5th Consumer Barometer of Renewable Energy in Cooperation with Raiffeisen
The Good Energies Chair for Management of Renewable Energies
Good Energies Chair at the Institute for Economy and the Environment, University of St.Gallen, focuses on issues related to the management of renewable energies, including analysis of investment strategies and policy, as well as research on business models and consumer behavior. The research conducted at the institute has been published in leading academic journals in the field and has informed policy-makers in Switzerland and internationally. The Chair was founded in 2009 and is led by Prof. Dr. Rolf Wüstenhagen.
goodenergies.iwoe.unisg.ch

Raiffeisen: Third Largest Banking Group in Switzerland
Raiffeisen Group is the leading Swiss retail bank and the third largest bank in Switzerland. The Raiffeisen Group includes 305 Raiffeisen banks with a cooperative structure and 1,015 branches. The legally autonomous Raiffeisen banks belong to Raiffeisen Switzerland Cooperative, which is responsible for the strategic management of the entire Raiffeisen Group, including all subsidiaries. The bank has 3.7 million customers, over 1.8 million of whom are cooperative members and thus co-owners of their bank. At the end of 2014, the Raiffeisen Group managed CHF 197 billion in assets and CHF 159 billion in loans to clients. The Group’s market share is over 16.6% in the mortgage and 18.7% in the savings markets. The balance sheet total is CHF 189 billion.
www.raiffeisen.ch

Legal Notice
Publisher
Good Energies Chair for Management of Renewable Energies, University of St.Gallen

Authors
Anna Ebers, Ph.D, Prof. Dr. Rolf Wüstenhagen

Correspondence
anna.ebers@unisg.ch

Layout
misigno graphic-design

Data collection
amPuls Market Research AG

Illustrations
coUNDco AG

Mapping
Hans C. Curtius

Project management Raiffeisen
Daniel Jakobi

Original language
English

Translation
into German by Good Energies Chair
into Italian and French by Raiffeisen

Copyright
University of St.Gallen, St. Gallen 2015
Noncommercial use allowed with proper citation
Table of Contents

Data and Methods ........................................... 3
Executive Summary ........................................... 4
A Majority of Voters Continues to Support a Medium-Term Nuclear Phase-Out ........................................... 5
Spontaneous Associations with the Term “Energy Transition” ........................................... 6
Energy Transition Barometer ........................................... 8
Half of Consumers Say, “Energy Transition Too Slow in Switzerland.” ........................................... 10
Search the Internet or Ask Your Neighbor? Information Sources on Renewable Energy ........................................... 11
Reasons to Use Renewable Energy Technologies ........................................... 12
Consumers Expect Oil Prices to Increase ........................................... 13
Market Potential for New Financial Instruments in Energy Investment ........................................... 14
Energy Cooperatives as an Alternative Investment Vehicle in the Age of Negative Interest Rates ........................................... 15
Homeowners’ Decision to Invest ........................................... 16
Split Incentives between Homeowners and Renters on Energy Efficiency Upgrades ........................................... 17
Role of Banks in Financing Energy Efficiency Upgrades ........................................... 18
Banks Viewed as Competent and Trustworthy Partners in Energy Questions ........................................... 19

Data and Methods

The analysis is based on a representative survey of 1,246 Swiss households conducted in February to March 2015. Questions relating to energy investment in buildings were specifically aimed at homeowners (52% of the sample), and we report the number of usable responses per question in brackets. Geographical distribution of respondents corresponds to population density in different parts of Switzerland. That is, 30% of respondents in the sample reside in the Eastern Midlands, a quarter in the (Pre-)Alpine region, 24% in French-speaking Switzerland, and the remaining 21% in the Western Midlands. The number of men and women in the sample is roughly equal. The age of respondents is between 16 and 74 years, with an average of 45. Nearly half of the respondents have attended a vocational school, while 40% have a higher education degree. Fifty eight percent of respondents are employed in the private sector, 12% of whom are in leadership positions.
The study has been prepared by the Good Energies Chair at the University of St.Gallen, with generous financial support from Raiffeisen. Our special thanks goes to Corporate Social Responsibility department at Raiffeisen and especially Dr. Ladina Caduff and Daniel Jakobi for a productive and pleasant collaboration on the concept of the study.
Executive Summary

The focus of the current edition of the Consumer Barometer is investment decision-making of Swiss consumers with respect to different financing options for renewable energy projects. We would like to introduce the reader to the central findings of our study:

1) The approval rating of the general direction of Swiss energy policy remains high. In a referendum, 71% of respondents would vote for a nuclear phase-out in 2034, which would be the majority view in all cantons. At the same time, our longitudinal data show a slow ebbing off of the Fukushima effect, and a general loss of consumer confidence in Switzerland in the light of macroeconomic uncertainties. Compared to last year, support of the nuclear phase-out by 2034 has decreased by six percentage points. Another indicator, acceptance of a wind energy project just outside the respondents' community, has also exhibited a slight downward trend (from 75 to 71%).

2) Despite economic uncertainty, nearly half (48%) of respondents to our survey would welcome a faster energy transition in Switzerland and an additional 32% think that the current speed of the energy transition is just right, supporting the view that investing in energy efficiency and renewables is widely seen as an element of sound economic policy. Views on the appropriate speed of the energy transition vary by political preferences, but even among the voters of parties that position themselves as Energiewende skeptics, there is nearly a balance between those who want to see a slower transition and those who think the transition is not going fast enough, pointing to a potential for cross-party consensus on some elements of a swift energy transition.

3) In contrast to the prevailing discussion in the media and politics about the cost of the Energiewende, Swiss consumers are concerned about the potential cost of inaction and the rise in prices of conventional energy sources: an overwhelming majority (70%) of respondents expect gasoline prices to go up, compared to just 5% who believe prices will decrease. In addition, 76% expect the taxpayer to foot the final bill for nuclear waste storage.

4) When it comes to specific energy policy instruments, a slight majority (53% of respondents) agrees that cantons should mandate the energy efficiency certification for buildings (GEAK) when the property changes hands. To put this in perspective, only two cantons mandate certification now. Furthermore, the Federal Council’s recent announcement of new CO2 reduction targets ahead of the UN-Climate Change summit in December in Paris finds support among Swiss consumers: 72% of respondents agree that Switzerland as a wealthy country should commit to ambitious climate targets.

5) In the current situation of low interest rates, our analysis indicates a market potential for new financial products in renewable energy. Thirty percent of respondents are open to the idea of investing part of their retirement savings (Pillar IIIa) in renewable energy, while 60% could imagine direct financial participation in a community finance project through solar cooperatives.

6) When assessing building-related energy investments, calculating payback time is the most common financial decision criterion, with more than 80% of homeowners expecting their investment to pay off after 10 years or less. Given the long lifetime of the building stock, such short investment horizons could lead to suboptimal capital allocation. Nearly one third of homeowners do not use any kind of sophisticated financial analysis, but rely on their intuition when making energy investment decisions.

---

1 For methodological reasons this result is only applicable to the residents of the 17 German- and French-speaking cantons of Switzerland with more than 100,000 inhabitants.

2 The 2015 Consumer Barometer survey was conducted only a few weeks after the Swiss National Bank’s decision to float the CHF/EUR currency exchange rate, leading to a strong appreciation of the Swiss Franc and widespread media discussions about the negative implications of such action for the Swiss economy.
A Majority of Voters Continues to Support a Medium-Term Nuclear Phase-Out

As the nuclear phase-out is currently debated in parliament, we included a number of statements in our survey to investigate consumer attitudes towards specific aspects of the national energy policy. The Swiss consumers are rather confident that it is possible to reduce reliance on nuclear energy. This year, 71% of respondents would vote for a nuclear phase-out in 2034, down from 77% the previous year. Geographically, the pro-phase-out sentiment is especially strong in Neuchâtel (90% of respondents), Baselland (78%) and Vaud (78%). In general, a nuclear phase-out by 2034 finds the majority support in all major Swiss cantons.

At a referendum, I would vote for a gradual nuclear phase-out by year 2034.

Another question that is controversially discussed in parliament is whether legislators should limit operating times for existing nuclear power plants to a certain number of years. Mirroring the debate in parliament, our findings are nuanced. While a majority of respondents agree with the statement that “nuclear power plants should be operated as long as they are safe”, three quarters welcome parliamentary action to fix the lifetime for nuclear plants, because it would create clear rules for nuclear operators. Limiting the lifetime of older reactors to 50 years is supported by 69% of respondents. Only 32% believe a solution for final storage of radioactive waste in Switzerland will be found in the next five years. A striking 76% expect the taxpayer to foot the final bill for nuclear waste storage.

In order to ensure statistical reliability, we excluded cantons with less than 100,000 inhabitants from the geographically segmented analysis presented in this map. Italian-speaking Ticino was not part of the sample, as the survey was conducted in German and French only.
Spontaneous Associations with the Term “Energy Transition”

The first question in the survey solicited spontaneous associations of the respondents with the term “energy transition”. Most popular associations included “renewable alternative, or green energy” (28% of respondents), as well as “nuclear phase-out” (26%). A number of respondents (16%) associated the term “energy transition” with specific technologies, with solar photovoltaics being the most frequently mentioned renewable energy source followed by wind turbines. In contrast to the strong emphasis on nuclear phase-out, which has received a lot of media attention after the Fukushima nuclear accident, another pillar of a successful energy transition receives significantly less attention: only 6% of respondents think about reduced consumption of fossil fuels when asked about associations with the term “energy transition”. Apart from technology, changes in behavior could also facilitate a successful energy transition – something that is mentioned by 13% of respondents. Some respondents also highlight that becoming less dependent on foreign energy suppliers could be a benefit of an energy transition.

While the majority of associations is either neutral or positive, an analysis of the individual quotes also provides evidence for what is on the mind of “energy transition skeptics” on both ends of the political spectrum. On the one hand, there are those who think the energy transition is “happening 20 years too late” and hampered by “power games”, or believe that it is perfectly feasible to keep our current comfort level at lower levels of energy consumption. On the other hand, some respondents reflect critical media comments about the energy transition being a “hasty reaction”, “not thought through”, and characterized by “market distorting subsidies”.

Swiss consumers proved to be familiar with specialized energy terminology, which previously was thought to be the domain of sector specialists. Ninety one percent of respondents are able to characterize “electricity market liberalization” and 63% state that they are familiar with the notion of a “feed-in-tariff” (Kostendeckende Einspeisevergütung or KEV). On the other hand, the fact that one third of respondents are not aware of the Swiss feed-in-tariff shows there are limits to consumer knowledge about this particular policy instrument. Most often, consumers connect electricity market liberalization with the freedom to choose their own electricity provider (30%), which increases competition and trade (11%). There is divergence of opinion on the impacts of liberalization on electricity prices: 10% spontaneously associate market liberalization with lower electricity prices, while 9% think it will lead to increasing prices, which reflects mixed evidence in liberalized electricity markets across Europe. KEV, the feed-in-tariff, was associated with renewable energy and electricity in general (8%) and solar energy in particular (18%).

“I associate a KEV with...”
“I associate energy transition with...”

- Renewable, green, alternative, energy”
  (28% of respondents)

- Solar and wind energy, photovoltaic, wind turbines, solar thermal”
  (16% of respondents)

- Replacment of fossil fuels (oil, coal, natural gas)”
  (6% of respondents)

- Ecology, sustainability, environmental protection, climate change”
  (10% of respondents)

- Nuclear phase-out”
  (26% of respondents)

“Electricity market liberalization with...”

- Free choice of electricity supplier, privatization”
  (30% of respondents)

- Competition, trade”
  (11% of respondents)

- Additional costs, electricity will be more expensive”
  (9% of respondents)

- Low electricity prices, fair power prices, society benefits”
  (10% of respondents)
Energy Transition Barometer

To analyze changes in consumer perceptions over time, we created an “energy transition barometer” that visualizes changes in consumers’ attitudes shortly before the Fukushima accident in February 2011, and then again yearly thereafter. The barometer consists of five questions, which solicit not only confidence about the feasibility of energy transition (Q1–Q3), but also respondents’ acceptance of wind energy (Q4) and their knowledge about solar energy (Q5).

**Q1**: “It is possible to do without nuclear energy in the medium term.”
The question about feasibility of a medium-term nuclear phase-out shows the typical pattern observed after previous nuclear disasters (see Renn 19904 for an analysis of post-Chernobyl attitude changes). After an initial spike in consumer confidence that nuclear phase-out is possible (from 63 to 74% between 2011 and 2012), the corresponding values slowly decline again to nearly previous levels (67% in 2015). What are the drivers behind this “nuclear amnesia”? Looking into the other components of the barometer provides some interesting insights.

**Q2**: “I do not believe that Switzerland will one day be able to do without fossil energy sources (gas, oil, coal).”
While confidence in nuclear phase-out is slightly declining but still at high overall levels, confidence in carbon phase-out appears to be relatively lower – 53% of respondents in the 2015 survey think we will never be able to do without fossil fuels. There are several possible interpretations of this: it could be an indication of what former U.S. President George W. Bush called an “addiction to fossil fuels”, alluding to his country’s strong reliance on oil especially in the transportation sector. Alternatively, it could be an indication that many people see fossil-fired power plants as the only alternative to nuclear power, and that the Federal government’s vision of putting strong emphasis on renewable energy and energy efficiency needs to be better communicated. Another explanation is the perception about future economic competitiveness of renewable energy sources, which is addressed in the next question.

**Q3**: “Production of electricity from solar photovoltaics in 20 years will cost the same or less than electricity from conventional sources (reach grid parity).”
On the other hand, a large share of consumers expect solar power to reach grid parity within the next 20 years and to cost the same or less than conventional electricity. This belief was held by 72% of respondents this year. One thing that is surprising about this indicator is that confidence in solar grid parity has seen a slight decline compared to 2013-2014 levels (75%), while the cost of solar photovoltaics has continued to decline steeply and is already lower than retail electricity tariffs in certain market segments of Switzerland today.

**Q4**: “I would approve of building a wind turbine slightly outside of my community.”
Every energy project, especially large wind turbine installations, is crucially dependent on issues of social acceptance. In 2015, 71% of respondents were welcoming to a wind project slightly outside of their community, compared to 78% pre-Fukushima, 79% in 2012, and 75% in 2014. It seems like social acceptance of wind projects has slightly decreased over the last three years, which could be due to an ebbing Fukushima effect. Another possible explanation is Wolsink’s rebound effect of social acceptance. Based on research of wind energy projects in the Netherlands, he showed that acceptance of wind power and other large energy infrastructure projects follows a U-shaped curve: in the pre-project stage the acceptance is high, it drops significantly while the project is developed, but in many cases returns to higher social acceptance after the project is completed and a familiarity with the technology is established.

---

Q5: “I believe that solar cells use more energy during their manufacturing than they later produce.”

The most striking component of our energy transition barometer is a question that we use to test consumers’ knowledge of solar energy. We ask whether consumers believe that manufacturing solar cells requires more energy than they produce over the module’s lifetime. Nine percent “agree” and another 27% “rather agree” to this erroneous statement. In reality, with an energy payback time of 1-3 years, solar cells produce over their lifetime at least ten times the energy that is needed to make them. While one might expect that knowledge about solar energy would gradually increase following the public debate about the energy transition, quite the opposite is the case: solar ignorance is continuously on the rise. The share of respondents agreeing or rather agreeing to this erroneous statement has increased from 26% in 2011 to 38% in 2015.

Overall, our findings suggest that more efforts are needed to educate consumers about solar energy. Moreover, implementing some successful projects quickly is important for higher levels of social acceptance, due to the adjustment effects of getting used to new technology. And finally, we see that an energy transition that is perceived as merely substituting nuclear for fossil fuels is unlikely to increase consumer confidence. Instead, more efforts are needed to communicate the feasibility of a transition to high shares of renewable energy.

“Energy Transition Barometer 2011–2015”

* Methodological footnote: the sample for 2011 is smaller than in the subsequent years (N=234 to N=244 depending on the specific question), and consists of respondents from the region of St. Gallen only. This is important to note because there was a public vote in St. Gallen in November 2010 on phasing out nuclear energy and investing in a geothermal project. This issue was intensely debated in the city of St. Gallen shortly before the February 2011 survey was conducted, possibly leading to higher levels of awareness, knowledge, and confidence about the energy transition than in other parts of the country.
Nearly half of the respondents (48%) believe that the energy transition in Switzerland progresses too slowly, and an additional one third of respondents think that the pace of energy transition is appropriate. On average, only 20% of respondents are of the opinion that the energy transition is happening too fast.

Views on the desirable speed of the energy transition show some interesting patterns across the political spectrum. Unsurprisingly, an overwhelming majority (92%) of respondents who identify themselves with the Green party welcome a faster energy transition. This view is also shared by more than 60% of those who identify themselves with the Green Liberals and the Social Democrats. Among the adherents of the FDP Liberals, the Swiss People’s Party (SVP), and the Christian Democratic Party (CVP), a considerable share (between 31–38%) of respondents are rather pleased with the current speed of the energy transition. What is interesting to see is that on the Energiewende-skeptical end of the political spectrum, opinions are almost evenly split between those who would like to see a faster energy transition and those who prefer a slower transition. A remarkable 30% of the Swiss People’s Party (SVP) adherents and 28% of liberal (FDP) voters state that the energy transition is too slow. On the other hand, in both parties 33% think that the energy transition is happening too fast. These results indicate that there is room for cross-party consensus in at least some elements of a swift energy transition.

The share of respondents who think that the energy transition is too slow reaches three-quarters among respondents from urban Basel city and Neuchâtel. Broad support for a faster energy transition is consistent across the largest and most populous cantons, such as Zürich, Bern, Vaud, Aargau, and St. Gallen, as well as the main geographical zones (Eastern Midlands, (Pre)Alpine region, Suisse Romande, Western Midlands). The belief that the energy transition is happening too fast does not obtain a simple majority in any canton. In accordance with last year’s results and prior studies on gender, more women (52%) than men (43%) would prefer a faster-paced energy transition.

**Half of Consumers Say, “Energy Transition Too Slow in Switzerland.”**

Nearly half of the respondents (48%) believe that the energy transition in Switzerland progresses too slowly, and an additional one third of respondents think that the pace of energy transition is appropriate. On average, only 20% of respondents are of the opinion that the energy transition is happening too fast.

Views on the desirable speed of the energy transition show some interesting patterns across the political spectrum. Unsurprisingly, an overwhelming majority (92%) of respondents who identify themselves with the Green party welcome a faster energy transition. This view is also shared by more than 60% of those who identify themselves with the Green Liberals and the Social Democrats. Among the adherents of the FDP Liberals, the Swiss People’s Party (SVP), and the Christian Democratic Party (CVP), a considerable share (between 31–38%) of respondents are rather pleased with the current speed of the energy transition. What is interesting to see is that on the Energiewende-skeptical end of the political spectrum, opinions are almost evenly split between those who would like to see a faster energy transition and those who prefer a slower transition. A remarkable 30% of the Swiss People’s Party (SVP) adherents and 28% of liberal (FDP) voters state that the energy transition is too slow. On the other hand, in both parties 33% think that the energy transition is happening too fast. These results indicate that there is room for cross-party consensus in at least some elements of a swift energy transition.

The share of respondents who think that the energy transition is too slow reaches three-quarters among respondents from urban Basel city and Neuchâtel. Broad support for a faster energy transition is consistent across the largest and most populous cantons, such as Zürich, Bern, Vaud, Aargau, and St. Gallen, as well as the main geographical zones (Eastern Midlands, (Pre)Alpine region, Suisse Romande, Western Midlands). The belief that the energy transition is happening too fast does not obtain a simple majority in any canton. In accordance with last year’s results and prior studies on gender, more women (52%) than men (43%) would prefer a faster-paced energy transition.

**“How do you evaluate the speed of the energy transition in Switzerland?”**

![Bar chart showing the percentage of respondents for each party expressing too slow, just right, or too fast.](image)

3 Small parties (e.g. EDU, EVP) with less than 5% of votes in the last national parliamentary elections (2011) and respondents who did not express their political preference are not included in this figure.
Swiss consumers are most likely to obtain information on renewable energy and energy efficiency from in-person communication with a public energy agency, or by means of internet searches. Other preferred sources of information include energy professionals, such as energy installers and architects, and also tapping into existing knowledge of family and friends. These results show that energy decisions are not taken by consumers in isolation, but instead are strongly influenced by peers – an insight that is increasingly taken into account in renewable energy marketing. Eight percent of respondents would consult a customer representative at their bank with energy-related questions, on par with media outlets like newspapers, magazines, and TV shows. The financial industry and the media have a yet to exploit their full potential as they compete to be relevant sources of information for consumers’ energy-related questions.

“Which three sources do you consult first on questions pertinent to energy efficiency improvements and renewable energy installations?”
During the years 2012-2015, the Consumer Barometer has included a question to homeowners that inquired about renewable technologies they utilize for energy supply of their homes. During this time frame, the most preferred technologies were heat pumps and various types of solar technology. Thirty eight percent of homeowners reported using heat pumps in 2015, while adoption of solar thermal technology has increased from 16% in 2012 to 19% in 2015. Use of solar photovoltaic installations has also experienced a remarkable growth, from 3% in 2012 to 9% in 2015.

This year, our survey asked about the benefits of using green energy technologies, and the respondents provided four major reasons for such an investment. Ecological reasons, such as environmental protection and climate change mitigation, were mentioned in 39% of responses. Importantly, many respondents now recognize economic benefits of using renewable energy (34% of responses), in addition to ecological reasons of doing so. They report that energy improvements increase house value and create a possibility to earn additional income, for example by feeding solar power into the grid. Some respondents also state that it makes economic sense to reduce the energy footprint of their homes when a general home renovation is due. Availability of public funds also was mentioned as an economic incentive to invest in energy improvements, while some decided to invest due to concern about the rising cost of conventional energy sources.

Twenty two percent of respondents saw investment in renewables as a way to improve energy security by reducing overreliance on fossil energy sources. Some respondents also indicated a wish to be independent from power supply companies. Apparently, there is a segment of consumers who are attracted to the idea of producing their own energy.

Finally, respondents expressed a motivation to adopt the most modern technologies, and recalled positive prior experiences with renewable energies from friends and family, suggesting peer effects.

**“Which are three most important factors in the decision to use renewable energy technology?”**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecological reasons &amp; climate change</td>
<td>39%</td>
</tr>
<tr>
<td>Economic reasons</td>
<td>34%</td>
</tr>
<tr>
<td>Independence, security</td>
<td>22%</td>
</tr>
<tr>
<td>Personal reasons</td>
<td>5%</td>
</tr>
</tbody>
</table>
Consumers Expect Oil Prices to Increase

Volatile oil prices are often cited as one of the main reasons for development of alternative energy sources. When asked to predict the development of oil prices in the coming two years, more than half (51%) of respondents are expecting a price increase of up to 20%. One fifth fears that the prices are going to increase by more than 20% from current levels. Only 5% think that oil and diesel prices will drop. The expected increase in fuel prices makes a case for purchasing an electric vehicle, and 27% of respondents are open to purchasing one in the near future. In addition to these economic factors, three quarters welcome Switzerland committing to ambitious climate targets.

In 2015, more than 46% of respondents believed that current electricity prices are not high enough to provide incentives for households to conserve power. At the same time, most respondents (82%) think it is possible to maintain current living standard with lower energy consumption.

“What changes in gasoline and diesel prices do you anticipate in the next two years?”

- More than 20% increase (N=237)
- Up to 20% increase (N=635)
- No significant change (N=193)
- More than 20% decrease (N=9)
- Up to 20% decrease (N=50)
- I haven’t thought about it yet (N=117)
Market Potential for New Financial Instruments in Energy Investment

There are a multitude of ways for consumers to become involved with renewable energy beyond owning a solar system. It is possible to be directly or indirectly involved in a renewable energy project. For example, solar power plants are currently being developed by a wide range of firms, including electric utilities, financial investors, and new players like solar cooperatives. If an electric utility develops a solar project, they can sell the solar electricity to their customers as part of a green electricity mix, or they can open the project up to direct participation by selling shares in the project. When asked which of those options they would find most appealing, a differentiated picture emerges among the surveyed consumers. Two thirds of respondents see a role for local utilities in developing these projects. More respondents are interested in direct participation schemes than simply buying green electricity, which points to possible new utility business models. About one quarter of respondents would rather see projects developed by a solar cooperative than by their local utility. Finally, banks could also play a role in financing renewable energy projects. Purchasing shares in an investment fund that pools renewable energy projects financed by a bank is preferred by 11% of respondents. Overall, there seems to be significant untapped market demand from Swiss consumers who desire to participate in financing renewable energy projects. It is also interesting to note that 30% of respondents who have private retirement account (Pillar 3a) would be open to investing part of their retirement funds into a solar or a wind project. Further examination shows that the wish to obtain high returns is not the major feature of a renewable energy investment, and consumers are willing to accept lower returns (presumably, in exchange for lower risks and other non-monetary benefits).

**“Imagine a large solar power plant being developed in your community. Which of the following investment options would you prefer?”**
Energy Cooperatives as an Alternative Investment Vehicle in the Age of Negative Interest Rates

In a situation when returns on saving accounts turn negative, investment in renewable energy provides an opportunity for consumers to obtain positive returns even with small investments. One possible way for retail investors to take advantage of this alternative investment strategy is to participate in energy cooperatives. Sixty percent of surveyed respondents would be open to obtaining shares in a renewable energy project through a cooperative, which is a very high rate for this relatively new financing vehicle. Among those interested in participating in a cooperative, the preferred technologies include photovoltaic (mentioned 48% of time), wind (27%), hydropower (23%), and biomass (20%). This result suggests great potential for development of solar cooperatives.

In contrast to purchasing a whole renewable energy system for home use, cooperatives do not require large investments or at-home installation. In line with this knowledge, 61% of respondents would invest up to 1,000 CHF in a cooperative, while 35% would be willing to contribute between 1,000 CHF and 10,000 CHF (N=748). A small share of respondents would even consider investing larger amounts of money in community finance projects.

When assessing the risk of such investments, it becomes clear that risk perceptions differ widely. While one third of respondents thinks that energy cooperatives are as risky as investing in a start-up, others perceive the risk to be lower. A considerable share of respondents (19%) compare participation in an energy cooperative to holding shares of a large Swiss company, while 13% view the risk profile of energy cooperatives as comparable to a well-diversified market portfolio or investing in real estate (16%). The remaining 19% of respondents consider community energy projects to have lower risks, comparable to their savings account or a fixed term deposit with a 1-year maturity.

“How much money can you imagine investing in a community energy project?”

![Chart showing willingness to invest in community energy projects](chart.png)
Homeowners’ Decision to Invest

While economics textbooks offer clear instructions for how the profitability of an investment should be calculated, real homeowners do not always mirror the ideal *homo oeconomicus*. When asked which financial decision criteria they use to assess an energy-related investment at home, less than a third of respondents mention one of the typical textbook indicators Net Present Value (NPV) or Internal Rate of Return (IRR), which require some degree of financial literacy. The most popular method (42%) was to judge an investment based on a simple estimation of its payback time. In terms of an acceptable threshold, 84% of respondents believe energy-related investments should pay for themselves in ten years or less, with 40% requiring a payback time of five years or shorter. Given the long lifetime of buildings, realizing only the investments with such short payback times may be financially suboptimal. Hence, there may be a case for dedicated financial instruments to incentivize long-term investments in energy efficiency and renewables. Finally, almost one third of respondents (31%) do not use any type of financial calculation at all but instead decide intuitively, pointing to the important role of non-financial decision criteria.

---

"What financial decision criteria do you use when deciding about an investment in renewable energy or energy efficiency technologies?"

- Payback period (N=341) - 42%
- Decide intuitively (N=248) - 31%
- Internal rate of return calculation (N=123) - 15%
- Net present value of investment (N=97) - 12%

"In how many years should a renewable energy or energy efficiency investment pay itself back?"

- Up to 5 years (N=238) - 45%
- Up to 10 years (N=258) - 35%
- Up to 15 years (N=46) - 15%
- Up to 20 years (N=50) - 5%

---

*Question was directed only at homeowners (N=653), with multiple answers possible.*
Split Incentives between Homeowners and Renters on Energy Efficiency Upgrades

Among all the respondents, a slight majority (53%) would support cantonal legislation to make energy efficiency certification mandatory when a house changes owners – a rule that currently applies in only two of Switzerland’s 26 cantons. The cost of improving the energy efficiency of a house is generally carried by the owner, while renters will be exposed to both costs and benefits of such improvements. While 62% of renters “agree” or “rather agree” with the certification requirement, this policy is supported by only 44% of homeowners. This divide suggests differing incentives among property owners and renters when it comes to investing in energy efficiency improvements.

“*The cantons should make it obligatory for houses to obtain an energy certification (e.g. GEAK, Minergie, Plusenergie) before being purchased or sold.*”

When imagining how they might finance the purchase of a solar system, many homeowners prefer to rely on their own funds (59%). Nearly half of homeowners can imagine connecting this investment with a mortgage (either existing or new). Other options include taking out a loan (10%) or leasing solar equipment (7%). Alternatively, 64% of homeowners appear open to leasing their roof to host a solar installation in exchange for a monetary payment. Under this agreement, the installer keeps the ownership of the panel.

“*Imagine you are installing a solar photovoltaics system on your roof. Which form of financing do you prefer?”*

---

*Question was directed only at homeowners (N=591), with multiple answers possible, hence the total percentage is larger than 100%.*
Role of Banks in Financing Energy Efficiency Upgrades

Homeowners demand rather specific services provided by banks in connection to energy efficiency improvements in buildings. The most frequently expected services are to receive financing from a bank through a mortgage or a loan (35%), followed by assistance with paperwork (22%), and help finding a qualified energy auditor (20%). Thirteen percent of homeowners also expect banks to set a good example by implementing energy efficiency measures and installing renewable energy projects in banks’ own buildings. These preferences were also consistent with results of previous years.

What is the typical size of energy-related investments at home? The financing needs of homeowners vary greatly, with 13% needing less than 10,000 CHF to finance energy-related investments, and 19% requiring more than 100,000 CHF. A large majority, nearly two thirds, requires financing of 50,000 CHF or less, suggesting that financial instruments other than mortgages might be suitable here, given the administrative burden of mortgage financing.

“*What amount of external financing (e.g. from the bank) would you need to finance renewable energy or energy efficiency technologies at your house?”*
Banks Viewed as Competent and Trustworthy Partners in Energy Questions

The Swiss public tends to view financial institutions as credible partners in the area of sustainable investment and as competent to evaluate risks and returns related to renewable energies. Regional and community-based banks obtain the highest levels of positive evaluations in the field of renewable energy and sustainable investment from the respondents.

A considerable share of consumers (55–60%) would welcome more active consulting from their banks on questions related to investment in renewable energy. Only 10% report that a bank associate has offered them a consultation on investment opportunities in renewable energy within the last 6 months.

“I believe that my bank is competent to evaluate opportunities and risks of renewable energies and credible in area of sustainable investment”

---

![Bar chart showing the percent of respondents who agree or rather agree that their bank is competent and credible.](chart.png)

- **Agree/Rather agree that bank is competent**
- **Agree/Rather agree that bank is credible**

---

Raiffeisen | Cantonal Bank | UBS | Post Finance | Credit Suisse
---|---|---|---|---
80 | 70 | 60 | 50 | 40 | 30 | 20 | 10 | 0

Percent of Respondents