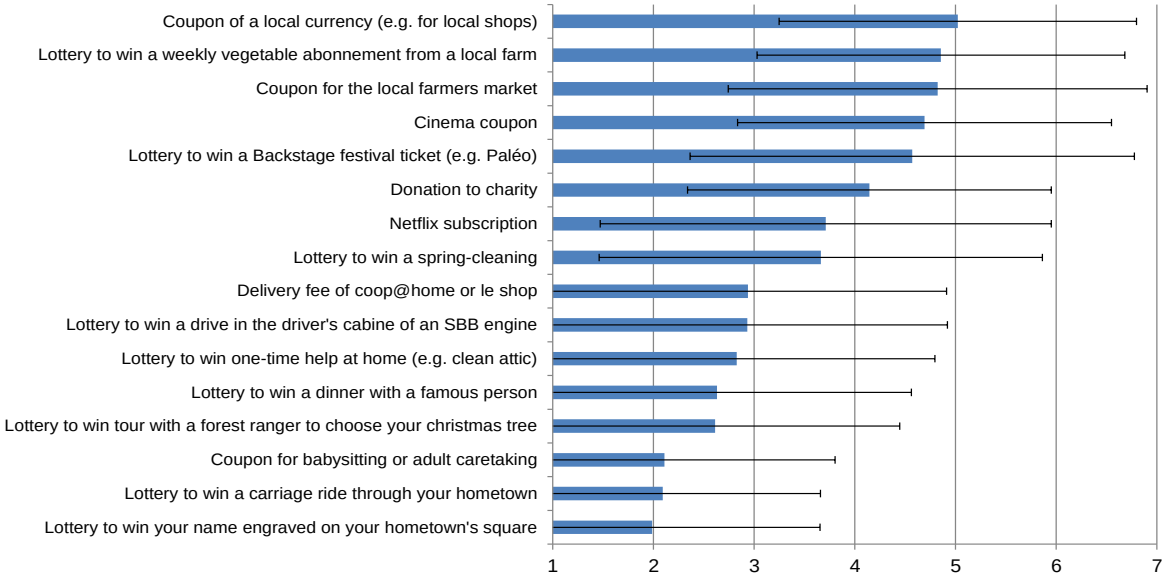

Figure 3: Mean ratings (+/- 1 SD) of the motivational potential of different incentives.

Note: 1 = not at all motivational to 7 = very motivational. N = 1,499-1,515.

3.3. Discussion

Results of the pre-test indicate that unconventional incentives are more popular when they are easily applicable and attract a broad range of interest. Unpopular incentives such as a carriage ride, a tour with the local ranger, driving in the cab of an SBB engine or a dinner with a famous person might reflect specific personal interests. In addition, these activities are time consuming. Babysitting, caretaking and cleaning, however, might be perceived as demotivating because these activities could be seen as an invasion of privacy. Furthermore, results show that incentives related to local activities were perceived as most motivational, such as coupons for a local market, coupons for vegetables from a local farm or a coupon of a local currency for nearby shops.

Therefore, the first experiment focused on two different types of non-monetary incentives, namely an incentive that is easily applicable, may be used on a daily basis and attracts a broad range of interests (SBB coupon) and another incentive with a local reference (coupon for a local market). Table 1 gives an overview of definitions of incentives for the first experiment.

4. Step 3: Experiment focussing on fees, rewards and unconventional incentives

The first online experiment centred on comparing fees with reward conditions, as well as monetary with unconventional non-monetary incentives. The choice of unconventional incentives was based on the results of the pre-test (see Table 1 for definitions of all the incentives). While the operationalisation of unconventional rewards is relatively straightforward (i.e. offering a coupon for a service if a savings target is reached), the operationalisation of unconventional fees is trickier since it does not seem workable that utilities deprive customers of certain services. Therefore, we included the two following conditions in addition to offering two unconventional coupons to customers reaching a savings target: Customers will receive a coupon (SBB or a local market) at the beginning of a programme that is only renewed if the savings target is reached one year later. If customers do not reach the target, they consequently experience a loss. In the experiment, the different incentive schemes were tested against a baseline intervention without incentives (control group). All groups received a letter from an imaginary electricity provider including the different experimental manipulations (see Figure 4 for an example and Appendix 8.2 for all experimental manipulations) along with energy-saving tips (see Appendix 8.1 for details).

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1. September 2015

Stromsparen leicht gemacht

Sehr geehrte Damen und Herren

Das Energiewerk Schweiz eNeS stellt nicht nur Ihren täglichen Energiebedarf sicher, uns liegt ebenso sehr ein nachhaltiger Umgang mit Energie am Herzen. Daher finden Sie anbei eine Aufstellung mit einigen Tipps zum Energiesparen. Nie zuvor war es leichter etwas Gutes für die Umwelt zu tun und gleichzeitig Geld zu sparen!

Fangen Sie noch heute an und versuchen Sie, bis zum 31. August 2016 den Stromverbrauch in Ihrem Haushalt um 10% zu reduzieren. Wenn Sie dieses Ziel erreichen, erhalten Sie von uns einen SBB Rail Bon über 50 CHF.

Vielen Dank für Ihr Engagement. Damit leisten Sie einen wichtigen Beitrag zu einem nachhaltigen Energiekonsum in der Schweiz.

Freundliche Grüsse

Stefan Sigrist
CEO Energiewerk Schweiz

Figure 4: Manipulation of first experiment: Incentive letter from electricity provider (example: unconventional daily incentive SBB coupon).

4.1. Method

4.1.1. Procedure

Participants were invited to participate in the study by email. After choosing their preferred language (German or French), they were randomly assigned to seven experimental conditions. Subsequently, they received a letter (such as Figure 4) from a fictive energy provider that motivated them to save electricity and provided them with energy-saving tips. Depending on the experimental conditions, participants could expect different types of incentives if they reached a savings target of 10% of electricity over a period of one year. Afterwards, participants noted their spontaneous associations with the offer in an open-ended textbox. They evaluated the offer and indicated their intention to save energy in the future. Additionally, both reported and behaviourally shown interest in the topic of energy savings was assessed. Last, a manipulation check and assessment of clustering and demographic variables followed. The German version of the questionnaire can be found in Appendix 8.1.

4.1.2. Sample

Participants were recruited by the panel company Respondi; 1,254 participants filled out the online questionnaire. Of these, 805 passed the manipulation check, completed the survey and indicated that their data could be used for research purposes. Only these participants are included in the further analyses. In the manipulation check, participants had to indicate the incentive they had received.

Regarding the respondents' language, 76% of the sample was German speaking, and 24% named French as their native language (in Switzerland, 63% spoke German, 23% spoke French, 8% spoke

Italian and 21% spoke a different language in 2014 [several choices were possible], BFS, 2016d). The respondents' gender consisted of 50.3% female (compared to 50.5% in Switzerland, BFS, 2015a), and the sample's mean age was *M* = 41.8, *SD* = 14.99 years (compared to the mean age of 41.9 years, BFS, 2016b). Thirty percent of participants lived in a house or apartment they own, and 70% resided in a rented house or apartment. In 2014, 37% of people living in Switzerland were homeowners (BFS, 2016a); 23% lived alone, 32% lived with a partner and 45% lived in a family or in a shared house. In Switzerland, 35% of households are single households, 27% are partner households and 38% of households are families and flat shares (BFS, 2015a). In the sample, households consisted on average of 2.47 people (*SD* = 1.23), and each household had an average of 4.06 rooms (*SD* = 1.29). The Swiss average is 2.27 people per household (BFS, 2008) and 3.8 rooms per household (BFS, 2015b). Participants' mean household net income per month was 7,380 CHF. In 2013, Swiss households' average available income was 7,130 CHF per month (BFS, 2016c). Concerning participants' highest education level, 48% had an apprenticeship, 17% had a college degree and 34% a higher education degree (e.g. university). Comparably, in the Swiss population aged 25 to 64, 48% had attained a secondary education, and 39% had a higher education degree (BFS, 2014).

4.1.3. Experimental design: Independent variables

The design included seven incentive groups and three to four consumer groups that were not determined beforehand but clustered based on the data collected in the study. While the control group received a request only to save energy, the six incentive groups were offered different types of incentives if they reached a savings target of 10% within a period of one year. Each incentive was worth 50 CHF[1]; all incentives are defined in Table 1.

Monetary rewards and fees were operationalised by a reward of 50 CHF if the savings target was reached or a fee of 50 CHF if the savings target was not reached. Unconventional incentives were operationalised by an unconventional daily reward, namely an SBB coupon of 50 CHF offered if the savings target was reached. A further unconventional local reward was operationalised by a coupon of 50 CHF for a local market, if the savings target was reached. For the reasons mentioned above, it was not possible to construct a realistic fee condition for these unconventional incentives. Therefore, we included a loss frame for both daily and local unconventional incentives. This loss frame was introduced by offering the coupon to customers today and highlighting in the letter that the coupon would only be renewed if customers reached their saving target within one year[2] (see Table 1 for details).

Table 1: Operationalisation/definition of experimental conditions in the first experiment.

Conditions:	**Operationalisation/definition:**
Control group	Request to save 10% electricity (no incentive offered); *n* = 141 (17.5%)
Monetary reward	Request to save 10% electricity, **reward of 50 CHF** if target is reached; *n* = 154 (19.1%)
Monetary fee	Request to save 10% electricity, **fee of 50 CHF** if target is not reached; *n* = 152 (18.9%)
Unconventional daily reward	Request to save 10% electricity, **SBB coupon of 50 CHF** if target is reached; *n* = 111 (13.8%)
Unconventional daily reward (loss)	Request to save 10% electricity, **SBB coupon of 50 CHF is offered now and only renewed if target is reached**; *n* = 94 (11.7%)
Unconventional local reward	Request to save 10% electricity, **coupon for local market of 50 CHF** if target is reached; *n* = 66 (8.2%)
Unconventional local reward (loss)	Request to save 10% electricity, **coupon for local market of 50 CHF is offered now and only renewed if target is reached**; *n* = 87 (10.8%)

Note. *n* of each cell is indicated. Total *N* = 805.

[1] We chose to set the monetary values to 50 CHF, as this seems to represent a sufficient stimulus to potentially trigger respective effects. In addition, this increases the comparability of our results to other experiments in this area where the same value has been used (e.g. Gamma et al., submitted).

[2] As this operationalization is different compared to the monetary fee condition, we did not employ a two (reward vs. fee) by three (monetary vs. unconventional daily vs. unconventional local) design but differentiated among six experimental groups and one control group.

4.1.4. Experimental design: Consumer group cluster variables

Consumer groups were defined by cluster analysis, which is explained in more detail in the results section. To determine consumer groups, person-specific information was assessed: demographic information such as education, age and income level, variables about participants' housing situation and electrification, and psychological and behavioural information such as a personal norm to save energy, environmental attitude, self-reported energy-saving behaviour and literacy concerning energy conservation:

Demographic variables included age, household income, education level and number of people and children in the household.

Housing variables were whether individuals lived in a house or an apartment, whether they rented or owned their residency and the size of residence by number of rooms.

Electrification is the number of electricity-intensive appliances in the household. The item measured the aggregated number of the following: electric heater, electric water boiler, heat pump, tumble drier and electric oven. The higher a household's electrification, the higher their electricity consumption is supposed to be. Therefore, this value had a range of 0 = none of the five electrification items to 5 = all five electrification items present in the household.

Personal norm to save energy was measured by the item 'I feel obliged to save electricity whenever possible' on a scale of 1 = do not agree to 7 = fully agree.

Environmental attitude was assessed with two items: 'The environment is important to me' and 'I am ready to accept curtailing to protect the environment' on a scale of 1 = do not agree to 7 = fully agree, Cronbach's α = .77.

Self-reported energy-saving behaviour was assessed in a self-reported scale equivalent to energy-saving intentions (see Chapter 4.1.5) with a Likert scale ranging from 1 = never to 7 = always, Cronbach's α = .69. Items were adapted and complemented from a scale by Sütterlin et al. (2011; Sütterlin & Siegrist, 2013). Table 2 indicates that, on average, the sample already saves energy in the household at least 'often'.

Table 2: Items of self-reported energy-saving behaviour.

Energy-saving behaviour in the household	*M*	*SD*
Turn off the light when leaving a room	6.09	1.12
Fill washing machine to capacity	5.95	1.38
Wash laundry at lower temperatures	5.53	1.63
Cook with pots covered	5.44	1.43
Fill dishwasher to capacity	5.34	2.19
Replace broken lightbulbs with LED	5.32	1.57
Adjust room temperature according to room's usage, e.g. turn down temperature in unused rooms	5.14	1.86
Shower as quickly as possible to save hot water	4.92	1.53
Not take hot baths [recoded]	4.90	1.41
Turn off standby on appliances	4.77	1.55
Reduce room temperature at night	4.58	2.11
Not use a tumbler to dry laundry [recoded]	4.32	1.87
Reflect upon whether really needing an appliance before buying it	5.44	1.49
When I buy electric appliances, I consciously pay attention to their energy consumption*	5.39	1.48

Notes. Translated items (original language: German), items adapted and complemented from Sütterlin et al. (2011; Sütterlin & Siegrist, 2013). Range from 1 = never to 7 = always, *N* = 805.

Literacy in electricity saving was assessed by a self-reported questionnaire using the following six items: 'I know which activities in the household use the most electricity', 'I know which appliances use the most electricity', 'I actively make an effort to gain information on energy saving', 'I check my energy bill carefully', 'I think I know more about saving electricity than most of my friends and relatives' and 'I know about the most important methods to save electricity', Cronbach's α = .82.

4.1.5. Experimental design: Dependent variable according to hypotheses

Energy-saving intention was measured by 11 items partly adapted from and complementing Sütterlin and colleagues' items measuring energy-saving behaviour, as shown in Table 2 (Sütterlin et al., 2011; Sütterlin & Siegrist, 2013). For measuring future intentions, the response scale was customised and ranged from 1 = 'I intend to do this a lot less in the future' to 7 = 'I intend to do this a lot more in the future'. The midpoint 4 of the scale was labelled 'I will do this as often as before'. The resulting scale was reliable, with Cronbach's α = .88. In a factor analysis, two reversely formulated variables loaded on a second factor (taking a bath and tumble-drying laundry). Yet to maintain the content validity, the scale was not divided.

4.1.6. Experimental design: Further dependent variables of interest

Information-seeking intention was assessed by four items asking if participants wanted to further engage in energy-saving topics: 'I would like to know more about the electricity consumption of different household activities', 'I would like to know more about the electricity consumption of my appliances', 'I would like to actively search for information about energy saving in the future' and 'I aim to examine my electricity bill more thoroughly in the future' on a scale from 1 = I do not agree at all to 7 = I agree completely. Cronbach's α of the scale was .86.

Information seeking was measured by a behavioural task where participants could request more energy-saving tips by choosing from the following six topics: 'Energy-efficient appliances', 'avoiding standby', 'Energy saving in heating', 'Energy saving while doing the laundry', 'Energy saving while cooking', 'Energy saving in lighting' and 'Learning more about my own energy use'. Thus, information seeking could range from 0 = no topic chosen to 6 = all topics chosen. As a consequence, participants received respective fact sheets including more information about the chosen topics.

Perceived feasibility of consumption reduction measured participants' responses to the item 'A 10% reduction of my household's electricity consumption is realistic' on a scale from 1 = I do not agree at all to 7 = I agree completely.

Intervention evaluation was determined by a five-item semantic differential including the following opposing word pairs: 'good idea–bad idea', 'appeals to me–puts me off', 'citizen-friendly–distanced', 'inviting–repellent' and 'motivates me to engage with my energy use–does not motivate me'. Furthermore, 'original–uninspired', 'forward-looking–traditional', 'special–usual' and 'fits my community–does not fit my community' were assessed. Nevertheless, they were not included as they are ambiguous in their valence. Participants responded on a seven-point scale. The scale was recoded so that 1 represents a negative evaluation and 7 represents a positive evaluation. The reliability of the scale was given as Cronbach's α = .95.

All items used the dependent variables shown in Table 3, except for information seeking, which is depicted in Figure 5.

Table 3: Items of all dependent variables in the first experiment.

Energy-saving intention	*M*	*SD*
Turn off the light when leaving a room	6.09	1.12
Fill washing machine to capacity	5.95	1.38
Wash laundry at lower temperatures	5.53	1.63
Cook with pots covered	5.44	1.43
Fill dishwasher to capacity	5.34	2.19
Replace broken lightbulbs with LED	5.32	1.57
Adjust room temperature according to usage, e.g. turn down temperature in unused rooms	5.14	1.86
Shower as quickly as possible to save hot water	4.92	1.53
Not take hot baths [recoded]	4.90	1.41
Turn off standby on appliances	4.77	1.55
Reduce room temperature at night	4.58	2.11
Not use a tumbler to dry laundry [recoded]	4.32	1.87
Reflect upon whether really needing an appliance before buying it	5.44	1.49
When I buy electric appliances, I consciously pay attention to their energy consumption	5.39	1.48
Information-seeking intention		
I would like to know more about the electricity consumption of different household activities	5.19	1.57
I would like to know more about the electricity consumption of my appliances	5.26	1.55
I would like to actively search for information about energy saving in the future	4.52	1.54
I aim to examine my electricity bill more thoroughly in the future	4.69	1.49
Intervention evaluation		
Good idea (7)–bad idea (1)	5.42	1.75
Appeals to me (7)–puts me off (1)	5.09	1.79
Citizen-friendly (7)–distanced (1)	4.88	1.68
Inviting (7)–repellent (1)	4.92	1.76
Motivates me to engage with my energy use (7)–does not motivate me (1)	5.25	1.74
Perceived feasibility of consumption reduction		
A 10% reduction of my household's electricity consumption is realistic	4.40	1.73

Note. Item ranges: energy-saving intentions (Sütterlin et al., 2011; Sütterlin & Siegrist, 2013): 1 = 'I intend to do this a lot less in the future' to 7 = 'I intend to do this a lot more in the future'; information-seeking intention: 1 = 'I do not agree' to 7 'I totally agree'; intervention evaluation: 1 = negative to 7 'positive'; perceived feasibility: 'I do not agree' to 7 'I totally agree'. *N* = 805.

4.1.7. Statistical analyses

The statistical analysis was conducted with SPSS Version 23. Consumer groups were built with cluster analysis, and hypotheses were tested with variance analyses and hierarchical linear regressions. For socio-demographic clusters, there was a combination of categorical variables (homeownership, house or apartment), ordinally scaled variables (highest level of education) and interval-scaled variables (number of rooms, people and children, age and household income). Therefore, two-step clustering was indicated, where in a first step, nominal-scaled cluster determinants are inserted, and in a second step, the interval-scaled determinants are inserted. For psychological clustering, all cluster determinant variables were interval scaled on a range of 1-7. In this case, hierarchical cluster analysis with the Ward method was chosen as a method to define distinct consumer groups. This method combines clusters that have the smallest addition of total variance, thereby minimising the variance within a cluster. In this analysis, psychological cluster determinants were treated with z-Transformation to avoid bias through varying standard deviations (as recommended by Field, 2011).

4.2. Results

4.2.1. Manipulation check

At the end of the survey, participants had to select the incentive scheme they had received from all seven incentive schemes. This manipulation check was performed to guarantee that the effects on the dependent variables could, in fact, be attributed to the respective incentive scheme. Of the participants, 825 passed the manipulation check; 20 participants were excluded, as they did not state that they had 'thoroughly filled out the questionnaire' and that their 'data may be used in the study'. All in all, data from 805 participants were used in the analyses.

4.2.2. Randomisation check

The randomisation check tests if there are systematic differences between the experimental groups. Due to the randomisation, such differences should only be minimal. Systematic differences would indicate a certain bias and, therefore, hamper the comparability between groups. The incentive groups did not differ in household income $F(6) = 1.50$, $p = .17$, level of education $\chi^2(36) = 36.77$ $p = .43$), gender $\chi^2(6) = 7.48$, $p = .28$, housing situation $\chi^2(12) = 15.04$, $p = .24$ or energy-saving behaviour in the household, $F(6) = 1.79$, $p = .10$. However, the groups did differ in age, $F(6) = 3.74$, $p < .01$. The control group ($M = 45.5$, $SD = 16.0$) was significantly older than the unconventional daily reward (loss) group ($M = 38.6$, $SD = 15.7$), $p = .01$, or the unconventional local reward (loss) group ($M = 39.0$, $SD = 13.6$), $p = .03$.

4.2.3. Descriptives

Table 4 gives an overview of all experimental conditions and their respective mean values and standard devisations in the different dependent variables.

Table 4: Dependent variables for different incentive schemes.

	Energy-saving intention *M* (*SD*)	Information-seeking intention *M* (*SD*)	Information seeking *M* (*SD*)	Perceived feasibility *M* (*SD*)	Intervention evaluation *M* (*SD*)
Control group (*n* = 139-141)	4.57 (0.62)	5.03 (1.32)	3.12 (2.55)	4.66 (1.73)	5.28 (1.27)
Monetary reward (*n* = 153-154)	4.65 (0.71)	4.93 (1.33)	2.55 (2.15)	4.55 (1.81)	5.55 (1.29)
Monetary fee (*n* = 149-152)	4.31 (0.52)	4.74 (1.27)	2.63 (2.47)	3.75 (1.71)	3.43 (1.63)
Unconventional daily reward (*n* = 110-111)	4.53 (0.75)	5.00 (1.17)	2.70 (2.10)	4.68 (1.48)	5.58 (1.11)
Unconventional daily reward (loss) (*n* = 92-94)	4.57 (0.69)	5.03 (1.20)	3.28 (2.38)	4.47 (1.71)	5.49 (1.42)
Unconventional local reward (*n* = 64-66)	4.54 (0.69)	4.78 (1.43)	2.61 (2.48)	4.18 (1.73)	5.71 (1.22)
Unconventional local reward (loss) (*n* = 87)	4.54 (0.61)	4.87 (1.36)	3.07 (2.50)	4.60 (1.71)	5.56 (1.44)
Total sample (*N* =794-805)	4.53 (0.66)	4.91 (1.19)	2.83 (2.38)	4.40 (1.73)	5.11 (1.58)

Notes. Scale ranges: energy-saving intention from 1 = much less saving behaviour compared to today to 7 = much more saving behaviour compared to today; perceived feasibility and information-seeking intention from 1 = low to 7 = high; information-seeking behaviour from 0 = no information selected to 6 = all information selected, intervention evaluation from 1 = negative to 7 = positive.

The intention to save energy correlated moderately with the intention to seek information, r = .42, showing that they measure similar constructs. There was another moderate correlation between reported intention to seek energy-saving information and actual information seeking through selecting energy conservation tips during the experiment, r = .41 (see Table 5).

Table 5: Correlations of dependent variables.

	Energy-saving intention	Information-seeking intention	Information seeking	Perceived feasibility	Intervention evaluation
Information-seeking intention	.42***	-	-	-	-
Information seeking	.22***	.41***	-	-	-
Perceived feasibility	.31***	.25***	.13***	-	-
Intervention evaluation	.33***	.35***	.17***	.33***	-

Notes. Pearson's correlation coefficient r, *** p < .001 (two-sided). N = 794-805.

In the information-seeking task, most participants (52%) wanted to 'Learn more about (their) own energy consumption'. On average, participants chose 2.83 topics. Only a minority of participants was not at all interested and, hence, did not select a topic (see Figure 5).

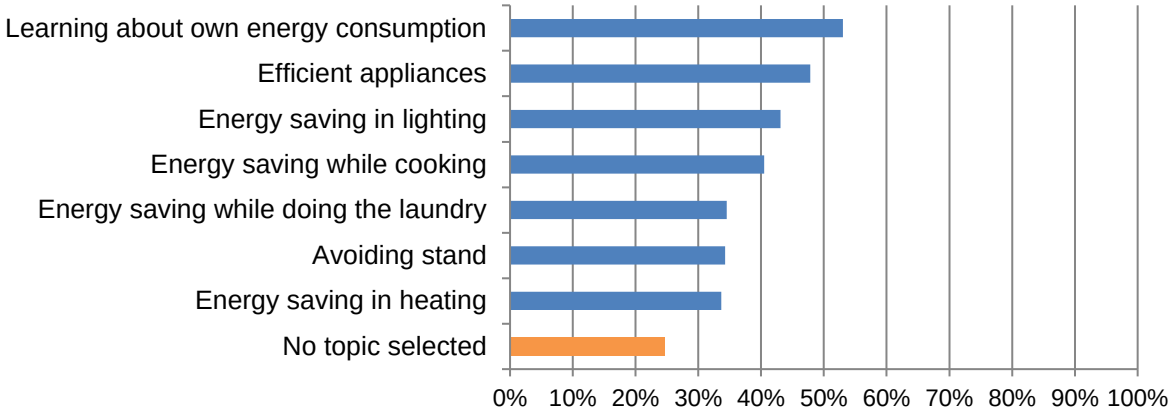

Figure 5: Information seeking about energy saving in different areas: Percentages of participants requesting additional information. Several choices were possible. N = 805.

4.2.4. Clustering consumer groups

Participants were categorised by two cluster analyses: The first categorised people into groups based on their socio-demographic and housing information. The second cluster analysis formed consumer groups based on psychological and behavioural factors related to energy saving.[3]

Socio-demographic categorisation. This cluster analysis by housing situation (rental or ownership of house or apartment), number of rooms, number of residents, electrification and certain demographic information (age, household income, number of children) resulted in four different consumer groups. Note that the categorisation focused on individuals, not households. A cluster analysis yielded the following groups: homeowners, house renters, couples in rented apartments and families in apartments (see Table 6).

Homeowners live in houses they own. With over five rooms on average and the highest electrification, they have 3.2 people on average living in their households with 0.76 children, so most households in

[3] A third, mixed-cluster analysis included all variables from demographic, housing and psychological clustering. This clustering approach yielded five clearly definable groups. Yet, these could not be used for further testing our hypotheses using variance analysis, as group samples in some cases were too small to draw valid conclusions.

this group contain families. Their mean age is 45, and they have the highest household income with an average of CHF 9,226. They report the most energy-saving behaviours and highest literacy of all groups.

House renters are the smallest group and have a mean age of 38, with an average of 2.94 people per household and 0.27 children, so less than a third of them are families. They live in smaller houses than the homeowners, with 4.65 rooms, and their mean household income is CHF 8,140.

Couples in rented apartments are the biggest group with *n* = 440. They occupy 3.4 rooms on average, almost none has children in the household, and the average number of people is 1.93. Accordingly, most live in a two-person household. They are from all age groups with a mean of 40 years, and they reported the least energy-saving behaviours and lowest literacy.

Families in apartments live in apartments with an average of 4.42 rooms and with a mean of three people and one child in the household. Their mean age is 44, and the household income is CHF 7,978.

Table 6: Group characteristics of socio-demographic clusters.

	Home-owners *n* = 174	House renters *n* = 66	Couples in rented apart-ments *n* = 440	Families in apartments *n* = 119	Total sample *N* = 799
Cluster determinants:	*M* (*SD*)	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
Rental (1) or homeowner-ship (2)*	2 (0)	1 (0)	1 (0)	1.56 (0.5)	1.3 (0.46)
House (1) or apartment (2)*	1 (0)	1 (0)	2 (0)	2 (0)	1.7 (0.46)
Electrification*	1.76 (1.05)	1.74 (1.03)	1.16 (0.96)	1.18 (0.85)	1.34 (1.01)
Number of rooms*	5.27 (0.81)	4.65 (1.26)	3.4 (1.1)	4.42 (0.86)	4.06 (1.28)
Number of people in house-hold*	3.19 (1.25)	2.94 (1.45)	1.93 (0.84)	3.13 (1.34)	2.47 (1.23)
Number of children in household*	0.76 (1.09)	0.27 (0.6)	0.13 (0.34)	1.02 (1.16)	0.41 (0.82)
Age* [years]	45 (15)	38 (15)	40 (15)	44 (14)	42 (15)
Education	4.01 (1.49)	3.91 (1.27)	4 (1.36)	4.08 (1.44)	4.01 (1.39)
Other variables					
Household income [CHF/month]*	9,226 (4,108)	8,140 (4,384)	6,547 (3,035)	7,978 (3,552)	7,395 (3,607)
Energy-saving behaviour*	5.54 (0.73)	5.13 (0.77)	5.11 (0.8)	5.26 (0.75)	5.23 (0.79)
Literacy in electricity saving*	4.78 (1.07)	4.51 (0.98)	4.43 (1.06)	4.55 (1.07)	4.53 (1.06)
Environmental attitude	5.5 (1.2)	5.41 (1.11)	5.38 (1.16)	5.28 (1.27)	5.39 (1.18)
Personal norm to save en-ergy	5.48 (1.34)	5.24 (1.35)	5.25 (1.36)	5.29 (1.33)	5.31 (1.35)

Notes. Ranges: Electrification: 0 = no electric appliances; 5 = electric heater, heat pump, tumbler, electric heater and electric oven. Education: 1 = primary school only; 7 = university degree. Environmental attitude, personal norm to save energy, energy-saving behaviour, literacy in electricity saving: 1 = very low to 7 = very high. *Indicates significant differences among clusters, $p < .01$.

Categorisation by psychological factors. The second cluster analysis concentrated on the following psychological and behavioural factors concerning energy consumption: literacy regarding electricity saving, environmental attitude, personal norms in saving energy and self-reported energy-saving behaviour. The cluster analysis revealed three distinct groups, namely a low conservation group, a middle group and a high conservation group (see Table 7).

The low conservation group (*n* = 253) is the main target group of this experiment, which is attempting to discern the most effective incentive system for energy users not primarily engaged in energy-saving

issues. They are, on average, indifferent about energy saving, with their personal norm to save energy being *M* = 4.13, with a *SD* = 1.32, and they show no strong environmental attitude, *M* = 4.42, with *SD* = 1.21. Moreover, their self-reported energy-saving behaviour (*M* = 4.45, *SD* = 0.68) and their literacy concerning electricity saving (*M* = 3.62, *SD* = 0.72) are relatively low. They are mainly renters of apartments, their mean age is 37 years, and their average household income is CHF 7,303.

The *middle conservation group* (*n* = 329) shows average self-reported energy-saving behaviour as well as personal norms to save energy, but their literacy in terms of electricity saving is not very high (*M* = 4.49, *SD* = 0.77), whereas their self-reported energy-saving behaviour is just as high as the high conservation group's, *M* = 5.53, *SD* = 0.49. Their mean age is 44 years, and they have an average household income of CHF 7,466.

The *high conservation group* (*n* = 223) are very concerned about the environment (*M* = 6.48, *SD* = 0.51), they have high personal norms to save energy (*M* = 6.51, *SD* = 0.54), and their self-reported energy-saving behaviour and literacy in electricity saving are highest when compared with the other groups. Their mean age is 44 years, and their average household income is CHF 7,357.

Table 7: Group characteristics of psychological clusters.

	High conservation group *n* = 223	Middle conservation group *n* = 329	Low conservation group *n* = 253	Total sample *N* = 805
Cluster determinants:	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
Reported energy-saving behaviour*	5.66 (0.64)	5.53 (0.49)	4.45 (0.68)	5.22 (0.8)
Literacy in electricity saving*	5.61 (0.73)	4.49 (0.77)	3.63 (0.72)	4.53 (1.06)
Environmental attitude*	6.48 (0.51)	5.41 (0.77)	4.42 (1.21)	5.4 (1.18)
Personal norm to save energy*	6.51 (0.54)	5.39 (0.94)	4.13 (1.32)	5.3 (1.35)
Other variables				
Rental (1) or homeownership (2)*	1.34 (0.48)	1.35 (0.48)	1.2 (0.4)	1.3 (0.46)
House (1) or apartment (2)*	1.65 (0.48)	1.67 (0.47)	1.78 (0.42)	1.7 (0.46)
Electrification	4.2 (1.27)	4.15 (1.24)	3.8 (1.32)	4.06 (1.29)
Number of rooms	1.3 (0.97)	1.36 (0.97)	1.32 (1.09)	1.33 (1.01)
Number of people in household	2.53 (1.21)	2.44 (1.19)	2.44 (1.29)	2.47 (1.23)
Number of children	0.49 (0.98)	0.39 (0.73)	0.37 (0.77)	0.41 (0.82)
Age*	44.12 (15.23)	43.85 (14.92)	37.02 (13.76)	41.78 (14.99)
Education	4.14 (1.43)	3.95 (1.39)	3.97 (1.37)	4.01 (1.39)
Household income [CHF/month]	7,357 (3,592)	7,466 (3,486)	7,303 (3,759)	7,383 (3,602)

Notes. Ranges: Environmental attitude, personal norm to save energy, energy-saving behaviour, literacy: 1 = very low to 7 = very high. Education: 1 = primary school only; 7 = university degree. * Indicates significant differences among clusters, $p < .01$.

4.2.5. Testing hypotheses on energy-saving intentions

Hypotheses were tested by analysis of variance (ANOVA), including the experimental conditions and the identified consumer groups. We analysed changes in energy-saving intentions depending on experimental conditions for both the socio-demographic as well as for the psychological clusters. Further, dependent variables were also examined by hierarchical linear regression analysis.

Hypothesis 1 states that the intention to change energy-related behaviour is greater if it is encouraged by the prospect of circumventing a monetary fee compared to gaining a monetary reward. This hypothesis could not be confirmed: The intention to save energy was influenced by the incentive scheme in the model with socio-demographic clusters, $F(6) = 2.51$, $p < .05$ (see Table 8), as well as in the model with psychological clusters, $F(6) = 5.00$, $p < .001$ (see Table 9). Post-hoc tests indicate that this effect

can be attributed to the monetary fee condition, which led to significantly less energy-saving intentions (M = 4.31, SD = 0.52) compared to the control group (M = 4.57, SD = 0.68), the monetary reward condition (M = 4.65, SD = .71) and the unconventional daily reward (loss) condition (M = 4.57, SD = .69) (all p-values < .01). This indicates an opposite effect compared to the one postulated in H1.

Table 8: Intention to save energy and socio-demographic clusters.

	df	*F*	*p*	η_p^2
Model	27	1.76	<.01	.06
Socio-demographic clusters	3	.22	.90	.00
Incentive schemes	6	2.51	<.05	.02
Interaction clusters x incentives	18	1.23	.23	.03

Note. R^2 = .07. N = 789.

Table 9: Intention to save energy and psychological clusters.

	df	*F*	*p*	η_p^2
Model	20	5.20	<.001	.12
Psychological clusters	2	27.02	<.001	.07
Incentive schemes	6	5.00	<.001	.04
Interaction clusters x incentives	12	2.19	<.05	.03

Note. R^2 = .12. N = 794.

Hypothesis 2 states the intention to change energy-related behaviours differs for varying consumer groups. This hypothesis could partly be confirmed. No such differences appeared for socio-demographic clusters, $F(3) = 0.22$, p = .90 (Table 8). Yet psychological clusters showed significant differences, $F(2) = 27.02$, p < .001 (Table 9). Specifically, differences could be attributed to the high energy conservation group having greater intentions to save energy (M = 4.75, SD = .83) than the middle group (M = 4.51, SD = .56), as well as the middle group having greater intentions than the low energy conservation group (M = 4.34, SD = .54) (post-hoc tests, all p-values < .01).

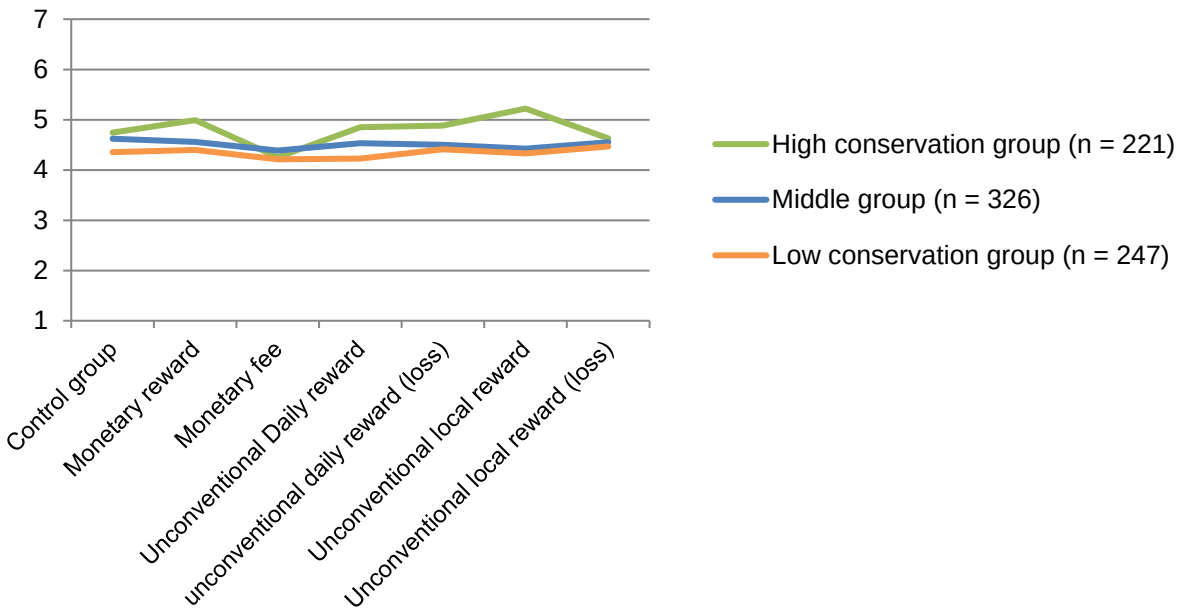

Figure 6: Mean energy-saving intentions for psychological clusters and incentive schemes.

Hypothesis 3 states that unconventional non-monetary incentives trigger a stronger intention to change energy-related behaviour compared to conventional (monetary) incentives. This hypothesis could partly be confirmed, but depended on specific incentive types: Intention to change behaviour was significantly

higher in the unconventional daily reward condition (loss) (M = 4.57, SD = .69) compared to the monetary fee condition (M = 4.31, SD = .52) (p < .05).

Research question 2 investigates whether unconventional non-monetary incentives are able to trigger intentions to change energy-related behaviour in those groups that do not respond to conventional (monetary) incentives. As there was no significant interaction effect between socio-demographic clusters and incentive schemes, F(18) = 1.23, p = .23, one can conclude that the identified socio-demographic clusters did not react differently to incentive schemes. For psychological clusters, a significant interaction effect was found between incentive schemes and psychological groups, F(12) = 2.19, p <.05, although the effect is very small. Figure 6 suggests that the high conservation group differentiates more strongly among the incentive schemes. No significant differences were found for the other groups. Taken together, the results yield evidence that those groups that care less about energy, namely the low conservation and middle group, generally speaking are rather indifferent to all types of incentives.

In addition, a hierarchical regression analysis was calculated using the determinants of the cluster analyses to predict energy-saving intentions. In a first step, socio-economic variables were entered, and in a second step, the psychological variables were entered. As socio-demographic and housing variables were not predictive as a whole in the first analysis, the regression model also was not significant (F = .71, p = .66), indicating that none of the socio-demographic variables had a significant influence on energy-saving intentions. Including psychological variables increased the variance explained by the regression model to a significant degree. For these variables, only high environmental attitudes predicted higher energy-saving intentions (see Table 10).

Table 10: Hierarchical linear regression of factors influencing energy-saving intentions.

Step 1	*B*	*SE B*	β
Constant	4.33	0.14	
Age	0.00	0.00	0.07
Household income	0.00	0.00	-0.02
Education	0.02	0.02	0.05
Number of people in household	0.03	0.03	0.06
Number of rooms in household	-0.02	0.03	-0.04
Electrification	0.00	0.03	-0.01
Living situation	0.01	0.04	0.02
Step 2			
Constant	3.33	0.20	
Age	0.00	0.00	0.06
Household income	0.00	0.00	0.02
Education	0.00	0.02	0.00
Number of people in household	0.03	0.03	0.05
Number of rooms in household	-0.03	0.03	-0.05
Electrification	0.01	0.03	0.01
Living situation	-0.01	0.04	-0.01
Environmental attitude	0.17	0.03	0.30*
Energy-saving behaviour	-0.04	0.04	-0.04
Literacy in energy saving	0.03	0.03	0.05
Personal norm to save energy	0.05	0.03	0.10

Notes. Step 1: R^2 = .01, p =.66; Step 2: R^2 = .15, p < .001; ΔR^2 for Step 2 = 0.14, p < .001; * p < .001. Living situation: 1 = rent, 2 = owned apartment, 3 = owned house. N = 805.

4.2.6. Further analyses: Information seeking and perceived feasibility

Besides testing the hypotheses, further interesting data patterns could be identified that are presented in the following. For these analyses, only psychological clusters were considered. For information seeking as the number of requested energy-saving tips, incentive schemes had a small but significant effect on the interest in energy-saving tips, $F(6) = 2.17$, $p < .05$, with post-hoc tests not yielding a clear pattern. Inspections of the means indicate that a monetary reward yielded the smallest interest in energy-saving tips ($M = 2.55$, $SD = 2.15$), and an unconventional daily reward (loss) yielded the highest interest ($M = 3.28$, $SD = 2.38$). Psychological clusters did have an influence on information seeking (see Table 11). Post-hoc tests indicate the following pattern: Interest in energy-saving tips was higher for the high conservation group ($M = 3.40$, $SD = 2.52$) than the middle conservation group ($M = 2.81$, SD = 2.24) and the low conservation group ($M = 2.36$, $SD = 2.32$) (all p-values < .01).

Table 11: Information seeking and psychological clusters.

	df	*F*	*p*	η_p^2
Model	20	2.53	<.001	.06
Psychological clusters	2	11.38	<.001	.03
Incentive schemes	6	2.17	<.05	.02
Interaction clusters x incentives	12	1.26	.24	.02

Note. $R^2 = .06$. $N = 805$.

A hierarchical linear regression showed that participants with a higher education level were more interested in receiving energy-saving tips, and a higher personal norm to save energy, higher environmental attitude and lower energy-saving behaviour led to higher interests in energy-saving tips (see Table 12).

Table 12: Hierarchical linear regression on information seeking.

Step 1	B	SE B	
Constant	1.61	0.51	
Age	0.00	0.01	0.00
Household income	0.00	0.00	-0.04
Education	0.27	0.07	0.16**
Number of people in household	0.15	0.10	0.07
Number of rooms in household	-0.04	0.11	-0.02
Electrification	0.13	0.10	0.06
Living situation	0.06	0.15	0.02
Step 2			
Constant	0.67	0.73	
Age	0.00	0.01	0.00
Household income	0.00	0.00	-0.02
Education	0.24	0.07	0.14**
Number of people in household	0.13	0.10	0.07
Number of rooms in household	-0.05	0.10	-0.03
Electrification	0.14	0.10	0.06
Living situation	0.05	0.14	0.02
Environmental attitude	0.32	0.12	0.16**
Energy-saving behaviour	-0.66	0.16	-0.20**
Literacy in energy saving	0.10	0.11	0.05*
Personal norm to save energy	0.34	0.10	0.19**

Notes. Step 1: $R^2 = .03$, $p < .01$; Step 2: $R^2 = .12$, $p < .001$; ΔR^2 for Step 2 = 0.09, $p < .001$. ** $p < .01$; * $p < .05$. Living situation: 1 = rent, 2 = owned apartment, 3 = owned house. $N = 805$.

The different incentive schemes did not have an effect on information-seeking intentions: $F(6) = 2.39$, $p = .14$. As in the analyses above on information seeking, the different consumer groups displayed significant differences in their intention to seek information, $F(2) = 57.22$, $p < .001$. As above, the high conservation group has the greatest intention to seek further information about electricity saving ($M = 5.53$, $SD = 1.28$), followed by the middle group ($M = 4.93$, $SD = 1.07$) and the low conservation group ($M = 4.34$, $SD = 1.32$) (post-hoc tests, all p-values < .001).

The feasibility of the energy-saving goal, or how realistic participants found a 10% energy use reduction in their household, was different in the incentive schemes, $F(6) = 5.18$, $p < .001$ (see Table 13). Post-hoc tests revealed the following pattern: The prospect of a monetary fee resulted in participants rating the feasibility of energy conservation significantly lower ($M = 3.75$, $SD = 1.71$) compared to the control group ($M = 4.66$, $SD = 1.73$) and all other experimental conditions (all p-values < .05), with the exception of the unconventional local reward (loss) condition.

Table 13: Feasibility of energy conservation and psychological clusters.

	df	*F*	*p*	η_p^2
Model	20	2.71	<.001	.07
Psychological clusters	2	2.44	.09	.01
Incentive schemes	6	5.18	<.001	.04
Interaction clusters x incentives	12	1.24	.25	.02

Note. $R^2 = .07$. $N = 805$.

4.2.7. Further analyses: Intervention evaluation and open comments

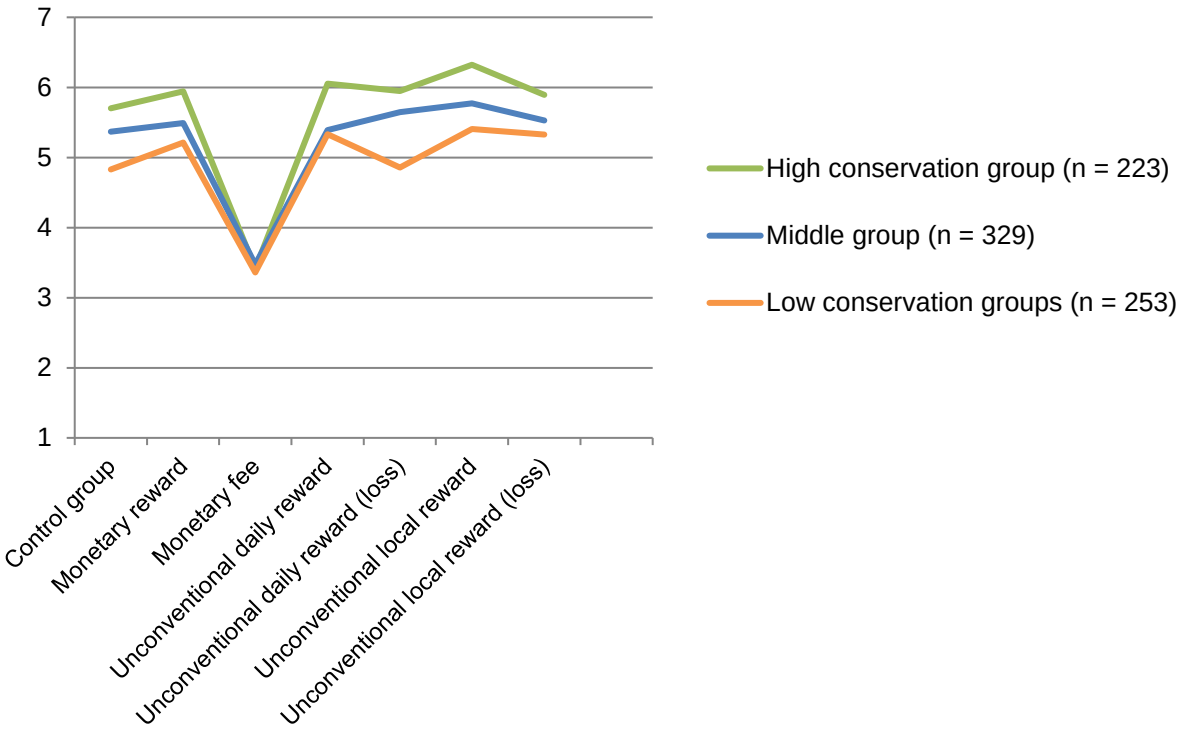

Figure 7: Mean intervention evaluation by psychological clusters.

Note. 1 = very negative, 4 = neutral, 7 = very positive. $N = 805$.

The evaluation of the intervention was positive in general, even for the control group receiving only a request to save energy in the household (see Figure 7). Incentive schemes had an effect on intervention evaluation, $F(6) = 47.73$, $p < .001$. Post-hoc tests revealed that this was mainly due to the very negative evaluation of the monetary fee condition ($M = 3.43$, $SD = 1.63$) compared to the control group ($M = 5.28$,

SD = 1.26) and all the other incentives (all *p*-values < .001). Furthermore, the psychological clusters had a significant effect on the evaluation of the intervention, $F(2) = 14.79$, $p < .001$. Post-hoc tests revealed the following pattern: The high conservation group evaluated the intervention significantly more positively (*M* = 5.46, *SD* = 1.53) compared to the middle group (*M* = 5.04, *SD* = 1.58) and the low conservation group (*M* = 4.91, *SD* = 1.60) (both *p*-values <.01). No significant difference could be detected between the middle and low conservation group.

Complementary to this evaluation, we also analysed participants' spontaneous reactions to the incentive scheme directly after receiving the letter. Reactions were categorised into positive and negative comments. Positive comments included statements such as 'Good idea', 'Motivating', 'I would like to participate' or 'This ought to be done'. Negative comments were, for example, 'Bad idea', 'This ought not to be done' or 'Outrageous'. The monetary fee condition had significantly more negative comments compared to the other conditions, and all other incentive schemes had more positive comments compared to the monetary fee condition: χ^2 (*6*)= 205.6, $p < .001$. In the monetary fee condition, 11% of all participants left a negative remark, and only 3% made a positive comment. For all other incentive schemes, positive comments by far outran negative comments (see Figure 8).

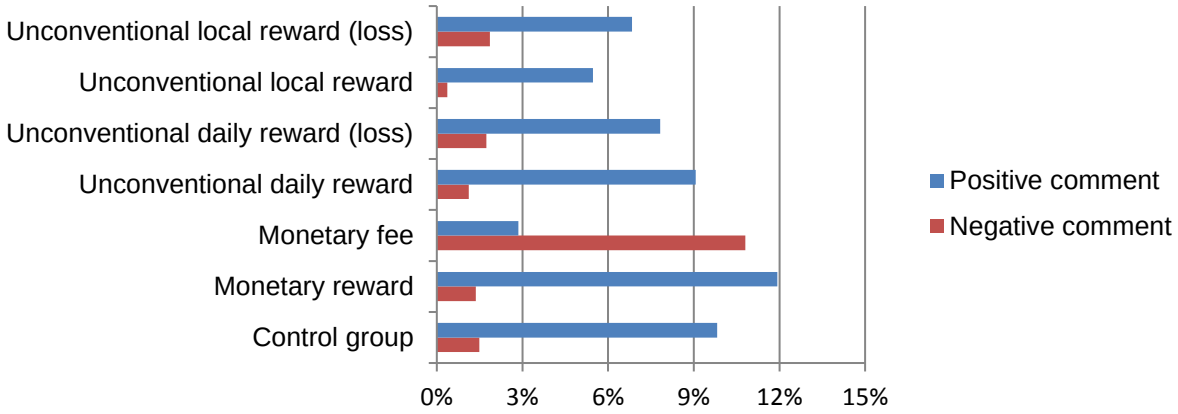

Figure 8: Percentages of positive and negative comments in the spontaneous reactions section (*N* = 805).

In the open comment section, fairness issues also were raised concerning the incentive scheme, mainly by participants in the monetary fee condition: 8.8% of participants in the fee condition, but 0-2.7% of participants noticed that fairness was not given in the other incentive schemes. Concerns were mainly that already-frugal households would have a harder time saving another 10% of energy. Therefore, gaining a reward or circumventing a loss would be much harder for them compared to other households. Thus, the most conscious groups would be disadvantaged. Some comments also addressed the topic of privacy, meaning participants did feel that it was not the electricity company's business how they used their energy and that they did not want to be lectured. This comment also was higher for the monetary fee, with 4.4% of participants, than for other incentive groups, with 0.5-1.1% of participants. The most negative comments concerned the perception of pressure where a loss of freedom and restriction were perceived. These comments especially were found for monetary fees, with 12.6% of participants commenting on this in the monetary fee condition, compared to 0-2.1% of participants in the other incentive groups.

4.3. Discussion

4.3.1. Discussion of key results

The first experiment explored different reward and fee conditions. It was expected in Hypothesis 1 that a monetary fee would be a stronger motivator to save electricity than a monetary reward, yet the opposite

was found: Monetary fees actually decreased the intention to save energy as well as the perceived feasibility of a reduction of energy consumption. Therefore, one could argue that monetary fees even reduce the motivation to conserve energy. Moreover, the evaluation of the intervention was significantly more negative in the monetary fee condition.

Interestingly, incentive scheme conditions had no influence on the interest in the topic of energy conservation, as indicated by the information-seeking task. An interest in energy conservation might depend on other, more stable personal factors.

In congruence with Hypothesis 2, the intention to change energy-related behaviours differed for consumer groups. However, consumer groups did not vary in their reaction to disparate incentive schemes when they were clustered solely by socio-demographic information. Clustering groups according to psychological and behavioural factors led to a distinguishable group formation, resulting in a high conservation group, a middle group and a low conservation group. Based on the psychological categorisation, members of the high conservation group, who are already actively saving energy, were also more prone to all incentives. Additionally, they differentiated more strongly between the incentives with regards to their energy-saving intentions and the prospect of a coupon for the local market yielding the highest levels of energy-saving intention. The other two groups, however, did not react differently to unconventional non-monetary incentives compared to monetary incentives or the control condition.

According to Hypothesis 3, we expected unconventional non-monetary incentives to lead to greater intentions to change energy behaviour than conventional monetary incentives. Yet, results of the experiment indicated no general difference between monetary and unconventional rewards. This could be due to the choice of unconventional incentives: Although the two most popular unconventional incentives were chosen from the pre-test, they probably do not appeal to everyone. The liking of unconventional incentives seems to be more people-dependent, whereas money is useful to the general population. In addition, these unconventional schemes were not able to engage the low conservation group; in fact, this group seemed relatively indifferent to different types of incentives.

Secondly, no advantage could be found for the different reward incentive schemes over the control no-incentive condition. Interestingly, the control condition, which only requested participants to try to save 10% of electricity without offering an incentive, was as successful as the reward conditions in motivating participants to save electricity in the future.

4.3.2. Critical reflection and theoretical considerations for the second experiment

We could deduce not only general practical implications from the results of the first experiment but also valuable implications for the second experiment. The qualitative analysis showed that there were some fairness issues in the general incentive scheme, such that it was more difficult for already frugal households to save another 10% of energy and gain a reward or circumvent a loss. This was more of a problem in the fee condition than with rewards, as individuals usually are more sensitive to loss than gain (Kahneman & Tversky, 1984). For practical implications of such an incentive-based intervention it is therefore vital to incorporate fairness issues and to give the same opportunities to win or lose to all households. Further, monetary fees often evoked strong emotional reaction, and the word ‚impudence' appeared several times.

Thus, monetary fees on energy use did not meet acceptance in this study and due to strong negative reactions, it was omitted in the second experiment. The second study therefore focused on different types of rewards. Furthermore, the second study aimed at deepening the understanding how uninterested target groups could be motivated to engage in electricity-saving behaviour. The following considerations were particularly relevant for designing the second experiment:

Having a choice is more attractive: In contrast to just offering money or one particular incentive, a choice of nonmonetary rewards offers a bigger variety and therefore, is expected to have a greater motivational potential. By offering a choice of incentives, we are taking advantage of people's tendency for variety-

seeking in their choices of services or good (Kahn, 1995). A choice seems to render a group more attractive. For example, a study could show that faces in a group appeared more attractive than those same faces seen alone (Walker & Vul, 2014). Accordingly, van Osch and colleagues (2015) found in nine different experiments that people are rated more physically attractive when they are evaluated in groups than as an individual. The authors found that this effect is due to a selective attention bias. In groups, attention is drawn to the most attractive group members which positively influences the evaluation of the other members. No such research does yet exist for incentives. Drawing from present findings, a choice of incentives would make singular incentive options appear more attractive when they are presented in a group than alone. This hypothesis was tested in the second experiment. Also, the effect that a single offer such as an SBB coupon might not be perceived as attractive by certain people can be alleviated by offering a choice of incentives.

Tailored tips should be more helpful: A number of participants in the first experiment pointed out that the tips were not helpful as they were already well-known and many reported to consider most of them already. Further, the results of the information-seeking task revealed that participants were most interested to get 'feedback on their own energy consumption'. Offering more tips would not be an appropriate solution as too many tips are time-consuming and often, only a few are remembered and applied (Gardner & Stern, 2008). Thus, one solution is to focus on a few particularly effective tips. Concretely, this implies tailoring tips to specific contexts of individual participants as recommended by several studies (Nachreiner & Matthies, 2016; Steg, 2008). Therefore, we expected that tailored tips would motivate participants more strongly to save electricity compared to general tips.

Some households already save as much energy as possible: As in the previous section, this aspect is about many participants reporting they cannot further reduce their energy use, because they already follow the tips presented or they already pay close attention to their energy use. Therefore, we suggest to include the potential to save energy as a cluster determinant in the second study. The 'potential to save energy' was assessed as the perceived possibility to cut down energy consumption. This can also help identify consumer groups that still have the potential to save more energy, and which therefore are a suitable target group for campaigns.

Analysing the impacts of incentives on customer loyalty to a utility: In addition to better understanding different incentives' effect on electricity-saving intentions, we also examined their effect on participants' customer loyalty. In particular, we were interested to examine whether unconventional incentives may increase customer loyalty compared to monetary incentives.

Consumer groups based on psychological variables were unidimensional: Defining psychological clusters by environmental attitude, energy-saving literacy, energy-saving behaviour and the personal norm to save energy produced consumer groups that were categorised mainly by a common underlying factor. In the regression analyses, the environmental attitude was most accentuated. To further differentiate groups into more approachable target segments for campaigns, new constructs were introduced according to a behavioural change model developed in the energy consumption context ("Wollen-Können-Tun-Modell", Artho, Jenny, & Karlegger, 2012). These constructs are: psychological barriers and catalysts for energy saving, which are the self-efficacy of electricity saving, the perceived potential to save energy, environmental concern (Hartmann & Apaolaza-Ibáñez, 2012; Schwartz, 1977), monetary frugality, personal involvement in energy saving and the habit of energy saving.

5. Step 4: Experiment focussing on the incentive choice effect and tailored tips

5.1. Study goals, research questions and hypotheses of the second experiment

The aims of the second study were to gain a deeper understanding of the impacts of unconventional incentives. In particular, it was examined how uninterested consumer groups could be motivated to engage in electricity-saving behaviour. Furthermore, the effect of incentives on customer loyalty to the utility was examined. More concretely, the following hypotheses (H) were examined:

H4: A choice of unconventional incentives triggers a stronger intention to change energy-related behaviour compared to one conventional (monetary) incentive of the same value.

H5: While interested consumer groups are motivated to save energy by different types of incentives, uninterested groups are particularly motivated when offered a choice of unconventional incentives.

H6: Participants are more strongly motivated to save electricity when shown tailored tips compared to general tips.

H7: Unconventional incentives have a stronger positive impact on customer loyalty to utilities compared to conventional incentives.

5.2. Method

5.2.1. Procedure

Participants were invited to participate in the study by email and then were randomly assigned to four intervention groups. They were presented with a website promoting incentive schemes from an electricity provider. The website page invited clients to save electricity and, depending on the manipulation, offered different types of incentives (see Figure 9 for an example, all other manipulations can be found in Appendix 8.2). Next, participants were randomly assigned to two energy-saving tip groups: standard tips and tailored tips. In the standard tips condition, participants received the same six standard tips. Afterwards, they ranked six activities according to the effort they already expend in saving energy. In the tailored tips condition, participants first provided this ranking and then received six tips tailored to the two activities with the most savings potentials based on the ranking. Subsequently, there was an assessment of participants' intention to participate in the campaign, their intention to save energy in the future, their evaluation of the incentive scheme, their reported and behaviourally shown information seeking on energy-saving topics, their customer loyalty and a set of psychological variables. Last, participants filled out the manipulation check and provided socio-demographic data. The German version of the questionnaire can be found in Appendix 8.2.

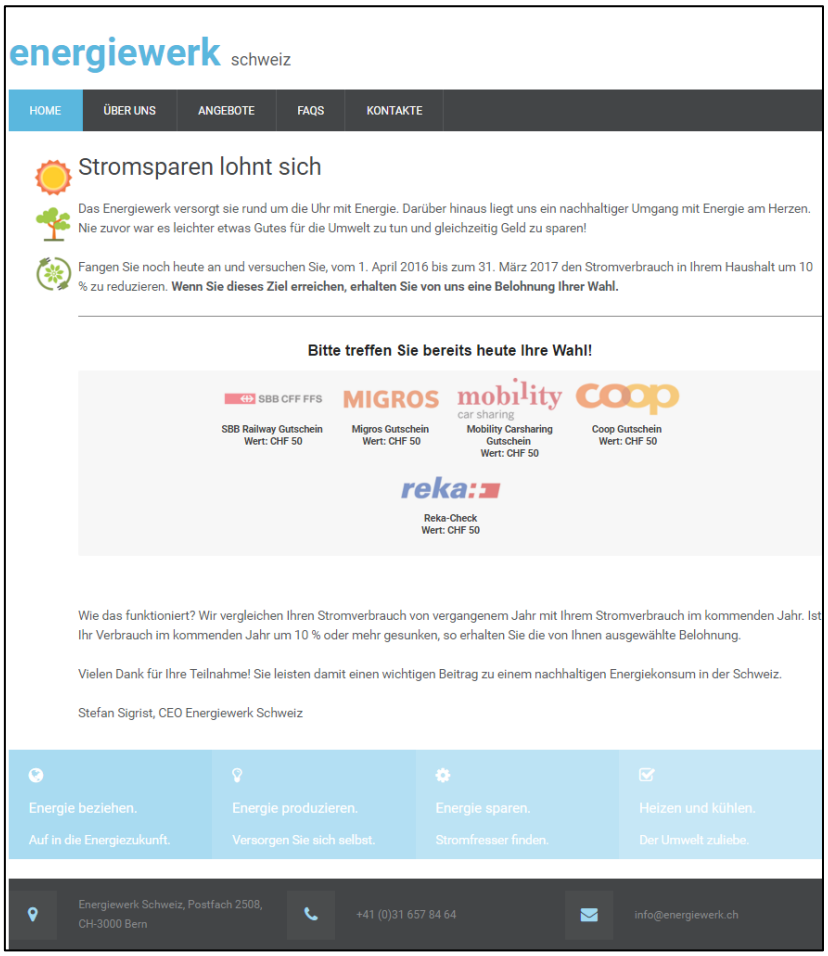

Figure 9: Webpage seen by participants (example: choice of unconventional daily incentives).

5.2.2. Sample

As in the first experiment, participants were recruited with the online survey panel company Respondi. The number of participants was *N* =1,434. Of these, 1,106 participants passed the manipulation check and agreed that their data could be used. 73% answered the German questionnaire and 27% answered the French questionnaire (in Switzerland, 63% spoke German, 23% spoke French, 8% spoke Italian and 21% spoke a different language in 2014 [several choices were possible], BFS, 2016d). Regarding gender, 49% were female (compared to 50.5% in Switzerland, BFS, 2015a). The sample's mean age was 45 (*SD* = 15) with a range of 18 to 85, compared to the mean age in Switzerland of 41.9 years (BFS, 2016b). It was found that 66% rent their home and 34% own their home, while in 2014, 37% of people living in Switzerland were homeowners (BFS, 2016a). Next, 24% live alone, 31% with a partner, 38% in a family setting, and 7% in a flatshare or another arrangement. In Switzerland, 35.1% of households are single households, 27.1% of households are couples and 37.8% of households are families and flat shares (BFS, 2015a). The mean number of residents per households was 2.43 (*SD* = 1.22), and the mean number of rooms in the house or apartment was 4.08 (*SD* = 1.30). The Swiss average is 2.27 people per household (BFS, 2008) and 3.8 rooms per household (BFS, 2015b). Participants' average net household income was 7,330 CHF per month, while in 2013, Swiss households' average available income was 7,130 CHF per month (BFS, 2016c). Of the respondents, 6% had passed compulsory school, 44% had completed vocational training, 14% had a high school degree, 35% had a higher education degree, and 1% did not specify their level of education. In comparison, in the Swiss population between the ages of 25 and 64, 48.3% have a secondary education, and 38.9% have a higher education degree (BFS, 2014).

Politically, participants positioned themselves in a quite balanced fashion, with *M* = 3.00 (*SD* = 0.98) on a scale from 1 = left-wing to 5 = right-wing, and slightly more liberal/progressive with *M* = 2.79 (*SD* = 0.89) on a scale from 1 liberal/progressive to 5 conservative.

5.2.3. Experimental design: Independent variables

The experimental between-subject design integrates four incentive schemes, two electricity-saving tip conditions and three to four consumer groups (see Table 14).

Incentive scheme (control vs. monetary reward vs. choice of unconventional daily rewards vs. choice of unconventional local rewards): Four groups were compared, a control group who just received the request to save 10% electricity in the following year, a monetary reward group receiving CHF 50 if they save 10% electricity in a year, and two non-monetary reward groups having the opportunity to choose one coupon (value: 50 CHF) out of a set of coupons. In one condition, this set of coupons was composed by unconventional incentives that are used on a daily basis (e.g. coupons for public transport, supermarkets). In another condition, this set of coupons was composed by unconventional incentives that have a relation to local or exclusive activities (e.g. a coupon for a local food market, a vegetable abonnement from a local farmer, a cinema coupon, or a coupon for a music festival). The chosen incentive options were based on the pre-test with students (see Figure 3).

Electricity-saving tips (standard tips vs. tailored tips): Two groups received different forms of tips. The standard group received a general list of the six energy-saving tips. The tailored tips group received six tips that were customised to those areas where participants indicated they expend the least effort to save energy.

Consumer group clusters: Consumer groups were identified by clustering psychological and behavioural variables.

Table 14: Experimental design with two independent variables.

		Incentive scheme			
		No incentive (control group)	**Monetary reward**	**Choice daily reward**	**Choice unconventional reward**
Electricity-saving tips	**standard**	Invitation to save energy, with standard tips; *N* = 96	CHF 50 on energy bill if 10% electricity is saved within 12 months, with standard tips; *N* = 153	Coupon for food shops or transport of CHF 50 if 10% electricity is saved within 12 months, with standard tips; *N* = 164	Unconventional coupons (e.g. farmers market, cinema) of CHF 50 if 10% electricity is saved within 12 months, with standard tips; *N* = 150
	tailored	Invitation to save energy, with tailored tips; *N* = 89	CHF 50 on energy bill if 10% electricity is saved within 12 months, with tailored tips; *N* = 149	Coupon for food shops or transport of CHF 50 if 10% electricity is saved within 12 months, with tailored tips; *N* = 160	Unconventional coupons (e.g. farmers market, cinema) of CHF 50 if 10% electricity is saved within 12 months, with tailored tips; *N* = 145

5.2.4. Experimental design: Consumer group cluster variables

In the second experiment, we looked at psychological barriers and catalysts for energy saving in more detail to identify distinct consumer groups. Constructs were deducted from a behavioural change model developed in the energy consumption context (“Wollen-Können-Tun-Modell”, Artho et al., 2012) that is based on the theory of planned behaviour (Ajzen, 1991).

Self-efficacy of electricity saving was assessed by two items of self-reported literacy, ‘I know which activities in the household use the most electricity’ and ‘I know which appliances use the most electricity’, as in the first questionnaire and a self-constructed item on self-efficacy, ‘I am confident that I am able to

put the energy-saving tips into action in everyday life on a long-term basis', on a 7-point Likert scale ranging from 1 = 'do not agree' to 7 = 'totally agree', with Cronbach's α = .70.

Potential to save energy. Like the first experiment, participants indicated whether they perceived the potential to save energy in their household with the items 'Reducing the electricity use of my household by 10% is realistic', 'There is still energy-saving potential in my household' and the reversed item 'Saving a further 10% of energy is not realistic in my household, as I strongly pay attention to saving already', on a 7-point Likert scale ranging from 1 = 'do not agree' to 7 = 'totally agree', with Cronbach's α = .68.

Environmental concern was defined as the extent to which participants are motivated to save energy due to environmental issues. It is measured by the items 'I save energy to save the environment', 'If I save energy, I do my part for a solution for environmental and climate problems', 'There are limits to growth beyond which our industrialised society cannot expand' and 'Humankind is severely abusing the environment'. Items were translated from Hartmann and Apaolaza-Ibáñez (2012), who based their questions on the New Environmental Paradigm (Dunlap, Liere, Mertig, & Jones, 2000). Further items were: 'Climate change is a serious problem against which we as a society should act' and, finally, 'I feel obliged to do my part for environmental protection', which measured the personal norm (Norm-Activation Model by Schwartz, 1977). All items ranged on a 7-point Likert scale from 1 = 'do not agree' to 7 = 'totally agree'. Cronbach's α was .80.

Frugality is defined as spending money thriftily. The following self-constructed items were used: 'I save energy to save money', 'I spend my money thriftily', 'I try to get the most for my money' and 'If an object still works it does not make sense to buy a new one'. They were assessed on a 7-point Likert scale ranging from 1 = 'do not agree' to 7 = 'totally agree', and Cronbach's α was .67.

Personal involvement. As the experiment is aimed at finding out which incentives motivate participants that are not primarily interested in the topics of energy and energy saving, this measure of general interest helps to identify the main target group. We used the items 'The issue of energy conservation is important in my everyday life' and the reversed item 'Energy saving is not one of the topics that I am engaged with in everyday life', adapted from Göckeritz and colleagues (2010) on a 7-point Likert scale ranging from 1 = 'do not agree' to 7 = 'totally agree'. Cronbach's α = .69.

Habit of energy saving. To identify the habit of saving energy as an automatic everyday process, we developed the following three items: 'When the light is on for no reason, I automatically have the urge to turn it off', 'When a window is open, I automatically feel the urge to close it' and 'When a tap is running somewhere, I automatically feel the urge to turn it off', on a 7-point Likert scale ranging from 1 = 'do not agree' to 7 = 'totally agree' with Cronbach's α = .65.

5.2.5. Experimental design: Dependent variables

We evaluated the effects of the incentive scheme and consumer groups on two dependent variables according to our hypotheses (energy-saving intention, customer loyalty) and on three additional dependent variables of interest (information-seeking intention, information seeking as a behavioural measure and intervention evaluation). All items are displayed in Table 15 with the exception of information seeking (see Figure 10).

Energy-saving intention. As in the first experiment, participants indicated their intention to save energy in the future. The 11 items complemented and were adapted from Sütterlin and colleagues (Sütterlin et al., 2011; Sütterlin & Siegrist, 2013), as seen in Table 2, with Cronbach's α = .87. Participants could add further ideas in an open-ended question format.

Customer loyalty. The intervention's impact on customer loyalty was measured by the degree of expected customer loyalty, including four items: 'I would stay a customer of my electricity company in the future', 'The chances of me staying with my electricity provider in the future would be very high', 'I would say positive things about my electricity company' and 'If I was not a customer of the electricity

company, I would change to this company because of the programme', on a 7-point Likert scale ranging from 1 = 'do not agree' to 7 = 'totally agree'. Cronbach's α = .74.

Table 15: Items of all dependent variables in the second experiment.

Energy-saving intention	*M*	*SD*
Fill washing machine to capacity	4.56	1.06
Wash laundry at lower temperatures	4.57	1.07
Turn off standby on appliances	4.91	1.19
Not using a tumbler to dry laundry [recoded]	4.60	1.39
Turn off the light when leaving a room	4.77	1.17
Cook with pots covered	4.76	1.13
Fill dishwasher to capacity	4.51	1.08
Not take hot baths [recoded]	4.64	1.26
When I buy electric appliances, I consciously pay attention to their energy consumption	5.06	1.18
Reflect upon whether really needing an appliance before buying it	4.76	1.16
Replace broken lightbulbs with LED	5.02	1.21
Shower as quickly as possible to save hot water	4.60	1.13
Adjust room temperature according to usage, e.g. turn down temperature in unused rooms	4.63	1.11
Reduce room temperature at night	4.58	1.08
Customer loyalty		
I would stay a customer of my electricity company in the future	5.35	1.37
The chances of me staying with my electricity provider in the future would be very high	5.44	1.37
I would say positive things about my electricity company	5.39	1.33
If I was not a customer of the electricity company, I would change to this company because of the programme	4.30	1.57
Information-seeking intention		
I would like to know more about the consumption of electricity of different household activities	5.61	1.36
I would like to know more about the electricity consumption of my appliances	5.66	1.37
I would aim to examine my electricity bill more thoroughly in the future	5.26	1.53
Intervention evaluation		
Good idea (7)–bad idea (1)	6.25	1.05
Appeals to me (7)–puts me off (1)	5.83	1.23
Inviting (7)–repellent (1)	5.67	1.18
Fair (7)–unfair (1)	5.74	1.23
Motivates me to engage with my energy use (7)–does not motivate me (1)	5.83	1.32

Note. Item ranges: Energy-saving intentions (Sütterlin et al., 2011; Sütterlin & Siegrist, 2013): 1 = 'I intend to do this a lot less in the future' to 7 = 'I intend to do this a lot more in the future'; information-seeking intention, customer loyalty: 1 = 'I do not agree' to 7 'I totally agree'; intervention evaluation: 1 = negative to 7 'positive'. *N* = 1106.

5.2.6. Experimental design: Further dependent variables of interest

Information-seeking intention. Like the first experiment, self-reported information seeking was measured with three items asking what participants would do if they could participate in the energy-saving campaign: 'I would want to know more about the consumption of electricity of different household activities', 'I would want to know more about the electricity consumption of my appliances' and 'I would aim to examine my electricity bill more thoroughly in the future', on a 7-point Likert scale ranging from 1 = 'do not agree' to 7 = 'totally agree', with Cronbach's α = .82.

Information seeking: The behavioural measure for information seeking assessed how many tips participants requested during the experiment. Since both standard and tailored tips already cover necessary ideas for electricity saving in households, the information-seeking tasks were extended to other domains of energy saving. Participants could request information about energy saving in nine different domains such as mobility, nutrition, travelling, consumption or electronics (see Figure 10). Therefore, information seeking ranges from 0 = no information selected to 9 = all information selected.

Intervention evaluation. As in the first experiment, a semantic differential was used to evaluate the incentives. The five items included the word pairs 'good idea–bad idea', 'appeals to me–puts me off', 'fair–unfair, 'inviting–repellent' and 'motivates me to engage with my energy use–does not motivate me', on a 7-point Likert scale, with Cronbach's α = .90.

5.3. Results

5.3.1. Manipulation check

Of the 1,434 participants who gave permission to use their data in the study, 1,106 participants (77%) passed the manipulation check for incentive schemes by correctly choosing the received incentive scheme in a multiple choice question. Thus, datasets of N = 1,106 participants were used for further analyses.

Tailored energy-saving tips were perceived as slightly less useful (M = 4.80, SD = 1.47) than standard tips (M = 5.00, SD = 1.51), t = 2.21, p < .05. As a further manipulation check for tailored tips, participants were asked whether the energy-saving tips were tailored for them. The tailored tips group did agree to this statement to about the same degree (M = 4.55, SD = 1.58) as the standard tips group (M = 4.67,SD = 1.57), t = 1.29, p = .20. Thus, the manipulation of tailored and standard tips was not successful, and further analyses did not include this factor. Consequently, we cannot test Hypothesis 6, which states that tailored tips are more motivational to save energy than standard tips.

5.3.2. Randomisation check

The four incentive groups did not differ in their household income, $F(3) = 0.94$, p = .42, level of education $\chi^2(36) = 36.77$ p = .43, gender χ^2 (6) = 7.48, p = .28, housing situation $\chi^2(12) = 15.04$, p = .24 or age, $F(3) = 1.71$, p = .16. In addition, groups did not differ in the number of rooms in the household, $F(3)$ = 2.45, p = .23 or number of children, $F(3) = 0.58$, p = .63, their environmental concern, $F(3) = 0.24$, p = .87, their frugality, $F(3) = 0.52$, p = .67 or personal involvement in energy conservation, $F(3) = 0.08$, p = .97.

5.3.3. Descriptives

Means and SDs for the dependent variables for all subgroups are shown in Table 16.

Table 16: Dependent variables of the second experiment.

Incentive scheme	Energy-saving intention *M (SD)*	Customer loyalty *M (SD)*	Information-seeking intention *M (SD)*	Information seeking *M (SD)*	Intervention evaluation *M (SD)*
No incentive (*n* = 185)	4.70 (0.72)	5.23 (0.95)	5.52 (1.20)	3.24 (2.11)	5.47 (0.95)
Monetary reward (*n* = 302)	4.63 (0.71)	5.08 (1.10)	5.52 (1.21)	2.97 (2.16)	5.75 (0.99)
Choice daily reward (*n* = 324)	4.84 (0.80)	5.14 (1.07)	5.48 (1.27)	3.15 (2.21)	5.72 (1.09)
Choice unconv. reward (*n* = 295)	4.70 (0.69)	5.06 (1.05)	5.53 (1.19)	3.15 (2.30)	5.60 (1.02)
Electricity-saving tips					
Tailored tips (*n* = 543)	4.68 (0.76)	5.07 (0.99)	5.41 (1.27)	3.01 (2.2)	5.62 (1.02)
Standard tips (*n* = 563)	4.77 (0.72)	5.17 (1.11)	5.60 (1.16)	3.21 (2.2)	5.69 (1.03)
Total sample (*N* = 1,106)	4.72 (0.74)	5.12 (1.06)	5.51 (1.22)	3.11 (2.20)	5.65 (1.03)

Notes. Scale ranges: Energy-saving intention from 1 = much less saving behaviour compared to today to 7 = much more saving behaviour compared to today; customer loyalty and information-seeking intention from 1 = low to 7 = high; information seeking from 0 = no information selected to 9 = all information selected, intervention evaluation from 1 = negative to 7 = positive.

In the information-seeking task, which reflects participants' interest in additional energy-saving tips of different domains, a pattern emerged that was similar to the first experiment: A majority of 59% of participants was most interested in learning more about their own energy use. Additionally, participants were quite interested to know more about efficient appliances (51%), heating and warm water conservation (42%), energy saving in nutrition (41%) or grey energy (e.g. clothes and consumer goods, 37%). Only 11.5% of participants were not at all interested in receiving further tips to cut down their energy use (see Figure 10).

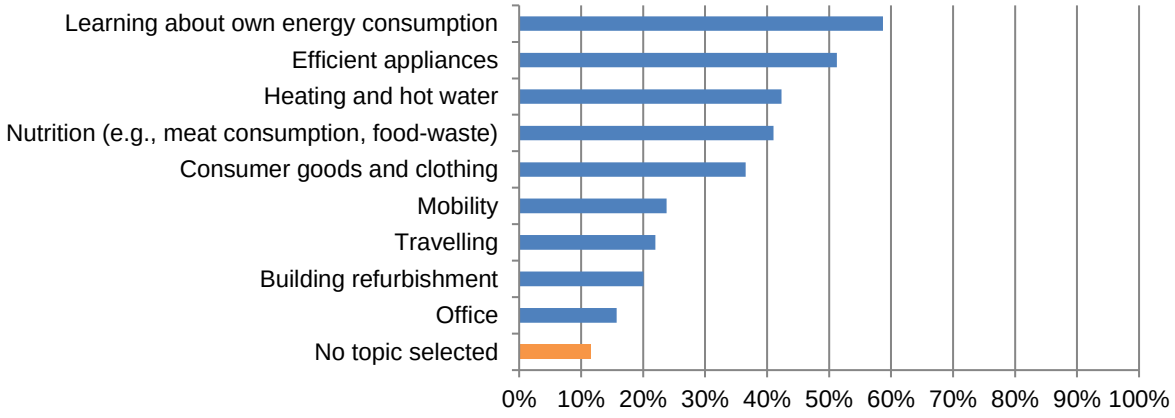

Figure 10: Information seeking about energy savings in different areas: Percentages of participants requesting additional information. Several choices were possible. *N* = 1,106.

5.3.4. Clustering consumer groups

Again, two cluster analyses were conducted.

Socio-demographic categorisation. The first socio-demographic cluster analysis yielded four groups, as seen in Table 17. The groups are significantly different in all cluster determinants except for the level of education (p = .11). Likewise, differences for other psychological variables are indicated in Table 17.

Renters of small apartments, with *n* = 503, are by far the biggest group. They live in small apartments with 3.24 rooms and the lowest electrification, with an average of 1.7 people and no children living there. Their mean age is 45, and their mean average household income is CHF 6,051.

Renting families (*n* = 217) live in rented houses or apartments with an average of 4.48 rooms. They have 3.39 people and 1 child living in the household on average, are the youngest group with 39 years and have an average household income of CHF 7,350. They report the highest potential for further energy savings and the lowest self-efficacy for energy saving, which makes them an attractive target group for energy conservation interventions.

The smallest group, with *n* = 99, are the *apartment owners*. Their apartments, on average, have 4.35 rooms. On average, 2.47 people live in these households and 0.33 children (i.e. fewer than every third household have children). They have a high household income with CHF 8,772 and are the oldest group with a mean age of 51.

Homeowners (n = 267) have the most rooms (5.24) and an average of 3 people living there, with an average of 0.64 children. Their mean age is 48, and their household income is the highest, at CHF 8,680. They show the highest self-efficacy and habit of saving energy.

Table 17: Group characteristics of socio-demographic clusters.

	Renters of small apartments n = 503	Renting families n = 217	Apartment owners *n* = 99	Homeowners *n* = 267	Total sample *N* = 1,095
Cluster determinants:	*M* (*SD*)	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
Rent (1) or homeownership (2)*	1 (0)	1 (0)	2 (0)	2 (0)	1.34 (0.47)
House (1) or apartment (2)*	2 (0)	1.61 (0.49)	2 (0)	1 (0)	1.67 (0.47)
Number of rooms*	3.24 (1.05)	4.48 (1.03)	4.35 (0.94)	5.24 (0.85)	4.09 (1.3)
Electrification*	2.03 (1.14)	2.22 (1.16)	2.46 (1.15)	2.76 (1.24)	2.29 (1.21)
No. of people in household*	1.7 (0.68)	3.39 (1.1)	2.47 (1.17)	3.01 (1.2)	2.43 (1.21)
No. of children in household*	0.06 (0.24)	1.08 (0.97)	0.33 (0.76)	0.64 (1)	0.43 (0.82)
Age* [years]	45 (15)	39 (12)	51 (16)	48 (16)	45 (15)
Education	5.02 (1.37)	4.86 (1.4)	5.25 (1.48)	5.1 (1.48)	5.03 (1.42)
Other variables					
Household income [CHF/month]*	6,051 (3,045)	7,350 (3,363)	8,772 (4,175)	8,680 (3,732)	7,176 (3,582)
Self-efficacy*	4.81 (1.04)	4.73 (0.94)	4.87 (1.03)	4.98 (1.05)	4.84 (1.02)
Potential to save energy*	4.37 (1.24)	4.59 (1.19)	4.43 (1.3)	4.27 (1.29)	4.4 (1.25)
Personal involvement	5.14 (1.31)	5.11 (1.20)	5.18 (1.32)	5.34 (1.28)	5.19 (1.28)
Environmental concern	5.62 (0.97)	5.66 (0.94)	5.6 (0.96)	5.65 (1.00)	5.63 (0.97)
Frugality	5.46 (1.01)	5.52 (0.96)	5.32 (1.05)	5.55 (0.93)	5.48 (0.98)
Habit of energy saving*	5.41 (1.00)	5.53 (0.92)	5.54 (0.96)	5.73 (0.90)	5.53 (0.97)

Notes. Range: Electrification: 0 = no electric appliances; 5 = electric heater, heat pump, tumbler, resistance heater, and electric oven. Education: 1 = primary school only; 7 = university degree. Psychological scales: 1 = very low to 7 = very high. * Indicates significant differences among clusters, $p < .05$.

Categorisation by psychological factors. Psychological clustering included six psychological constructs that are relevant to the behavioural change of energy consumption (Artho et al., 2012). This approach yielded the four resulting clusters in Table 18: those concerned with savings potential, the strongly concerned savers, the unconcerned with savings potential, and the low saving potential group. The groups significantly differ in all cluster determinants. For other variables, see Table 18.

The *concerned with savings potential* (*n* = 418) are by far the largest group. They can be characterised by a high level of perceived electricity-saving potential. At the same time, they also report rather high levels of environmental concern. These are also the largest households with respect to household members, probably, families with children.

The *strongly concerned savers* (*n* = 223) are characterised by high levels of environmental concern and personal involvement; simultaneously, they have the highest levels of habits to save energy and self-efficacy. Furthermore, this group shows the highest level of monetary frugality. Hence, they tend to live a parsimonious lifestyle. Meanwhile, their households are highly electrified, they have the most space at their disposal at home, and they are highly educated.

The *unconcerned with savings potential* (*n* = 173) can be characterised by low self-efficacy while perceiving rather high levels of electricity-saving potentials. They have the lowest levels of environmental concern and personal involvement. Furthermore, they have not developed high levels of habits to save energy. This group is the youngest among all clusters.

The *low savings potential* (*n* = 292) is the second-largest group. These have the lowest levels of perceived electricity-saving potential. Moreover, they have rather low levels of environmental concern, self-efficacy, personal involvement, frugality, and habits of energy saving.

Table 18: Group characteristics of psychological clusters.

	Concerned with savings potential n = 418	Strongly concerned savers n = 223	Unconcerned with savings potential *n* = 173	Low savings potential *n* = 292	Total sample *N* = 1,106
Cluster determinants:	*M* (*SD*)	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
Self-efficacy*	4.78 (0.8)	6.08 (0.59)	3.67 (0.68)	4.69 (0.72)	4.85 (1.03)
Potential to save energy*	4.86 (1.11)	4.05 (1.48)	4.78 (1.08)	3.76 (0.96)	4.39 (1.25)
Personal involvement*	5.46 (1.1)	6.4 (0.69)	3.81 (0.94)	4.68 (0.99)	5.18 (1.28)
Environmental concern*	6.01 (0.59)	6.43 (0.51)	4.68 (1.01)	5.05 (0.81)	5.63 (0.97)
Frugality*	5.67 (0.84)	6.2 (0.68)	4.65 (1)	5.14 (0.85)	5.48 (0.98)
Habit of energy saving*	5.81 (0.7)	6.29 (0.64)	4.37 (0.75)	5.23 (0.85)	5.53 (0.96)
Other variables					
Rent (1) or homeownership (2)**	1.32 (0.47)	1.43 (0.5)	1.28 (0.45)	1.34 (0.47)	1.34 (0.47)
House (1) or apartment (2)**	1.68 (0.47)	1.6 (0.49)	1.71 (0.45)	1.7 (0.46)	1.67 (0.47)
Electrification	2.26 (1.2)	2.33 (1.18)	2.29 (1.29)	2.29 (1.19)	2.29 (1.21)
Number of rooms	4.1 (1.29)	4.17 (1.29)	4.11 (1.33)	4 (1.3)	4.09 (1.3)
Number of people in household*	2.59 (1.24)	2.3 (1.1)	2.42 (1.27)	2.3 (1.18)	2.43 (1.21)
Number of children in household	0.51 (0.85)	0.35 (0.78)	0.38 (0.71)	0.42 (0.87)	0.43 (0.82)
Age** [years]	44 (15)	50 (14)	38 (15)	47 (15)	45 (15)
Education	5.06 (1.4)	5.09 (1.47)	4.86 (1.37)	5.05 (1.44)	5.03 (1.42)
Household income [CHF/month]	7,108 (3,427)	6,955 (3,311)	7,286 (4,009)	7,315 (3,719)	7,160 (3,575)

Notes. Ranges: Psychological scales: 1 = very low to 7 = very high. Electrification: 0 = no electric appliances; 5 = electric heater, heat pump, tumbler, resistance heater, and electric oven. Education: 1 = primary school only; 7 = university degree. Significant differences among clusters: ** $p < .001$; * $p < .01$.

5.3.5. Test of hypotheses

The hypotheses were again tested by analysis of variance, including four incentive schemes and socio-demographic and psychological clusters. Furthermore, dependent variables were also examined by hierarchical linear regression analysis.

Hypothesis 4 states that a choice of unconventional incentives triggers a stronger intention to change energy-related behaviour compared to one conventional (monetary) incentive of the same value. Incentive schemes did evoke different energy-saving intentions in the sociodemographic model, $F(3) = 3.57$, $p < .05$ (Table 19), as well as the psychological model, $F(3) = 4.98$, $p < .01$ (Table 20). For both models, post-hoc tests showed the following significant difference: the daily reward choice condition leads to greater energy-saving intentions than the monetary reward condition, $p < .01$. This indicates that Hypothesis 4 was partly confirmed, as the choice daily reward but not the choice unconventional reward led to greater energy-saving intentions compared to the monetary reward.

Hypothesis 5 states that, while interested consumer groups are motivated to save energy by different types of incentives, uninterested groups are particularly motivated when offered a choice of unconventional incentives. Sociodemographic clusters did not differ in their intentions to save energy (see Table 19).

Psychological clusters were differently motivated by the campaign to save energy $F(3) = 20.65$, $p < .001$. Among the clusters, the concerned with savings potential group and the strongly concerned savers group show a similar pattern, which is different from a pattern shared by the unconcerned with savings potential group and the low savings potential group. Post-hoc tests indicate significant differences in the intention to save energy between the concerned with savings potential group ($M = 4.87$, $SD = .70$) and the unconcerned with savings potential group ($M = 4.56$, $SD = .69$) as well as the low savings potential group ($M = 4.50$, $SD = .57$). In addition, the strongly concerned savers group ($M = 4.88$, $SD = .92$) differs from the aforementioned two groups displaying lower intentions (all p-values $< .001$). All other group differences are not significant (see Figure 11). There was no interaction effect between the consumer groups and the different incentives, $F(9) = 1.07$, $p = .38$ (Table 20). Hence, Hypothesis 5 could not be confirmed.

Table 19: Energy-saving intention and socio-demographic clustering.

	Df	*F*	*p*	η_p^2
Model	15	1.83	<.05	0.03
Sociodemographic clusters	3	1.84	.14	0.01
Incentive schemes	3	3.57	<.01	0.01
Interaction clusters x incentives	9	0.83	.59	0.01

Note. $R^2 = .03$. $N = 1{,}090$.

Table 20: Energy-saving intention and psychological clustering.

	Df	*F*	*p*	η_p^2
Model	15	5.99	<.001	.08
Psychological clusters	3	20.65	<.001	.05
Incentive schemes	3	4.98	<.01	.01
Interaction clusters x incentives	9	1.07	.38	.01

Note. $R^2 = .08$. $N = 1{,}101$.

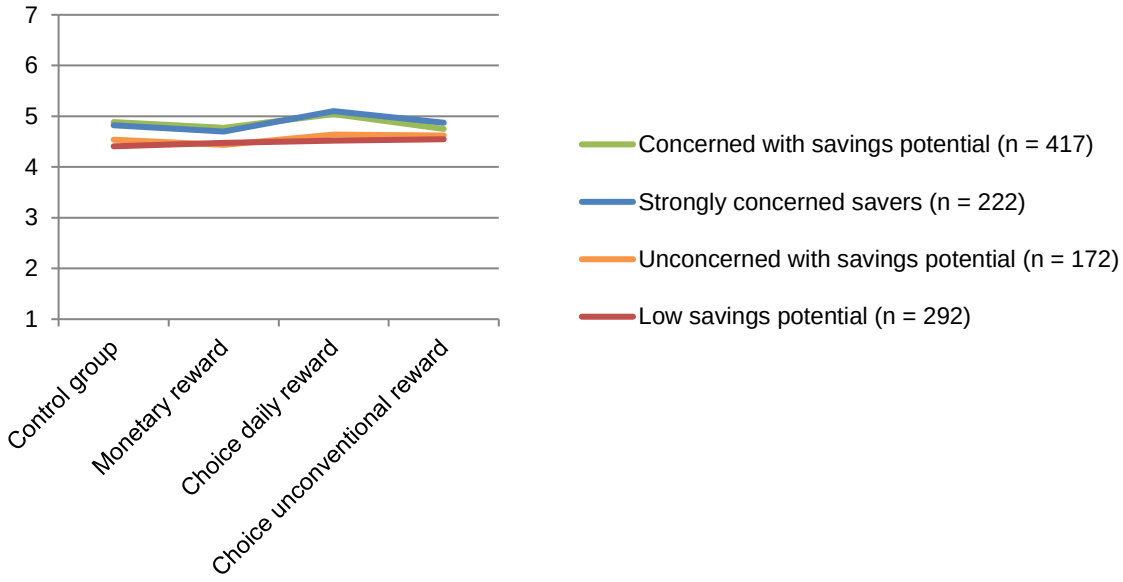

Figure 11: Intention to save energy for psychological clusters.

To examine in more detail which factors are relevant to determine energy-saving intention, a hierarchical linear regression was conducted (see Table 21), showing that environmental concern, along with the perceived potential to save energy and monetary frugality, had the strongest impact on energy-saving intention. None of the socio-demographic variables significantly influenced the intention to save energy.

Table 21: Hierarchical linear regression of factors influencing energy-saving intention.

Step 1	*B*	*SE B*	*β*
Constant	4.73	0.24	
Rent (1) or ownership (2)	-0.08	0.07	-0.05
House (1) or apartment (2)	0.15	0.07	0.09
Electrification	-0.01	0.02	-0.01
Number of rooms	0.04	0.03	0.06
Number of people in household	0.02	0.04	0.03
Number of children in household	-0.07	0.04	-0.08
Highest form of education	-0.03	0.02	-0.06
Income per capita	0.00	0.00	-0.08
Step 2			
Constant	2.35	0.29	
Rent (1) or ownership (2)	-0.06	0.07	-0.04
House (1) or apartment (2	0.12	0.07	0.07
Electrification	-0.02	0.02	-0.04
Number of rooms	0.03	0.02	0.05
Number of people in household	0.00	0.03	-0.01
Number of children in household	-0.05	0.04	-0.05
Highest form of education	-0.03	0.02	-0.06
Income per capita	0.00	0.00	-0.02
Self-efficacy	0.00	0.03	0.00
Potential to save energy	0.19	0.02	0.33**
Involvement in energy saving	0.04	0.02	0.07
Environmental concern	0.10	0.03	0.12**
Monetary frugality	0.08	0.03	0.10**
Energy saving habit	0.07	0.03	0.09*

Notes. Step 1: R^2 = .03, p < .01; Step 2: R^2 = .21, p < .001; ΔR^2 for Step 2 = .18, p < .001. * p < .05; ** p < .001. N = 872 (some participants decided not to indicate their household income).

Hypothesis 6, stating participants are more strongly motivated to save electricity when shown tailored compared to general tips, could not be tested because the manipulation check indicated that the manipulation of tailored and standard tips was not successful.

Hypothesis 7 states that unconventional incentives have a stronger positive impact on customer loyalty compared to conventional incentives. This was tested only in the psychological model, as the socio-demographic model was not significant, $F(15) = 1.12$, $p = .33$. In the model including psychological clusters, unconventional incentives did not lead to higher customer loyalty than no incentive or monetary incentives, $F(3) = 1.91$, $p = .13$. Hence, the hypothesis could not be confirmed (see Table 22).

However, psychological cluster groups showed different levels of customer loyalty, $F(3) = 40.18$, $p < .001$. A pattern similar to that shown above emerged for energy-saving intention. Post-hoc tests indicate the following pattern: The concerned savers group shows the highest customer loyalty ($M = 5.53$, $SD = 1.10$), closely followed by the concerned with savings potential group ($M = 5.33$, $SD = .97$). Both groups have significantly higher values in customer loyalty ($p < .001$) compared to the low potential savings group ($M = 4.74$, $SD = .98$) as well as the unconcerned with savings potential group ($M = 4.72$, $SD = .97$). (see Figure 12). There was no interaction effect between the consumer groups and the different incentives, $F(9) = .85$, $p = .58$ (Table 22). Accordingly, a general interest in energy saving predicted higher customer loyalty when any of the four campaigns was presented. Interestingly, the control group, hence the utility requesting participants to save electricity without offering an incentive, resulted in a rather high level of customer loyalty.

Table 22: Customer loyalty and psychological clustering.

	df	*F*	*p*	η_p^2
Model	15	9.27	<.001	.11
Psychological clusters	3	40.18	<.001	.10
Incentive schemes	3	1.91	.13	.01
Interaction clusters x incentives	9	.85	.58	.01

Note. $R^2 = .11$. $N = 1{,}106$.

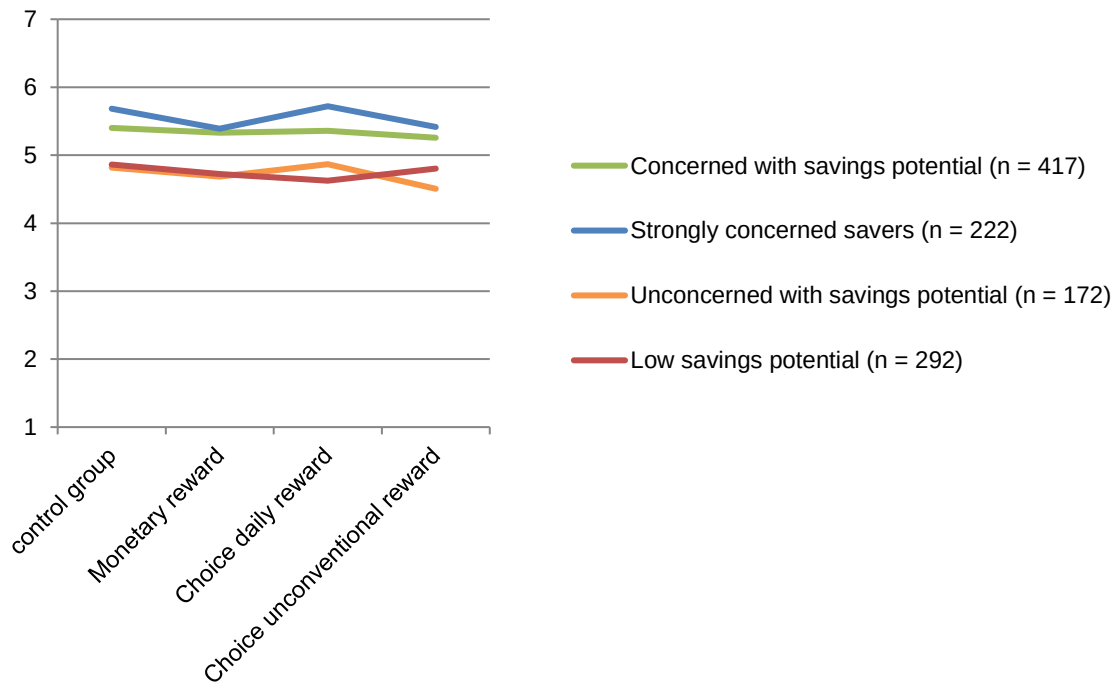

Figure 12: Mean customer loyalty for psychological clusters.

5.3.6. Further analyses

Information-seeking intention was not influenced by different incentive schemes, but by psychological clustering, $F(3) = 36.82$, $p < .001$ (see Table 23). The concerned with savings potential ($M = 5.77$, $SD = 1.03$) and strongly concerned savers ($M = 5.96$, $SD = 1.32$) showed a greater intention to seek energy-saving information than the unconcerned with savings potential ($M = 5.08$, $SD = 1.20$) and low savings potential group ($M = 5.08$, $SD = 1.18$) (post-hoc tests, all p-values < .001).

Table 23: Information-seeking intention and psychological clustering.

	df	*F*	*p*	η_p^2
Model	15	8.44	<.001	.10
Psychological clusters	3	36.82	<.001	.09
Incentive schemes	3	0.04	.99	.00
Interaction clusters x incentives	9	1.11	.36	.01

Note. $R^2 = .10$. $N = 1{,}106$.

Information seeking only differed for psychological clusters, but not for incentive schemes, $F(3) = 17.45$, $p < .001$ (see Table 24). In accordance with information-seeking intention, the concerned with savings potential ($M = 3.57$, $SD = 2.31$) and strongly concerned savers ($M = 3.42$, $SD = 2.30$) requested more energy-saving tips than the unconcerned with savings potential ($M = 2.46$, $SD = 1.83$) and low savings potential group ($M = 2.62$, $SD = 1.98$) (post-hoc test, p-values < .001).

Table 24: Information seeking and psychological clustering.

	df	*F*	*p*	η_p^2
Model	15	4.46	<.001	.06
Psychological clusters	3	17.45	<.001	.05
Incentive schemes	3	0.27	.85	.00
Interaction clusters x incentives	9	1.07	.33	.01

Note. $R^2 = .06$. $N = 1{,}106$.

Intervention evaluation was both influenced by psychological clustering, $F(3) = 42.76$, $p < .001$, as well as the incentive scheme, $F(3) = 3.87$, $p < .01$ (see Table 25). Post-hoc tests indicate that both the monetary reward ($M = 5.75$, $SD = .1.00$) and the daily reward choice ($M = 5.72$, $SD = .1.09$) are evaluated more positively than the control group ($M = 5.47$, $SD = 0.95$) (both p-values < .05). Again, the concerned with savings potential ($M = 5.91$, $SD = 0.86$) as well as strongly concerned savers ($M = 5.99$, $SD = 0.98$) both rated the campaign significantly more positively than the unconcerned with savings potential ($M = 5.23$, $SD = 1.08$) and low savings potential group ($M = 5.28$, $SD = 1.03$) (post-hoc tests, p-values < .001). No other differences were found between the groups.

Table 25: Intervention evaluation and psychological clustering.

	Df	*F*	*p*	η_p^2
Model	15	9.75	<.001	.13
Psychological clusters	3	42.76	<.001	.11
Incentive schemes	3	3.87	<.01	.01
Interaction clusters x incentives	9	1.07	.62	.01

Note. $R^2 = .13$. $N = 1{,}106$.

In the open-ended comment section, participants spontaneously stated their opinion on the campaign. These comments were then matched with the nine comment categories seen in Table 26 and divided into positive and negative comments. Positive comments about the campaign were, for example, ‘great/super’, ‘good idea/campaign/approach’, ‘bravo’ and ‘I like it’. Negative remarks on the campaign were the opposite in that respondents did not like the campaign or were not intrigued by it. It is remarkable that, in this voluntary comment section, 75% of participants, or 824 out of 1,106 participants left a comment, and from these, 781 or 95% were positive comments. Only 43 or 5% were negative comments (see Figure 13).

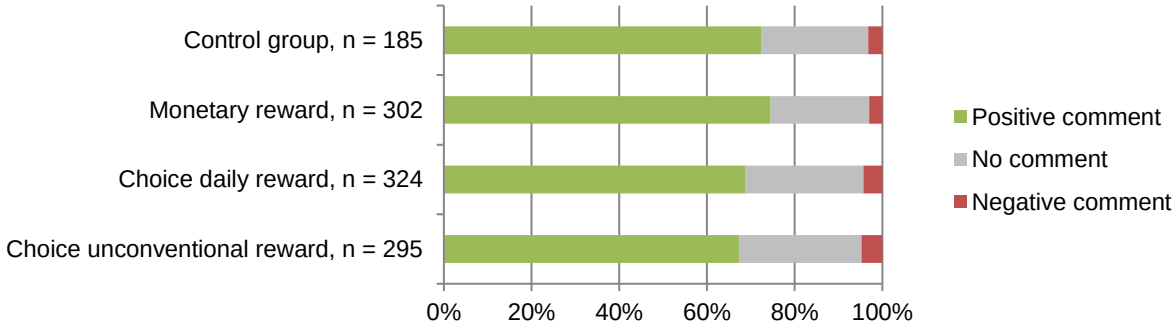

Figure 13: Comments on the campaign in the open-ended question format. *N* = 1,106.

A more detailed perspective on the comments yielded the following issues: Comments were counted as '*high motivation to participate*' if people reported some kind of commitment, such as 'I would participate', 'This would motivate me to save energy' or 'I would like to promote this campaign'. We also counted indications that participants generally expected a boost of motivation, e.g. 'I think people would be motivated to save energy by this'. The category *'Campaign addresses an important issue*' represents comments such as 'This campaign ought to be done/is necessary', 'People should save (more) energy, are not paying enough attention' and 'It is good to be reminded/to push this topic'. *'Benefit to the environment'* means that the environment was mentioned, e.g. 'good for the environment'. *'Opportunity to save money'* stands for comments about saving money through the campaign or through saving energy per se, such as 'good for the wallet' or 'I can save money'. *'Saving effort is feasible'* was marked when participants stated that tips and energy savings were easy to apply or when they acknowledged the provided energy-saving tips. *'Good incentive'* represents comments that appreciated the offered incentive as attractive.

On the negative side, the following comments were categorised: '*Difficulties'* represents comments where participants named reasons why saving energy can be difficult for them (e.g. because they are not homeowners, because other people in the household or low self-efficacy). *'Saving more is not possible'* refers to statements indicating that participants are already making an effort to save and a further 10% reduction is not perceived as realistic. This was most typically 'I already follow the tips/save energy' or 'I cannot do more'. *'Bad incentive'* represents comments that disapprove of the incentive as unattractive or insufficient. *'Incentive system is unfair'* relates to participants' complaints about the incentive system or the campaign as being unfair per se because some participants already make a savings effort and are hardly able to save even more, while people who have not paid attention until now are being rewarded. An overview of all categories is displayed in Table 26.

Table 26: Evaluation in open-ended comments: categorisation of qualitative comments evaluating the incentives.

Positive comments	CG (*n* = 185)	MR (*n* = 302)	CDR (*n* = 324)	CUR (*n* = 295)
High motivation to participate	6%	9%	7%	7%
Campaign addresses an important issue	10%	10%	12%	14%
Benefit to the environment	9%	6%	10%	7%
Opportunity to save money	8%	5%	8%	8%
Saving effort is feasible	5%	3%	4%	4%
Good incentive	1%	3%	3%	3%
Negative comments				
Difficulties	7%	7%	6%	4%
Saving more is not possible	7%	5%	5%	6%
Bad incentive	3%	3%	3%	3%
Incentive system is unfair	3%	3%	2%	4%

Notes. Values are percentages of participants who commented from each experimental group. CG = control group; MR = monetary reward; CDR = choice daily reward; CUR = choice unconventional reward. *N* = 1,106.

5.4. Discussion

The choice of daily rewards was overall the best incentive scheme in terms of motivating energy-saving intentions. In addition, the monetary reward had a positive evaluation, yet it had drawbacks for the intention to save energy, whereas a daily choice resulted in the significantly greater intention to save energy. A choice of unconventional local rewards did not result in a greater intention to save energy, information seeking or customer loyalty than the control group. This scheme was probably not so popular because it takes more effort to use these coupons and they may not be attractive to a broad range of people, although a choice is offered. As in the first experiment, uninterested consumer groups were difficult to motivate with incentives. However, an intriguing effect is that interested groups that indicate they still have substantial energy-saving potential in their households can be motivated by different types of incentives, even by the mere suggestion to try to save electricity. As this group was by far the biggest, including almost 40% of participants, this is a promising result.

Customer loyalty seems to depend on psychological variables rather than offered incentives: The more interested that participants were in saving energy or the higher their environmental concern, the higher their customer loyalty was, regardless of the offered incentives. It seems that merely getting feedback on one's electricity consumption in general is attractive for all customer groups.

Unfortunately, the manipulation of tailored and standard tips was not successful. The applied tailoring approach was probably insufficient: Tips were given for the two household areas participants rated their energy-saving behaviour lowest in. This fast and frugal approach was selected due to its online applicability and low effort, yet for proper tailoring, more detailed and personalised feedback seems to be necessary.

6. General discussion and conclusions

The goal of this project was to investigate how different incentive schemes trigger different consumer groups' intention to change their energy-related behaviour to save electricity. In particular, we were interested to learn more about the impact of unconventional non-monetary rewards on intentions to save electricity. A series of qualitative interviews with experts from different Swiss utilities shed light on utilities' experiences on unconventional incentives and served as a basis for choosing different types of incentives for the experiments. Subsequently, two large-scale online experiments were conducted.

Results of the first experiment revealed that monetary fees that apply if participants will not succeed in saving 10% of their electricity consumption over a one-year period have a negative impact on electricity-saving intentions, compared to all the other experimental groups, including the control group. It seems that such fees have a demotivating effect on consumers' electricity-saving intentions. This result is in line with other studies showing a negative effect of monetary incentives on pro-environmental behaviours (Steinhorst et al., 2015). Furthermore, we found differences among three groups that differ in their knowledge about electricity saving as well as their self-reported actual electricity-saving behaviour. The high conservation group's intention to save electricity was more susceptible to different types of incentives, while the low and middle conservation groups did not show a change in their saving intentions for different types of incentives.

In addition to clustering groups according to psychological variables, we were also interested in group differences between varying household types based on socio-demographic characteristics. Although it was possible to identify such groups, they did not react differently to divergent types of incentives. These results indicate that, for behaviour-change programmes in energy, people should be targeted based on psychological rather than socio-economic criteria. In line with other studies (Abrahamse & Steg, 2009; Huddart Kennedy et al., 2015), we would expect the opposite effect in programmes that aim at increasing energy efficiency by technical means (e.g. home refurbishment programmes, programmes motivating customers in energy-efficient appliances), where socio-economic criteria such as home-ownership or household income will probably have a big impact on people's willingness to take action.

We conducted a second online experiment to deepen our understanding of the effect of unconventional rewards. This experiment considered the tailoring of incentives by offering a choice of different types of coupons. Furthermore, it aimed to offer participants tailored tips regarding how they could succeed in reducing their electricity consumption. Unfortunately, the manipulation of tailored tips had not been strong enough. Therefore, no conclusion can be drawn about this topic. Results revealed that a choice among different coupons for daily use was the most motivational. Again, we found group differences: Those groups already interested in the topic of electricity were most motivated to do even more when facing different incentives for saving electricity. Interestingly, the group of interested participants, which still perceives substantial savings potentials in their households, can be motivated by incentives or by the mere suggestions to save electricity. This is promising, as a large share of participants belong to this group. Thus, there exists the potential to exploit substantial savings potentials through such a campaign.

The interested groups also had a particularly high customer loyalty to a utility engaging in such an electricity-saving campaign. In addition, the analysis of participants' open-ended comments about the campaign indicates that, in general, utilities can expect positive feedback from customers regarding such electricity-saving activities. In line with the first experiment, consumer groups based on socio-economic variables did not react differently to divergent incentive schemes.

6.1.1. Key messages of the project

- **Fees have a negative effect on the intention to save electricity**. The prospect of a fee if a savings target is not reached resulted in a significant drop in participants' intention to save electricity. Confronted with a fee, they also perceived their possibilities to save electricity significantly lower. Thus, it seems that fees resulted in decreased perceived self-efficacy, inhibiting the motivation to save electricity in the future.

- **Fees result in a negative evaluation of the campaign.** Not only did fees decrease participants' motivation to save electricity, but also they resulted in harsh negative feedback about the overall campaign. Thus, a campaign including fees possibly would have a negative impact on the image of a utility carrying out such an endeavour.

- **Unconventional non-monetary rewards are *not* more effective than other types of rewards in general.** From the interviews with utilities and based on the literature, we expected that unconventional incentives should be more effective than other types of incentives. In general, we found that different types of rewards are similarly effective. Often, rewards were not even more effective than the simple request to attempt to save electricity at home. At the same time and as stressed during the expert interviews, unconventional and locally anchored incentives could serve other purposes for utilities, such as strengthening their local roots and thereby retaining local customers in times of a liberalised market.

- **Consumer groups that are more aware of the issue of electricity conservation are more susceptible to different types of rewards**. In our sample, around a quarter to half of participants belonged to these groups. This indicates that a substantial part of the population can be motivated by different types of incentives to save electricity. Interestingly, participants who are intrigued and yet see savings potentials in their household can be motivated by incentives or by the mere suggestion to try to save electricity.

- **Consumer groups that are more aware of the issue of electricity conservation are even more strongly motivated by a choice of unconventional non-monetary rewards compared to a monetary reward.** For this group, a choice among different coupons was perceived as more motivational compared to a single monetary reward.

- **Consumer groups that are not aware of or uninterested in the topics of electricity and electricity saving are difficult to get motivated to engage in these topics.** Unsurprisingly,

these groups are generally difficult to reach by a campaign to save electricity. Consequently, these groups reacted rather indifferently towards varying types of incentives. However, we still found a tendency in these groups to engage in electricity saving that was slightly higher compared to today's efforts (in experimental and control groups).

- **In general, a campaign promoting electricity saving seems to have a positive effect on people's motivation to save electricity.** A general tendency could be observed that participants on average intended to make a stronger effort to save electricity compared to today after having heard about the campaign.

- **It seems that information and sensitisation are important triggers for motivating electricity-saving behaviour – even more important than monetary or more unconventional non-monetary incentives.** As indicated by the results of the control groups, a simple request by the utility to save electricity already had a positive impact on saving intentions. Therefore, instead of investing in incentivising customers, utilities should invest in good materials to inform their customers and provide them with useful ideas about how they could save electricity in the future.

- **People would like to know more about their own electricity consumption.** In both experiments, people seemed eager to learn about their own electricity consumption. Thus, instead of providing standard tips, utilities could increase their efforts to give consumers real-time feedback about their consumption. Enabling technologies such as smart meters and feedback displays may support these efforts.

- **Utilities' engagement in campaigns to save electricity reflects positively on their ability to attract or retain customers.** Therefore, the sheer fact that utilities engage in such an issue seems to have a positive impact. More unconventional incentives did not lead to a higher degree of customer loyalty.

- **When addressing changes of electricity-related behaviour, a socio-economic segmentation does not seem appropriate; segmentation according to psychological criteria is more promising**. In our studies, socio-economic variables rarely explained any variance in intentions to save electricity. Relevant groups in this respect are, rather, characterised according to differences of psychological variables such as awareness of electricity issues and actual electricity consumption behaviour.

6.1.2. Limitations of the project

At the heart of the project are two large-scale online experiments. When interpreting their results, it is important to bear in mind several limitations underlying the project.

Both experiments took place online. Although this situation might be comparable to an everyday situation where people look up information online or receive an email from their electricity provider, it still represents a rather artificial, hypothetical solution. Compared to a real-world situation, participants are well aware of the fact that the decisions they make during such an experiment will not have any real consequences on their life. Related to that is the limitation that intentions to save electricity do not necessarily translate into concrete behavioural changes.

At the same time, the experiments offer valuable insights that will be important for designing a field trial. These insights in particular consider the issue of consumer segmentation, the choice of rewards and general communication with the public. Regarding the latter point, we could observe a certain tendency among participants not to pay a lot of attention to the materials presented in the study. This resulted in a reduced sample, since we only wanted to include those subjects that actually remembered the manipulation they had seen because we were interested in the effects of these manipulations. In the first experiment, we had to exclude a larger proportion of the overall sample due to such attention deficits compared to the second experiment. One alteration between both experiments relates to communication. While the first experiment used a classic letter, the second provided information on a

website. This website was visually more attractive, as it was more colourful and included icons. It seems that the second experiment with the visually more attractive materials was more successful in catching participants' attention, yielding important insights for communication during a field trial.

A further limitation of the studies is that the manipulation of standard and tailored tips had not been successful. Probably, this manipulation was not strong enough, and many participants in the tailored condition did not realise that the received tips had been tailored to their input. At the same time, this tailoring was based on a very rough input. If participants provided more details about their actual consumption, tailoring could be done in a more detailed way, and hence, it would probably be perceived as more useful compared to standard tips. Participants' choices in the information selection task indicate that they would appreciate feedback about their own consumption and probably also would want to receive specific tips that would help them to reduce their consumption. Our results suggest that knowing more about one's own consumption would probably be more effective to motivate savings compared to offering a reward.

6.1.3. Implications for future research

As mentioned above, a real-world experiment in the field would be an interesting opportunity to further research these issues. In such a field test, participants' decisions would have real consequences, and their energy consumption could be tracked and observed over a certain period of time. Ideally, a field test could be done in households that are already equipped with smart meters and thus could easily be combined with a feedback system to provide participants with necessary information on their own consumption. A feedback that not only includes total household consumption but also the consumption of specific devices and appliances would presumably raise participants' involvement even further and allow for the advanced segmentation of consumer groups. It would be interesting to collaborate with an energy utility and possibly also a company developing feedback systems (such as Ben Energy) to pursue such a field trial.

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8. Appendices

8.1. Questionnaire experiment 1 (in German)

Herzlich Willkommen

Sehr geehrte Teilnehmerin,

sehr geehrter Teilnehmer

Vielen Dank für Ihre Bereitschaft, an diesem Experiment teilzunehmen. Sie werden in den nächsten **15 Minuten** zum Thema Energie befragt. Selbstverständlich werden Ihre Daten anonym und streng vertraulich behandelt. Rückschlüsse auf Ihre Person werden nicht gezogen.

Für Ihre Mithilfe danken wir Ihnen schon jetzt recht herzlich.

Bitte wählen Sie die Sprache. / S'il vous plaît sélectionner votre langue

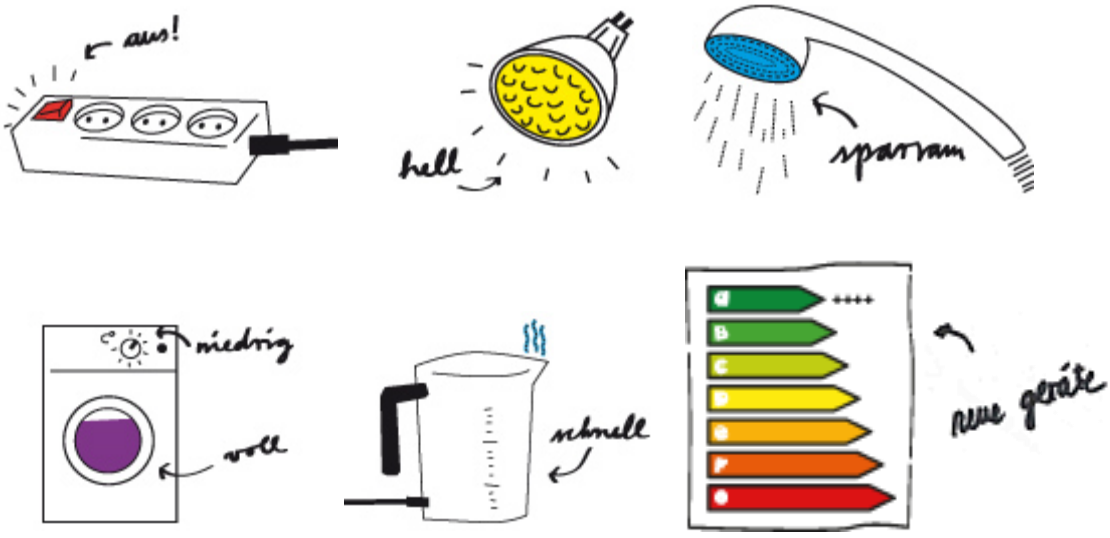
V_260.1 ○ Deutsch V_260.2 ○ Français

1. Experimentelle Manipulation (7 verschiedene Bedingungen)

(s. Appendix 8.2)

2. Stromspartipps (sehen alle)

Tipps, wie in einem durchschnittlichen Haushalt 10% des Stromverbrauchs eingespart werden kann:



Illustrationen: Miro Poferl, utopia.de

3. Spontanassoziationen/Spontanbewertung

Was halten Sie spontan von diesem Brief?

V_261

4. Bewertung des Angebots (semantisches Differential)

Bitte bewerten Sie das Angebot im Brief anhand der nachfolgenden Wort-Gegensatzpaare.

		-3	-2	-1	0	1	2	3	
V_309	originell	○	○	○	○	○	○	○	einfallslos
V_310	gute Idee	○	○	○	○	○	○	○	schlechte Idee
V_311	spricht mich an	○	○	○	○	○	○	○	schreckt mich ab
V_312	bürgernah	○	○	○	○	○	○	○	distanziert
V_313	zukunftsweisend	○	○	○	○	○	○	○	traditionell
V_314	speziell	○	○	○	○	○	○	○	gewöhnlich
V_315	einladend	○	○	○	○	○	○	○	abstossend
V_316	motiviert mich, mich mit meinem Energieverbrauch zu beschäftigen	○	○	○	○	○	○	○	motiviert mich nicht, mich mit meinem Energieverbrauch zu beschäftigen
V_317	passt zu meiner Wohngemeinde	○	○	○	○	○	○	○	passt nicht zu meiner Wohngemeinde

Bitte kreuzen Sie die zutreffende Antwort an.

		stimme überhaupt nicht zu 1	2	3	4	5	6	**stimme völlig zu** 7
V_352	In Zukunft möchte ich alles versuchen, um in meinem Haushalt 10% Strom einzusparen	○	○	○	○	○	○	○
V_353	Eine 10% Reduktion des Stromverbrauchs in meinem Haushalt ist realistisch.	○	○	○	○	○	○	○

V_354	Eine 10% Reduktion des Stromverbrauchs in meinem Haushalt ist nicht realistisch weil ich bereits stark darauf achte, Strom zu sparen	○	○	○	○	○	○	○
V_355	Ich habe kein Interesse daran, Strom in meinem Haushalt einzusparen.	○	○	○	○	○	○	○

5. Energieverbrauch im Haushalt: Zukunft

Im Folgenden geht es darum, wie Sie in Ihrem Haushalt Energie in Zukunft nutzen möchten. Wie oft planen Sie in Zukunft diese Tätigkeiten auszuführen?

Falls Sie über ein Gerät nicht verfügen oder aus anderen Gründen keine Angaben machen können, kreuzen Sie bitte „betrifft mich nicht“ an.

In Zukunft werde ich…

		Betrifft mich nicht	viel seltener als heute	seltener als heute	eher seltener als heute	gleich häufig wie heute	eher häufiger als heute	häufiger als heute	viel häufiger als heute
		8	-3	-2	-1	0	1	2	3
V_403	Waschmaschine möglichst gut füllen	○	○	○	○	○	○	○	○
V_404	Wäsche bei niedrigen Temperaturen waschen (z.B. Kochwäsche bei 60°C, leicht verschmutzte Wäsche bei 30°C)	○	○	○	○	○	○	○	○
V_405	Elektrische Geräte im Stand-by Modus vollständig ausschalten	○	○	○	○	○	○	○	○
V_406	Wäsche mit Wäschetrockner trocknen	○	○	○	○	○	○	○	○
V_407	Mit Deckel auf der Pfanne kochen	○	○	○	○	○	○	○	○
V_408	Das Licht löschen, wenn ich einen Raum verlasse	○	○	○	○	○	○	○	○
V_409	Geschirrspüler voll befüllt laufen lassen	○	○	○	○	○	○	○	○
V_410	Ein warmes Bad nehmen	○	○	○	○	○	○	○	○
V_411	Beim Kauf von elektrischen Geräten bewusst auf deren Energieverbrauch achten	○	○	○	○	○	○	○	○
V_412	Vor dem Kauf eines elektrischen Geräts überlegen, ob ich dieses wirklich brauche	○	○	○	○	○	○	○	○

V_413	Kaputte Leuchtmittel durch LED Lampen ersetzen	○	○	○	○	○	○	○	○
V_414	So kurz als möglich duschen, um Warmwasser zu sparen	○	○	○	○	○	○	○	○
V_415	Raumtemperatur den Nutzungsverhältnissen der einzelnen Raume anpassen, z.B. ungenutzte Räume auf Sparflamme	○	○	○	○	○	○	○	○
V_416	Nachts die Raumtemperatur absenken	○	○	○	○	○	○	○	○

Bitte kreuzen Sie die zutreffende Antwort an.

		stimme überhaupt nicht zu 1	2	3	4	5	6	stimme völlig zu 7
V_398	Ich möchte mehr darüber wissen, bei welchen Tätigkeiten ich im Haushalt am meisten Strom benötige.	○	○	○	○	○	○	○
V_399	Ich möchte mehr darüber wissen, welche Geräte am meisten Strom verbrauchen.	○	○	○	○	○	○	○
V_400	Ich möchte mich in Zukunft aktiver um Informationen zum Thema Energiesparen bemühen.	○	○	○	○	○	○	○
V_401	Ich möchte in Zukunft die Stromrechnung genauer prüfen.	○	○	○	○	○	○	○
V_402	Ich möchte in Zukunft andere Haushaltsmitglieder bzw. meinen Bekanntenkreis darauf hinweisen, Strom zu sparen.	○	○	○	○	○	○	○

6. „Pre-Behaviour“ (Informationsverhalten)

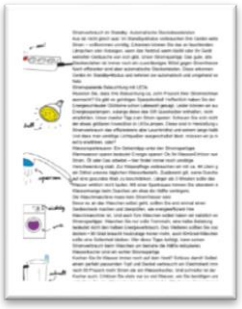
Sind Sie daran interessiert, Informationen zum Thema Stromsparen zu erhalten?

V_95.1	○	Ja, ich wäre bereit, meine Emailadresse anzugeben um Informationen zum Thema Stromsparen erhalten
V_95.2	○	Nein, ich wäre nicht bereit, meine Emailadresse anzugeben, bin aber an Informationen zum Thema Stromsparen interessiert
V_95.3	○	Nein, ich benötige keine Informationen zum Thema Stromsparen (nächste Frage wird übersprungen)

Im Speziellen bin ich an folgenden Themen interessiert

V_102	☐	Energieeffiziente Geräte

V_103	☐	Stand-by vermeiden
V_104	☐	Energie sparen beim Heizen
V_105	☐	Energie sparen beim Waschen
V_106	☐	Energie sparen beim Kochen
V_107	☐	Energie sparen beim Beleuchten
V_108	☐	Mehr erfahren über den eigenen Energieverbrauch



Factsheet zu „Energieeffiziente Geräte“ – falls gewählt

Factsheet zu „Stand-by vermeiden“ – falls gewählt

Factsheet zu „Energie sparen beim Heizen“ – falls gewählt

Factsheet zu „Energie sparen beim Waschen“ – falls gewählt

Factsheet zu „Energie sparen beim Kochen“ – falls gewählt

Factsheet zu „Energie sparen beim Beleuchten“ – falls gewählt

Factsheet zu „Mehr erfahren über den eigenen Energieverbrauch“ – falls gewählt

Können Sie uns den aktuellen Stand Ihres Stromzählers zuhause bekanntgeben?

V_478.2	○	Ich habe keinen Zugang zum Stromzähler
V_478.3	○	Ich weiss nicht, wo sich mein Stromzähler befindet
V_478.4	○	Ich möchte den Stand meines Stromzählers nicht angeben
V_478.5	○	Ja, der Stand meines Stromzählers ist **(HT Hochtarif, NT Nidertarif)** _____ (v_332)

7. Ihre Einstellungen zum Stromsparen und zu Strom allgemein

Bitte kreuzen Sie an, wie stark Sie mit den folgenden Aussagen übereinstimmen

		trifft gar nicht zu 1	2	3	4	5	6	trifft völlig zu 7
V_467	Sich mit Stromthemen auseinander zu setzen, ist spannend	○	○	○	○	○	○	○
V_468	Die Umwelt liegt mir am Herzen	○	○	○	○	○	○	○

V_469	Ich bin bereit, zum Schutz der Umwelt Einschränkungen in Kauf zu nehmen	○	○	○	○	○	○	○
V_470	Ich fühle mich verpflichtet, nach Möglichkeit Strom zu sparen	○	○	○	○	○	○	○
V_471	Ich setzte Strom-Spartipps regelmässig um	○	○	○	○	○	○	○
V_472	Ich gebe meine Strom-Spartipps bei Gelegenheit an andere weiter	○	○	○	○	○	○	○
V_473	Experten würden bestätigen können, dass ich sparsam mit Strom umgehe	○	○	○	○	○	○	○
V_474	Bei meinem Stromkonsum ist durchaus noch Sparpotenzial vorhanden	○	○	○	○	○	○	○
V_475	Ich habe das Gefühl, ich weiss mehr über Stromsparen als die meisten meiner Bekannten und Verwandten	○	○	○	○	○	○	○
V_476	Ich kenne die wichtigsten Methoden zum Stromsparen	○	○	○	○	○	○	○

8. Energieverbrauch im Haushalt: aktuell

Im Folgenden zeigen wir Ihnen verschiedene Tätigkeiten. Wie oft führen Sie diese Tätigkeiten im Normalfall aus?

Falls Sie über ein Gerät nicht verfügen oder aus anderen Gründen keine Angaben machen können, kreuzen Sie bitte „betrifft mich nicht“ an.

Im Normalfall mache ich das …

		Betrifft mich nicht 7	nie 1	selten 2	ab und zu 3	oft 4	Fast immer 5	immer 6
V_427	Waschmaschine möglichst gut füllen	○	○	○	○	○	○	○
V_428	Wäsche bei niedrigen Temperaturen waschen (z.B. Kochwäsche bei 60°C, leicht verschmutzte Wäsche bei 30°C)	○	○	○	○	○	○	○
V_429	Elektrische Geräte im Stand-by Modus vollständig ausschalten	○	○	○	○	○	○	○
V_430	Wäsche mit Wäschetrockner trocknen	○	○	○	○	○	○	○
V_431	Mit Deckel auf der Pfanne kochen	○	○	○	○	○	○	○
V_432	Das Licht löschen, wenn ich einen Raum verlasse	○	○	○	○	○	○	○
V_433	Geschirrspüler voll befüllt laufen lassen	○	○	○	○	○	○	○
V_434	Ein warmes Bad nehmen	○	○	○	○	○	○	○

V_435	Beim Kauf von elektrischen Geräten bewusst auf deren Energieverbrauch achten	○	○	○	○	○	○	○
V_436	Vor dem Kauf eines elektrischen Geräts überlegen, ob ich dieses wirklich brauche	○	○	○	○	○	○	○
V_437	Kaputte Leuchtmittel durch LED Lampen ersetzen	○	○	○	○	○	○	○
V_438	Raumtemperatur den Nutzungsverhältnissen der einzelnen Raume anpassen, z.B. ungenutzte Räume auf Sparflamme	○	○	○	○	○	○	○
V_439	Nachts die Raumtemperatur absenken	○	○	○	○	○	○	○
V_440	So kurz als möglich duschen, um Warmwasser zu sparen	○	○	○	○	○	○	○

Bitte kreuzen Sie die zutreffende Antwort an.

		stimme überhaupt nicht zu 1	2	3	4	5	6	stimme völlig zu 7
V_27	Ich weiss, bei welchen Tätigkeiten ich im Haushalt am meisten Strom benötige.	○	○	○	○	○	○	○
V_28	Ich weiss, welche Geräte am meisten Strom verbrauchen.	○	○	○	○	○	○	○
V_29	Ich bemühe mich aktiv um Informationen zum Thema Energiesparen.	○	○	○	○	○	○	○
V_30	Ich prüfe die Stromrechnung genau.	○	○	○	○	○	○	○
V_31	Ich weise andere Haushaltsmitglieder bzw. meinen Bekanntenkreis darauf hin, Strom zu sparen.	○	○	○	○	○	○	○

9. Angaben zur Person

Angaben zur Person

Ihr Geschlecht: V_1.1 Männlich ○ V_1.2 Weiblich ○

Ihr Jahrgang: 19__ *(1945, 1972, …)* V_229

Welches ist Ihre höchste Ausbildung:

V_179.1	○	kein Schulabschluss
V_179.2	○	obligatorische Schule

V_179.3	○	Anlehre, Haushaltslehrjahr
V_179.4	○	Berufslehre, Berufsmittelschule, Vollzeitberufsschule, Handelsschule
V179.5	○	Berufsmatura, Maturitätsschule, Lehrerseminar, Diplom- und Wirtschaftsmittelschule
V179.6	○	Meisterprüfung, Techniker- und Fachschule, höhere Fachschule, Ingenieurschule, Technikum
V179.7	○	Fachhochschule, Universität, ETH
V179.8	○	Doktorat
V179.9	○	andere Ausbildung

Sind Sie Mieter/in oder besitzen Sie die Liegenschaft, in der Sie wohnen?

V_180.1	○	Ich bin Mieter/in
V_180.2	○	Ich bin Eigentümer/in

Wie leben Sie?

V_181.1	○	In einem Haus
V_181.2	○	In einer Wohnung

Mit wem leben Sie?

V_182.1	○	Bei meinen Eltern
V_182.2	○	alleine
V_182.3	○	Mit Partner/in, ohne Kind(er)
V_182.4	○	Mit Partner/in und Kind(ern)
V_182.5	○	Ohne Partner/in, mit Kind(ern)
V_182.6	○	In einer Wohngemeinschaft
V_182.7	○	Anderes: _____ (V_183)

Wie viele Zimmer hat Ihre Wohnung (Küche und Bad/WC zählen nicht als Zimmer)?

V_184.1	○	1

V_184.2	○	1.5
V_184.3	○	2
V_184.4	○	2.5
V_184.5	○	3
V_184.6	○	3.5
V_184.7	○	4
V_184.8	○	4.5
V_184.9	○	5
V_184.10	○	5.5
V_184.11	○	6 oder mehr

Wie viele Personen leben in Ihrem Haushalt (Sie eingeschlossen)?

V_185.1	○	1
V_185.2	○	2
V_185.3	○	3
V_185.4	○	4
V_185.5	○	5
V_185.6	○	6 oder mehr

Wie viele Personen davon sind Kinder unter 18 Jahren?

V_186.1	○	0
V_186.2	○	1
V_186.3	○	2
V_186.4	○	3
V_186.5	○	4
V_186.6	○	5

V_186.7	○	6 oder mehr

Wie hoch ist das monatliche Nettoeinkommen Ihres Haushaltes? (Einkommen aller Haushaltsmitglieder nach Abzügen)

V_247.1	○	Weniger als 4‘000 Fr.
V_247.2	○	4‘001-6‘000 Fr.
V_247.3	○	6‘001-8‘000 Fr.
V_247.4	○	8‘001-10‘000 Fr.
V_247.5	○	10‘001-12‘000 Fr.
V_247.8	○	12‘001-14‘000 Fr.
V_247.9	○	14‘001-16‘000 Fr.
V_247.10	○	16‘001-18‘000 Fr.
V_247.11	○	Mehr als 18‘000 Fr.
V_247.12	○	Keine Angabe

Wo leben Sie? Bitte geben Sie die Postleitzahl (PLZ) Ihres Wohnorts an:

(v_187) PLZ Ihres Wohnorts: _____

Bitte geben Sie an, ob Sie die folgenden Geräte bzw. Installationen besitzen

V_208	Elektroboiler (Warmwasserheizung mit Strom)	○ (1)	ja	○ (2)	nein	○ (3)	Weiss nicht
V_209	Photovoltaikanlage	○ (1)	ja	○ (2)	nein	○ (3)	Weiss nicht
V_201	Wärmepumpe	○ (1)	ja	○ (2)	nein	○ (3)	Weiss nicht
	Tumbler	○ (1)	ja	○ (2)	nein	○ (3)	Weiss nicht
	Elektrische Widerstandsheizung	○ (1)	ja	○ (2)	nein	○ (3)	Weiss nicht
	Elektroherd/Induktionsherd	○ (1)	ja	○ (2)	nein	○ (3)	Weiss nicht

Wie stufen Sie Ihre politische Haltung auf einer Skala ein?

V_333	Links	○	○	○	○	○	○	○	Rechts
V_334	Progressiv / liberal	○	○	○	○	○	○	○	Konservativ

10. Manipulationscheck

Am Anfang der Umfrage haben Sie einen Brief von Ihrem Energieversorger erhalten. Um welches Angebot handelte es sich?

V_218.8	○	Kein spezifisches Angebot
V_218.9	○	Gebühr über 50 CHF, wenn ich es nicht schaffe, meinen Stromverbrauch um 10% zu reduzieren
V_218.10	○	Gutschrift über 50 CHF, wenn ich meinen Stromverbrauch um 10% reduziere
V_218.11	○	In einem Jahr erhalte ich einen Gutschein der SBB, wenn ich meinen Stromverbrauch um 10% reduziere
V_218.12	○	Als Ansporn habe ich einen Gutschein der SBB erhalten, den ich in einem Jahr nur dann wieder erhalten werde, wenn ich es schaffe, meinen Stromverbrauch um 10% zu reduzieren
V_218.13	○	In einem Jahr erhalte ich einen Gutschein des lokalen Marktes, wenn ich meinen Stromverbrauch um 10% reduziere
V_218.14	○	Als Ansporn habe ich einen Gutschein des lokalen Marktes erhalten, den ich in einem Jahr nur dann wieder erhalte, wenn ich es schaffe, meinen Stromverbrauch um 10% zu reduzieren

11. Abschluss

Haben Sie noch Rückmeldungen oder Kommentare zu unserer Umfrage?

V_224

Können wir Ihre Daten in anonymer Form für wissenschaftliche Zwecke verwenden?

V_227.1	○	Ja, ich habe alle Fragen sinnvoll beantwortet. Meine Angaben können für die Auswertung verwendet werden.
V_227.2	○	Nein, ich wollte „nur mal gucken“ und habe nur durchgeklickt oder möchte nicht, dass meine Angaben ausgewertet werden.

Sie haben alle Fragen beantwortet, vielen Dank für Ihre Teilnahme!

8.2. Materials experiment 1 (German)

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Ihre Kundennummer 5479521

1. September 2015

Stromsparen leicht gemacht

Sehr geehrte Damen und Herren

Das Energiewerk Schweiz eNeS stellt nicht nur Ihren täglichen Energiebedarf sicher, uns liegt ebenso sehr ein nachhaltiger Umgang mit Energie am Herzen. Daher finden Sie anbei eine Aufstellung mit einigen Tipps zum Energiesparen. Nie zuvor war es leichter etwas Gutes für die Umwelt zu tun und gleichzeitig Geld zu sparen!

Fangen Sie noch heute an und versuchen Sie, bis zum 31. August 2016 den Stromverbrauch in Ihrem Haushalt um 10% zu reduzieren.

Vielen Dank für Ihr Engagement. Damit leisten Sie einen wichtigen Beitrag zu einem nachhaltigen Energiekonsum in der Schweiz.

Freundliche Grüsse

Stefan Sigrist
CEO Energiewerk Schweiz

Figure 14: Experimental manipulation of control group.

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Ihre Kundennummer 5479521

1. September 2015

Stromsparen leicht gemacht

Sehr geehrte Damen und Herren

Das Energiewerk Schweiz eNeS stellt nicht nur Ihren täglichen Energiebedarf sicher, uns liegt ebenso sehr ein nachhaltiger Umgang mit Energie am Herzen. Daher finden Sie anbei eine Aufstellung mit einigen Tipps zum Energiesparen. Nie zuvor war es leichter etwas Gutes für die Umwelt zu tun und gleichzeitig Geld zu sparen!

Fangen Sie noch heute an und versuchen Sie, bis zum 31. August 2016 den Stromverbrauch in Ihrem Haushalt um 10% zu reduzieren. Wenn Sie dieses Ziel erreichen, erhalten Sie von uns eine Gutschrift von 50 CHF auf Ihrer Stromrechnung nächsten Sommer.

Vielen Dank für Ihr Engagement. Damit leisten Sie einen wichtigen Beitrag zu einem nachhaltigen Energiekonsum in der Schweiz.

Freundliche Grüsse

Stefan Sigrist
CEO Energiewerk Schweiz

Figure 15: Experimental manipulation of monetary reward.

Energiewerk Schweiz eNeS

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Fangen Sie noch heute an und versuchen Sie, bis zum 31. August 2016 den Stromverbrauch in Ihrem Haushalt um 10% zu reduzieren. Wenn Sie dieses Ziel NICHT erreichen, verrechnen wir Ihnen 50 CHF zusätzlich auf Ihrer Stromrechnung nächsten Sommer.

Vielen Dank für Ihr Engagement. Damit leisten Sie einen wichtigen Beitrag zu einem nachhaltigen Energiekonsum in der Schweiz.

Freundliche Grüsse

Stefan Sigrist
CEO Energiewerk Schweiz

Figure 16: Experimental manipulation of monetary fee.

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Fangen Sie noch heute an und versuchen Sie, bis zum 31. August 2016 den Stromverbrauch in Ihrem Haushalt um 10% zu reduzieren. Wenn Sie dieses Ziel erreichen, erhalten Sie von uns einen SBB Rail Bon über 50 CHF.

Vielen Dank für Ihr Engagement. Damit leisten Sie einen wichtigen Beitrag zu einem nachhaltigen Energiekonsum in der Schweiz.

Freundliche Grüsse

Stefan Sigrist
CEO Energiewerk Schweiz

Figure 17: Experimental manipulation unconventional daily reward.

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Fangen Sie noch heute an und versuchen Sie, bis zum 31 August 2016 den Stromverbrauch in Ihrem Haushalt um 10% zu reduzieren. Als Ansporn erhalten Sie von uns einen SBB Gutschein über 50 CHF. Wenn Sie Ihren Stromverbrauch um 10% reduzieren können, erhalten Sie nächstes Jahr automatisch wieder einen neuen Gutschein. Wenn Sie das Ziel NICHT erreichen, erhalten Sie keinen neuen Gutschein.

Vielen Dank für Ihr Engagement. Damit leisten Sie einen wichtigen Beitrag zu einem nachhaltigen Energiekonsum in der Schweiz.

Freundliche Grüsse

Stefan Sigrist
CEO Energiewerk Schweiz

Figure 18: Experimental manipulation unconventional daily reward (loss).

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Fangen Sie noch heute an und versuchen Sie, bis zum 31. August 2016 den Stromverbrauch in Ihrem Haushalt um 10% zu reduzieren. Wenn Sie dieses Ziel erreichen, erhalten Sie von uns einen Gutschein über 50 CHF, den Sie bei Ihrem lokalen Wochenmarkt einlösen können.

Vielen Dank für Ihr Engagement. Damit leisten Sie einen wichtigen Beitrag zu einem nachhaltigen Energiekonsum in der Schweiz.

Freundliche Grüsse

Stefan Sigrist
CEO Energiewerk Schweiz

Figure 19: Experimental manipulation unconventional local reward.

Energiewerk Schweiz eNeS

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Fangen Sie noch heute an und versuchen Sie, bis zum 31. September 2016 den Stromverbrauch in Ihrem Haushalt um 10% zu reduzieren. Als Ansporn erhalten Sie von uns einen Gutschein über 50 CHF, den Sie bei Ihrem lokalen Wochenmarkt einlösen können. Wenn Sie Ihren Stromverbrauch um 10% reduzieren können, erhalten Sie nächstes Jahr automatisch wieder einen neuen Gutschein. Wenn Sie das Ziel NICHT erreichen, erhalten Sie keinen neuen Gutschein.

Vielen Dank für Ihr Engagement. Damit leisten Sie einen wichtigen Beitrag zu einem nachhaltigen Energiekonsum in der Schweiz.

Freundliche Grüsse

Stefan Sigrist
CEO Energiewerk Schweiz

Figure 20: Experimental manipulation unconventional local reward (loss)

8.3. Questionnaire and materials experiment 2 (German)

Herzlich Willkommen

Sehr geehrte Teilnehmerin

Sehr geehrter Teilnehmer

Vielen Dank für Ihre Bereitschaft, an dieser Befragung teilzunehmen. Sie werden in den nächsten **20 Minuten** zum Thema Energie befragt. Selbstverständlich werden Ihre Daten anonym und streng vertraulich behandelt. Rückschlüsse auf Ihre Person werden nicht gezogen.

Für Ihre Mithilfe danken wir Ihnen schon jetzt recht herzlich.

Zürcher Hochschule für Angewandte Wissenschaften Winterthur

Bitte wählen Sie die Sprache. / S'il vous plaît sélectionner votre langue

v_260.1 ○ Deutsch v_260.2 ○ Français

1. Experimentelle Manipulation: Incentive (3 Experimentalgruppen, 1 Kontrollgruppe)

Control group:

Stellen Sie sich vor, Ihr Energieversorger lanciert eine Stromspar-Aktion. Die Aktion wird auf der Webseite der Firma vorgestellt.

Bitte lesen Sie diese aufmerksam durch

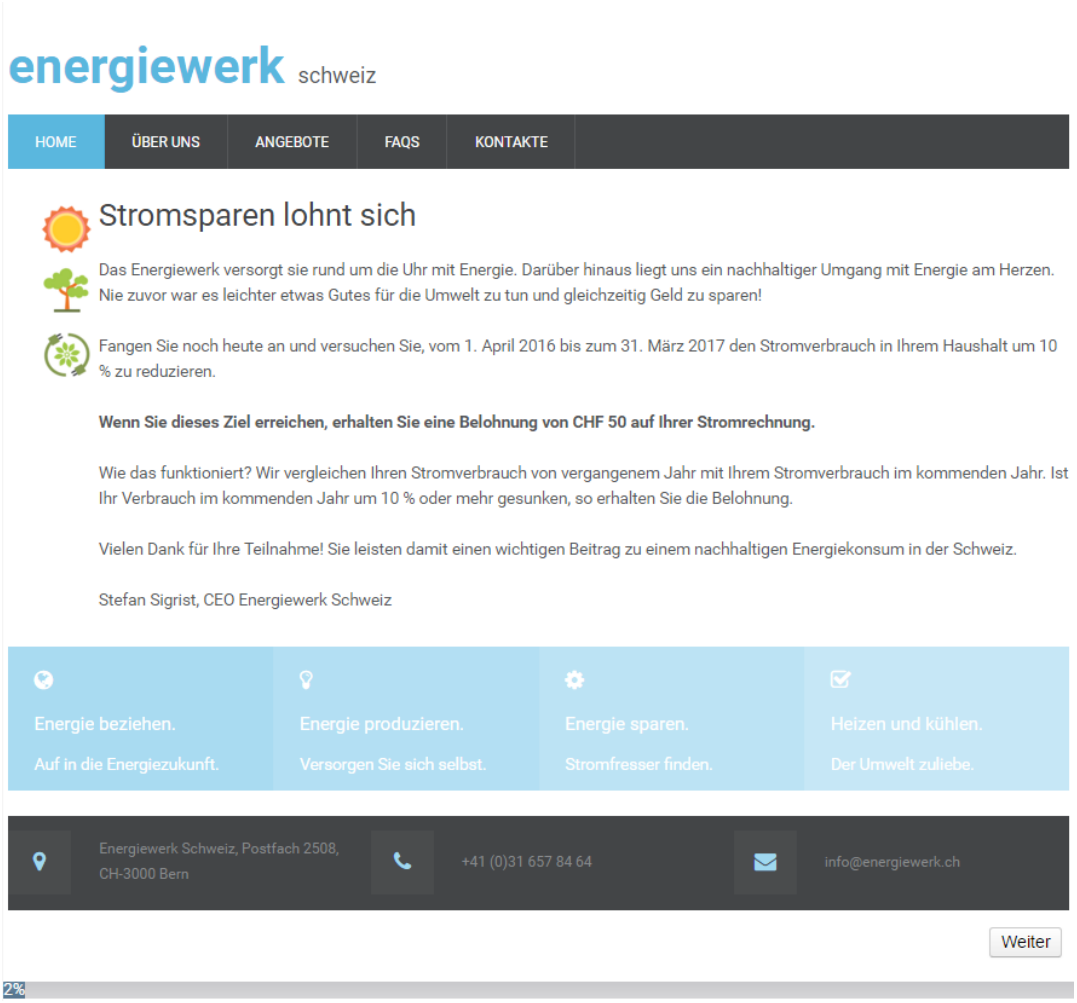
Wir werden im kommenden Jahr ihren Stromverbrauch aufzeichnen und mit vergangenem Jahr vergleichen. Wir werden Sie im April 2017 informieren, ob Sie 10 % oder mehr Energie einsparen konnten.

Um Ihnen das Stromsparen zu erleichtern, erhalten Sie im Folgenden einige Energiespar-Tipps.

Experimentalgruppe: „monetary incentive“

Stellen Sie sich vor, Ihr Energieversorger lanciert eine Stromspar-Aktion. Die Aktion wird auf der Webseite der Firma vorgestellt.

Bitte lesen Sie dies aufmerksam durch



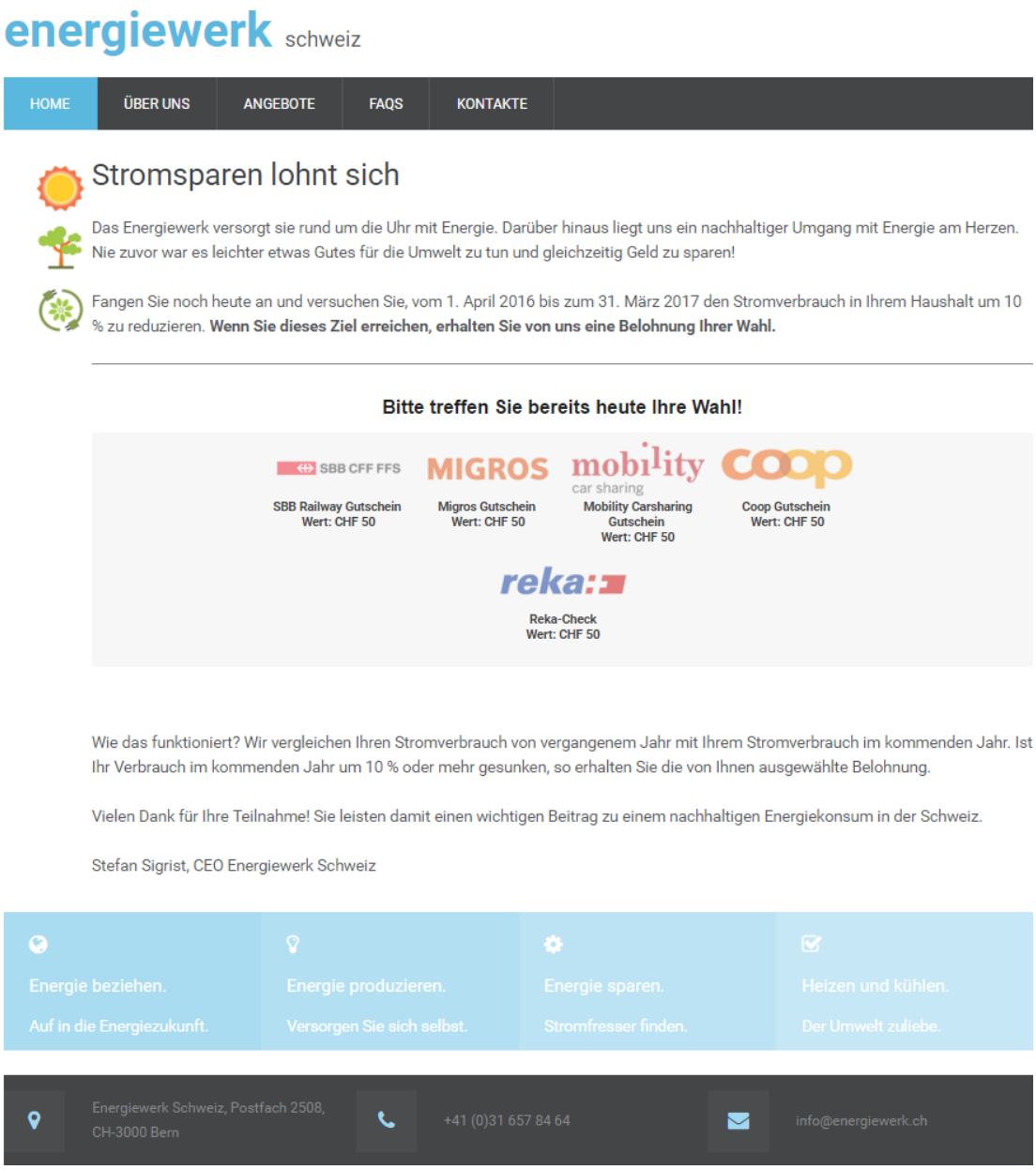
Wir werden im kommenden Jahr ihren Stromverbrauch aufzeichnen und mit vergangenem Jahr vergleichen. Sie erhalten Ihre Belohnung in Form einer Gutschrift von CHF 50 auf Ihrer Stromrechnung im April 2017, wenn Sie 10 % oder mehr Energie einsparen konnten.

Um Ihnen das Stromsparen zu erleichtern, erhalten Sie im Folgenden einige Energiespar-Tipps.

Experimentalgruppe: „Daily incentive“

Stellen Sie sich vor, Ihr Energieversorger lanciert eine Stromspar-Aktion. Die Aktion wird auf der Webseite der Firma vorgestellt.

Bitte lesen Sie dies aufmerksam durch



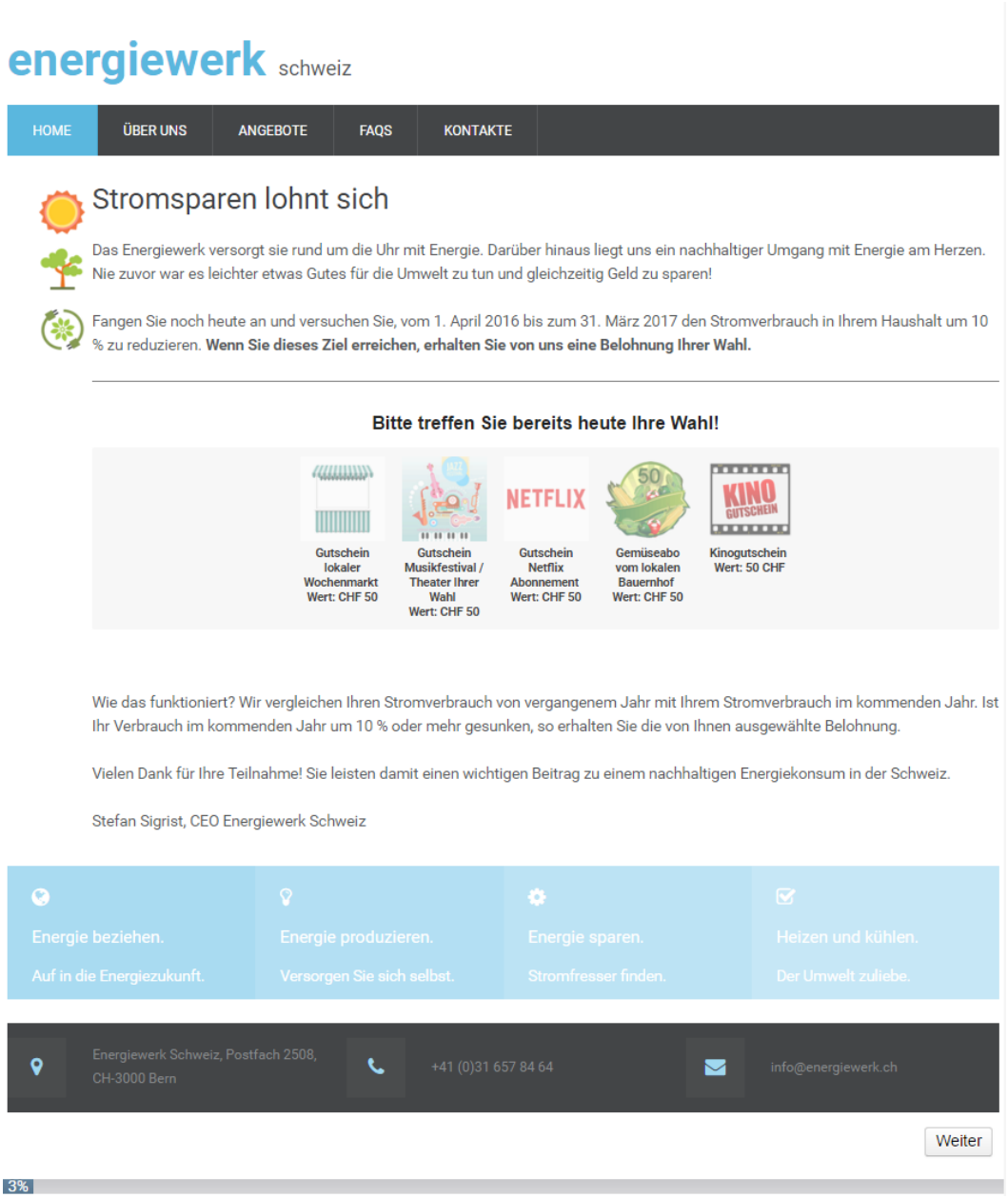
Sie haben sich für die Belohnung *[entsprechendes wurde eingefügt]* entschieden. Wir werden im kommenden Jahr ihren Stromverbrauch aufzeichnen und mit vergangenem Jahr vergleichen. Sie erhalten Ihre Belohnung im April 2017, wenn Sie 10 % oder mehr Energie einsparen konnten.

Um Ihnen das Stromsparen zu erleichtern, erhalten Sie im Folgenden einige Energiespar-Tipps.

Experimentalgruppe: „Unconventional incentive“

Stellen Sie sich vor, Ihr Energieversorger lanciert eine Stromspar-Aktion. Die Aktion wird auf der Webseite der Firma vorgestellt.

Bitte lesen Sie dies aufmerksam durch



Sie haben sich für die Belohnung *[entsprechendes wurde eingefügt]* entschieden. Wir werden im kommenden Jahr ihren Stromverbrauch aufzeichnen und mit vergangenem Jahr vergleichen. Sie erhalten Ihre Belohnung im April 2017, wenn Sie 10 % oder mehr Energie einsparen konnten.

Um Ihnen das Stromsparen zu erleichtern, erhalten Sie im Folgenden einige Energiespar-Tipps.

2. 1.Experimentelle Manipulation: Standard Tipps

Wie brauchen Sie Energie?

Vielleicht sind Sie bereits aktive/r Stromsparer/in, oder Sie möchten wissen, wo Sie noch mehr tun könnten?
Um Ihnen das Einsparen von 10 % Strom zu erleichtern, möchten wir Ihnen 6 Tipps mitgeben.

Energie sparen im Haushalt (erster Teil)

- **Senken Sie die Raumtemperatur**: Das Heizen macht bei Weitem den grössten Anteil des Energieverbrauchs bei Ihnen zuhause aus. Schon durch 1 Grad weniger sparen Sie 5-7 % Heizenergie.
- **Wäsche bei tieferen Temperaturen waschen:** Waschen Sie leicht verschmutzte Wäsche bei 20-30 Grad und Kochwäsche bei (auf) 60 statt 90 Grad. oder Waschen Sie leicht verschmutzte Wäsche bei 20-30 Grad, bei Kochwäsche wählen Sie 60 statt 90 Grad.
- **Wählen Sie LED-Beleuchtung**: Im Vergleich zu Glühbirnen sind LED-Leuchten 70 % effizienter. Auch finanziell lohnt sich das, aufgrund der hohen Lebensdauer und dem niedrigen Stromverbrauch von LED.
- **Duschzeit kürzen:** Die Zubereitung von Warmwasser macht etwa 10 % des Energieverbrauchs bei Ihnen zuhause aus. Sie können viel Energie sparen, wenn Sie kürzer duschen. Und: Duschen verbraucht deutlich weniger Wasser und Energie als Baden.
- **Sparsamkeit bei Geräten**: Die Betriebskosten vieler Geräte übersteigen den ursprünglichen Kaufpreis. Es lohnt sich daher nicht nur für die Umwelt, anfangs mehr Geld für ein besonders sparsames Gerät auszugeben.
- **Herd statt Ofen.** Es braucht deutlich weniger Energie eine Herdplatte zu erhitzen, als den gesamten Innenraum des Ofens zu beheizen. Pfannengerichte sind daher energiesparender.

Im Folgenden zeigen wir Ihnen verschiedene Aktivitäten. Bitte bringen Sie diese in eine Reihenfolge.

Beginnen Sie mit der Aktivität, bei der Sie bereits heute am stärksten darauf achten Energie zu sparen. Ziehen Sie diese nach rechts und platzieren Sie diese zuoberst. Am Schluss der Reihenfolge platzieren Sie die Aktivität, bei der Sie heute am wenigsten darauf achtgeben Energie zu sparen.

v_650	Stromverbrauch in meinem Haushalt
v_651	Energieeffiziente Geräte kaufen
v_652	Warmwasser Verbrauch im Haushalt
v_653	Im Winter Heizenergie sparen
v_654	Waschen von Kleidung
v_655	Kochen

3. 1.Experimentelle Manipulation: Tailored Tipps

Wie brauchen Sie Energie?

Vielleicht sind Sie bereits aktive/r Stromsparer/in, oder Sie möchten wissen, wo Sie noch mehr tun könnten? Um Ihnen das **Einsparen von 10 % Strom zu erleichtern**, möchten wir Ihnen speziell **6 auf Sie zugeschnittene Tipps** mitgeben.

Beginnen Sie mit der Aktivität, bei der Sie bereits heute am stärksten darauf achten Energie zu sparen. Ziehen Sie diese nach rechts und platzieren Sie diese zuoberst. Am Schluss der Reihenfolge platzieren Sie die Aktivität, bei der Sie heute am wenigsten darauf achtgeben Energie zu sparen.

v_489	Stromverbrauch in meinem Haushalt
v_490	Energieeffiziente Geräte kaufen
v_491	Warmwasser Verbrauch im Haushalt
v_492	Im Winter Heizenergie sparen
v_493	Waschen von Kleidung
v_494	Kochen

Danke für Ihre Informationen! Aufgrund Ihrer Angaben empfehlen wir Ihnen folgende Handlungen, um in Ihrem Haushalt 10 % Energie zu sparen.

		#TailoredTipps_2#	#TailoredTipps_3#	#TailoredTipps_4#
v_489	**Strom sparen in meinem Haushalt**	Schaltbare Steckleisten helfen, den Standby-Verbrauch von Geräten zu vermeiden. Schätzungen gehen davon aus, dass der Stromverbrauch durch Geräte im Stand-by-Betrieb in der Schweiz der jährlichen Stromproduktion eines Kernkraftwerks entspricht.	Wählen Sie LED-Beleuchtung: Im Vergleich zu Glühbirnen sind LED-Leuchten 70 % effizienter. Auch finanziell lohnt sich das, aufgrund der hohen Lebensdauer und dem niedrigen Stromverbrauch von LED.	Weniger ist mehr: Schalten Sie Geräte und Lichtquellen nur dann ein, wenn Sie sie gerade brauchen. Eine helle Leuchte ist dabei effektiver als viele schwache.
v_490	**Energieeffiziente Geräte kaufen**	Neue Elektrogeräte brauchen bis zu einem Drittel weniger Strom als ältere Geräte: Informieren Sie sich beim Kauf über den neuesten Stand stromsparender Technik. Entsorgen Sie bei einem Neukauf das alte Gerät umweltgerecht.	Sparsamkeit: Die Betriebskosten vieler Geräte übersteigen den ursprünglichen Kaufpreis. Es lohnt sich daher nicht nur für die Umwelt, anfangs mehr Geld für ein besonders sparsames Gerät auszugeben.	Lange Lebensdauer: Achten Sie auf hohe Qualität beim Gerätekauf: Geschirrspülmaschinen, Kühlschränke oder Waschmaschinen sind Anschaffungen für viele Jahre. So sparen Sie auch „graue“ Energie, die bei Produktion und Entsorgung von Geräten aufgewendet wird.

		#TailoredTipps_2#	#TailoredTipps_3#	#TailoredTipps_4#
v_491	**Warmwasser sparen im Haushalt**	Sparbrausen: Installieren Sie eine Sparbrause bei Ihrer Dusche und bei Wasserhähnen. Diese senken den Warm-Wasserverbrauch ohne Komfortverlust und reduzieren so Ihren Energieverbrauch.	Duschzeit kürzen: Die Zubereitung von Warmwasser macht etwa 10 % des Energieverbrauchs bei Ihnen zuhause aus. Sie können viel Energie sparen, wenn Sie kürzer duschen. Und: Duschen verbraucht deutlich weniger Wasser und Energie als Baden.	Geschirrspülmaschine füllen: Die Geschirrspülmaschine sollte nur voll befüllt in Betrieb genommen werden, um Energie effizient zu nutzen. Wählen Sie wenn möglich das Eco-Programm.
v_492	**Heizenergie sparen im Winter**	Senken Sie die Raumtemperatur: Das Heizen macht bei Weitem den grössten Anteil des Energieverbrauchs bei Ihnen zuhause aus. Schon durch 1 Grad weniger sparen Sie 5-7 % Heizenergie.	Raumtemperatur der Nutzung anpassen: In Wohnräumen reichen gewöhnlich 20 Grad und im Schlafzimmer sorgen 18 Grad für eine angenehme Schlafqualität. Ungenutzte Räume bleiben unbeheizt.	Stosslüftung: Lüften Sie mehrmals täglich kurz, aber intensiv. Durch nur ein ständig geöffnetes Kippfenster verpufft ein grosser Teil Ihrer Heizenergie.
v_493	**Energie sparen beim Waschen von Kleidung:**	Wäsche bei tieferen Temperaturen waschen: Waschen Sie leicht verschmutzte Wäsche bei 20-30 Grad waschen, Kochwäsche auf 60 statt 90 Grad. Wird die Temperatur um eine Waschstufe reduziert, zum Beispiel von 60°auf 40°, spart das mehr als die Hälfte der Energiekosten.	Trocknen ohne Tumbler: Trocknen Sie Ihre Wäsche an der Luft. So wird Ihre Wäsche weniger strapaziert und bleibt länger schön. Gleichzeitig sparen Sie Energie.	Waschmaschine voll befüllen: Bei halber Beladung halbiert sich der Stromverbrauch nicht, sondern sinkt nur auf etwa zwei Drittel. Es ist sparsamer, volle Maschinen zu waschen.
v_494	**Energiesparen beim Kochen**	Herd statt Ofen. Es braucht deutlich weniger Energie eine Herdplatte zu erhitzen, als den gesamten Innenraum des Ofens zu beheizen. Pfannengerichte sind daher energiesparender.	Wärme ausnutzen: Bei vielen Ofengerichten ist kein Vorheizen nötig. Ausserdem können Sie beim Backen den Ofen vor Ende der Backzeit ausschalten und die Restwärme nutzen. Und: Umluft ist effizienter als Unter- und Oberhitze.	Kühlschrank und Tiefkühler: Bei 7 Grad bleiben Lebensmittel im Kühlschrank frisch, die Standardeinstellung liegt jedoch oftmals bei 5-6 Grad. Mit jedem Grad mehr sparen Sie allerdings 6 % Energie! Darüber hinaus gilt: kaufen Sie keine überdimensionalen Kühlgeräte und vermeiden Sie Zweitgeräte.

4. DV1: Spontanbewertung und Teilnahme

Was halten Sie spontan von dieser Aktion „Stromsparen lohnt sich“?

v_261

Bitte bewerten Sie das die Aktion „Stromsparen lohnt sich“ auf der Webseite anhand der nachfolgenden Wort-Gegensatzpaare.

		-3	-2	-1	0	1	2	3	
v_309	originell	○	○	○	○	○	○	○	einfallslos
v_310	gute Idee	○	○	○	○	○	○	○	schlechte Idee
v_311	spricht mich an	○	○	○	○	○	○	○	schreckt mich ab
v_314	speziell	○	○	○	○	○	○	○	gewöhnlich
v_315	einladend	○	○	○	○	○	○	○	abstossend
v_502	fair	○	○	○	○	○	○	○	unfair
v_316	motiviert mich, Strom zu sparen	○	○	○	○	○	○	○	motiviert mich nicht, Strom zu sparen

Bitte beantworten Sie folgende Frage

		sehr tief						sehr hoch
		1	2	3	4	5	6	7
v_508	Wie hoch ist Ihre Bereitschaft, bei diesem Programm mitzumachen?	○	○	○	○	○	○	○

5. DV2: Intention

Bitte kreuzen Sie die zutreffende Antwort an.

		stimme überhaupt nicht zu						stimme völlig zu
		1	2	3	4	5	6	7
V_509	Wenn ich bei einer solchen Aktion mitmachen könnte, würde ich alles versuchen, in meinem Haushalt 10 % Energie einzusparen	○	○	○	○	○	○	○
V_510	Eine 10 % Reduktion des Stromverbrauchs in meinem Haushalt ist **realistisch**.	○	○	○	○	○	○	○
V_511	Eine 10 % Reduktion des Stromverbrauchs in meinem Haushalt ist **nicht realistisch** weil ich bereits stark darauf achte, Strom zu sparen	○	○	○	○	○	○	○
V_512	Ich habe kein Interesse daran, Strom in meinem Haushalt einzusparen.	○	○	○	○	○	○	○

6. DV3: Intention Energieverbrauch im Haushalt

Wenn Sie an dieser Aktion „Stromsparen lohnt sich“ teilnehmen könnten, wie würden Sie in ihrem Haushalt in Zukunft Energie nutzen?

Falls Sie über ein Gerät nicht verfügen oder aus anderen Gründen keine Angaben machen können, kreuzen Sie bitte „betrifft mich nicht“ an.

In Zukunft würde ich…

		betrifft mich nicht	viel seltener als heute	seltener als heute	eher seltener als heute	gleich häufig wie heute	eher häufiger als heute	häufiger als heute	viel häufiger als heute
		8	-3	-2	-1	0	1	2	3
V_513	… die Waschmaschine möglichst gut füllen	○	○	○	○	○	○	○	○
V_514	…die Wäsche bei niedrigen Temperaturen waschen (z.B. Kochwäsche bei 60°C, leicht verschmutzte Wäsche bei 30°C)	○	○	○	○	○	○	○	○
V_515	…elektrische Geräte im Stand-by Modus vollständig ausschalten	○	○	○	○	○	○	○	○
V_516	…die Wäsche mit dem Tumbler trocknen	○	○	○	○	○	○	○	○
V_517	…mit Deckel auf der Pfanne kochen	○	○	○	○	○	○	○	○
V_518	…das Licht löschen, wenn ich einen Raum verlasse	○	○	○	○	○	○	○	○
V_519	… den Geschirrspüler voll befüllt laufen lassen	○	○	○	○	○	○	○	○
V_520	…ein warmes Bad nehmen	○	○	○	○	○	○	○	○
V_521	…beim Kauf von elektrischen Geräten bewusst auf deren Energieverbrauch achten	○	○	○	○	○	○	○	○
V_522	…vor dem Kauf eines elektrischen Geräts überlegen, ob ich dieses wirklich brauche	○	○	○	○	○	○	○	○
V_523	…kaputte Leuchtmittel durch LED Lampen ersetzen	○	○	○	○	○	○	○	○
V_524	…so kurz als möglich duschen, um Warmwasser zu sparen	○	○	○	○	○	○	○	○
V_525	… die Raumtemperatur den Nutzungsverhältnissen der einzelnen Raume anpassen, z.B. ungenutzte Räume auf Sparflamme	○	○	○	○	○	○	○	○
V_526	…nachts die Raumtemperatur absenken	○	○	○	○	○	○	○	○

Gibt es weitere Dinge, die Sie sich zum Energiesparen vornehmen würden?

V_527

DV4 Informationssuche

Wenn Sie bei der Aktion „Stromsparen lohnt sich“ mitmachen könnten, wie würden Sie sich zum Thema Strom informieren?
Bitte kreuzen Sie die zutreffende Antwort an.

Ich würde in Zukunft…

		stimme überhaupt nicht zu 1	2	3	4	5	6	stimme völlig zu 7
V_533	…mehr darüber wissen wollen, bei welchen Tätigkeiten ich im Haushalt am meisten Strom benötige.	○	○	○	○	○	○	○
V_534	…mehr darüber wissen wollen, welche Geräte am meisten Strom verbrauchen.	○	○	○	○	○	○	○
V_536	…die Stromrechnung genauer prüfen.	○	○	○	○	○	○	○

Sind Sie an weiteren Energiespar-Tipps interessiert? Wenn ja, in welchem/n Bereich(en)?

V_543	☐	Energiesparen im Bereich Mobilität
V_544	☐	Energiesparen im Büro
V_545	☐	Graue Energie sparen – Konsum von Kleidung und Alltagsgegenständen
V_546	☐	Energiesparen bei Lebensmitteln (Foodwaste, Fleisch, regional-saisonal…)
V_547	☐	Energiesparen beim Reisen
V_548	☐	Energiesparen durch effiziente Geräte
V_549	☐	Mehr erfahren über den eigenen Energieverbrauch
V_550	☐	Energie sparen beim Heizen und beim Warmwasserverbrauch
V_551	☐	Energie sparen durch eine Gebäudesanierung

Der Gesetzgeber sieht vor dass Sie in Zukunft ihren Energieversorger selbst wählen können. Stellen Sie sich noch einmal vor, Ihr Energieversorger würde die Aktion "Stromsparen lohnt sich" durchführen. Inwiefern würden Sie den folgenden Aussagen zustimmen?

		Auf keinen Fall 1	2	3	4	5	6	Auf jeden Fall 7
V_557	Ich würde auch in Zukunft eine Kundin oder ein Kunde meines Energieversorgers bleiben.	○	○	○	○	○	○	○
V_558	Die Chancen, dass ich weiterhin bei meinem Energieversorger bleiben würde, sind sehr hoch.	○	○	○	○	○	○	○
V_561	Ich würde mich positiv über meinen Energieversorger äussern.	○	○	○	○	○	○	○

Wenn Sie <u>nicht</u> Kundin oder Kunde dieses Energieversorgers wären:

		Auf keinen Fall 1	2	3	4	5	6	Auf jeden Fall 7
V_	Würden Sie wegen dieser Aktion „Stromsparen lohnt sich“ zu diesem Energieversorger wechseln?	○	○	○	○	○	○	○

7. Ihre Einstellungen zum Stromsparen und zu Strom allgemein

Im Folgenden geht es um Ihre Ansichten zum Thema Energie und Energiesparen im Allgemeinen
Bitte kreuzen Sie an, wie stark Sie mit den folgenden Aussagen übereinstimmen

		trifft gar nicht zu 1	2	3	4	5	6	trifft völlig zu 7
V_562	Das Thema Energiesparen ist in meinem Alltag wichtig.	○	○	○	○	○	○	○
V_563	Ich würde nicht auf persönlichen Komfort verzichten, um Energie zu sparen.	○	○	○	○	○	○	○
V_564	Energiesparen gehört **nicht** zu den Dingen, die mich im Alltag beschäftigen. (r)	○	○	○	○	○	○	○
V_565	Bei meinem Stromkonsum ist durchaus noch Sparpotenzial vorhanden.	○	○	○	○	○	○	○
V_566	Wenn irgendwo unnötig Licht brennt, habe ich unwillkürlich das Bedürfnis, es zu löschen.	○	○	○	○	○	○	○

V_567	Wenn in meiner Nähe Wasser aus einem Wasserhahn läuft, habe ich unwillkürlich das Bedürfnis, ihn zuzudrehen.	○	○	○	○	○	○	○
V_568	Wenn irgendwo ein Kippfenster offensteht, habe ich unwillkürlich das Bedürfnis, es zu schliessen.	○	○	○	○	○	○	○

8. Stromsparwissen

Bitte kreuzen Sie die zutreffende Antwort an.

		stimme überhaupt nicht zu 1	2	3	4	5	6	stimme völlig zu 7
V_573	Ich weiss, welche Geräte in meinem Haushalt am meisten Strom verbrauchen.	○	○	○	○	○	○	○
V_574	Ich weiss, bei welchen Tätigkeiten ich im Haushalt am meisten Strom benötige.	○	○	○	○	○	○	○

9. Ihre Einstellung

Im Folgenden sind wir an Ihren allgemeinen Ansichten zum Thema Umweltinteressiert
Bitte kreuzen Sie die zutreffende Antwort an.

		stimme überhaupt nicht zu 1	2	3	4	5	6	stimme völlig zu 7
V_578	Ich gebe mein Geld bedacht aus.	○	○	○	○	○	○	○
V_579	Ich strenge mich an, das Maximum für mein Geld zu bekommen.	○	○	○	○	○	○	○
V_580	Wenn ein Gegenstand noch funktioniert, macht es keinen Sinn, einen neuen zu kaufen.	○	○	○	○	○	○	○
V_581	Ich spare Energie, um Geld zu sparen.	○	○	○	○	○	○	○
V_582	Ich spare Energie, um die Umwelt zu schützen.	○	○	○	○	○	○	○
V_583	Ich traue mir zu, im Alltag Energiespartipps dauerhaft umzusetzen.	○	○	○	○	○	○	○
V_584	Ich fühle mich verpflichtet, etwas zum *Umweltschutz* beizutragen.	○	○	○	○	○	○	○

V_585	Durch meinen persönlichen Energieverbrauch kann ich nichts an Umwelt- und Klimaproblemen ändern.	○	○	○	○	○	○	○
V_586	Wenn ich Energie spare, leiste ich einen Beitrag zur Lösung von Umwelt- und Klimaproblemen.	○	○	○	○	○	○	○
V_587	Unsere Gesellschaft missbraucht die Umwelt momentan stark.	○	○	○	○	○	○	○
V_588	Es gibt Wachstumsgrenzen, über die unsere industrialisierte Gesellschaft nicht hinausgehen kann.	○	○	○	○	○	○	○
V_627	Der Klimawandel ist ein ernst zu nehmendes Problem, gegen das wir gesellschaftlich aktiv werden müssen.	○	○	○	○	○	○	○

10. Manipulationscheck

Denken Sie nun zurück an den Anfang der Umfrage. Sie haben ein Angebot "Stromsparen lohn sich" von ihrem Energieversorger erhalten. Um welches Angebot handelte es sich?

V_218.2	○	Feedback auf Stromrechnung: Ich wurde aufgefordert, 10% Energie zu sparen, und ich würde Rückmeldung zu meinem Stromverbrauch erhalten
V_218.3	○	Wenn ich innerhalb eines Jahres meinen Stromverbrauch um 10 % reduziere, erhalte ich eine Gutschrift von 50 CHF auf meiner nächsten Stromrechnung.
V_218.4	○	Wenn ich innerhalb eines Jahres meinen Stromverbrauch um 10 % reduziere, kann ich zwischen den folgenden Belohnungen wählen: Coop-, Migros-, Mobility-, SBB-Gutschein oder Reka-Check.
V_218.5	○	Wenn ich innerhalb eines Jahres meinen Stromverbrauch um 10 % reduziere, kann ich zwischen den folgenden Belohnungen wählen: Wochenmarkt-, Musikfestival-, Netflix-Gutschein oder einer karitativen Spende.

Im Anschluss erhielten Sie Energiespartipps, um 10 % Energie zu sparen. Was halten Sie von diesen Energiespartipps?

		stimme überhaupt nicht zu						stimme völlig zu
		1	2	3	4	5	6	7
V_594	Die Energiespartipps waren nützlich für mich	○	○	○	○	○	○	○
V_595	Die Energiespartipps waren auf mich zugeschnitten	○	○	○	○	○	○	○
V_596	Die Energiespartipps waren allgemein	○	○	○	○	○	○	○

11. Angaben zur Person

Zum Schluss der Umfrage bitten wir Sie um einige Angaben zu Ihrer Person oder zu Ihrem Haushalt

Wie viele Stunden pro Tag (24h) ist bei Ihnen an einem normalen Arbeitstag jemand zu Hause?

V_642.1	○	0
V_642.2	○	1
V_642.3	○	2
V_642.4	○	3
V_642.5	○	4
V_642.6	○	5
V_642.7	○	6
V_642.8	○	7
V_642.9	○	8
V_642.10	○	9
V_642.11	○	10
V_642.12	○	11
V_642.13	○	12
V_642.14	○	13
V_642.15	○	14
V_642.16	○	15
V_642.17	○	16
V_642.18	○	17
V_642.19	○	18
V_642.20	○	19
V_642.21	○	20
V_642.22	○	21

V_642.23	○	22
V_642.24	○	23
V_642.25	○	24

Wie oft kochen Sie in einer normalen Woche zuhause?

		0 mal	1 mal	2 mal	3 mal	4 mal	5 mal	6 mal	7 mal
			1	2	3	4	5	6	7
v_648	Anzahl gekochter Mittagessen pro Woche	○	○	○	○	○	○	○	○
v_649	Anzahl gekochter Abendessen pro Woche	○	○	○	○	○	○	○	○

Sind Sie Mieter/in oder besitzen Sie die Liegenschaft, in der Sie wohnen?

V_180.1	○	Ich bin Mieter/in
V_180.2	○	Ich bin Eigentümer/in

Wie leben Sie?

V_181.1	○	In einem Haus
V_181.2	○	In einer Wohnung

Mit wem leben Sie?

V_182.1	○	Bei meinen Eltern
V_182.2	○	alleine
V_182.3	○	Mit Partner/in, ohne Kind(er)
V_182.4	○	Mit Partner/in und Kind(ern)
V_182.5	○	Ohne Partner/in, mit Kind(ern)
V_182.6	○	In einer Wohngemeinschaft
V_182.7	○	Anderes: _____ (V_183)

Wie viele Zimmer hat Ihre Wohnung (Küche und Bad/WC zählen nicht als Zimmer)?

V_184.1	○	1

V_184.2	○	1.5
V_184.3	○	2
V_184.4	○	2.5
V_184.5	○	3
V_184.6	○	3.5
V_184.7	○	4
V_184.8	○	4.5
V_184.9	○	5
V_184.10	○	5.5
V_184.11	○	6 oder mehr

Wie viele Personen leben in Ihrem Haushalt (Sie eingeschlossen)?

V_185.1	○	1
V_185.2	○	2
V_185.3	○	3
V_185.4	○	4
V_185.5	○	5
V_185.6	○	6 oder mehr

Wie viele Personen davon sind Kinder unter 18 Jahren?

V_186.1	○	0
V_186.2	○	1
V_186.3	○	2
V_186.4	○	3
V_186.5	○	4
V_186.6	○	5
V_186.7	○	6 oder mehr

Wie hoch ist das monatliche Nettoeinkommen Ihres Haushaltes? (Einkommen aller Haushaltsmitglieder nach Abzügen)

V_247.1	○	Weniger als 4‘000 Fr.
V_247.2	○	4‘001-6‘000 Fr.
V_247.3	○	6‘001-8‘000 Fr.
V_247.4	○	8‘001-10‘000 Fr.
V_247.5	○	10‘001-12‘000 Fr.
V_247.8	○	12‘001-14‘000 Fr.
V_247.9	○	14‘001-16‘000 Fr.
V_247.10	○	16‘001-18‘000 Fr.
V_247.11	○	Mehr als 18‘000 Fr.
V_247.12	○	Keine Angabe

Wo leben Sie? Bitte geben Sie die Postleitzahl (PLZ) Ihres Wohnorts an:

(v_187) PLZ Ihres Wohnorts: _____

Bitte geben Sie an, ob Sie die folgenden Geräte bzw. Installationen besitzen

V_208	Elektroboiler (Warmwasserheizung mit Strom)	○ (1)	ja	○ (2)	nein	○ (3)	Weiss nicht
V_209	Photovoltaikanlage	○ (1)	ja	○ (2)	nein	○ (3)	Weiss nicht
V_201	Wärmepumpe	○ (1)	ja	○ (2)	nein	○ (3)	Weiss nicht
v_480	Tumbler	○ (1)	ja	○ (2)	nein	○ (3)	Weiss nicht
v_481	Elektrische Widerstandsheizung	○ (1)	ja	○ (2)	nein	○ (3)	Weiss nicht
v_482	Elektroheizung	○ (1)	ja	○ (2)	nein	○ (3)	Weiss nicht

Wie stufen Sie Ihre politische Haltung auf einer Skala ein?

V_333	Links	○	○	○	○	○	○	○	Rechts
V_334	Progressiv / liberal	○	○	○	○	○	○	○	Konservativ

Angaben zur Person

Ihr Geschlecht: V_1.1 Männlich ○ V_1.2 Weiblich ○

Sind Sie Mitglied in einem Verein?

V_597.1	○	Nein
V_597.2	○	Ja, und zwar in ____ v_598

Ihr Jahrgang: 19__ *(1945, 1972, …)* V_229

Welches ist Ihre höchste Ausbildung:

V_179.1	○	kein Schulabschluss
V_179.2	○	obligatorische Schule
V_179.3	○	Anlehre, Haushaltslehrjahr
V_179.4	○	Berufslehre, Berufsmittelschule, Vollzeitberufsschule, Handelsschule
V179.5	○	Berufsmatura, Maturitätsschule, Lehrerseminar, Diplom- und Wirtschaftsmittelschule
V179.6	○	Meisterprüfung, Techniker- und Fachschule, höhere Fachschule, Ingenieurschule, Technikum
V179.7	○	Fachhochschule, Universität, ETH
V179.8	○	Doktorat
V179.9	○	andere Ausbildung

12. Abschluss

Haben Sie bereits an einer ähnlichen Umfrage zu Energiespar-Aktionen von Energieunternehmen teilgenommen?

v_599 ○ (1) ja ○ (2) nein ○ (3) Weiss nicht

Haben Sie noch Rückmeldungen oder Kommentare zu unserer Umfrage?

V_224

Können wir Ihre Daten in anonymer Form für wissenschaftliche Zwecke verwenden?

V_227.1	○	Ja, ich habe alle Fragen sinnvoll beantwortet. Meine Angaben können für die Auswertung verwendet werden.
V_227.2	○	Nein, ich wollte „nur mal gucken“ und habe nur durchgeklickt oder möchte nicht, dass meine Angaben ausgewertet werden.

Sie haben alle Fragen beantwortet, vielen Dank für Ihre Teilnahme!