

Barometer of renewable energies

This analysis was conducted between December 2022 and February 2023 at the Institute for Economic Research of the Università della Svizzera italiana, in cooperation with the Institute for the Management of Renewable Energies of the University of St Gallen and thanks to the help of AEC Airolo, AEM, AGE, AIL, AIM, AMB, SES.

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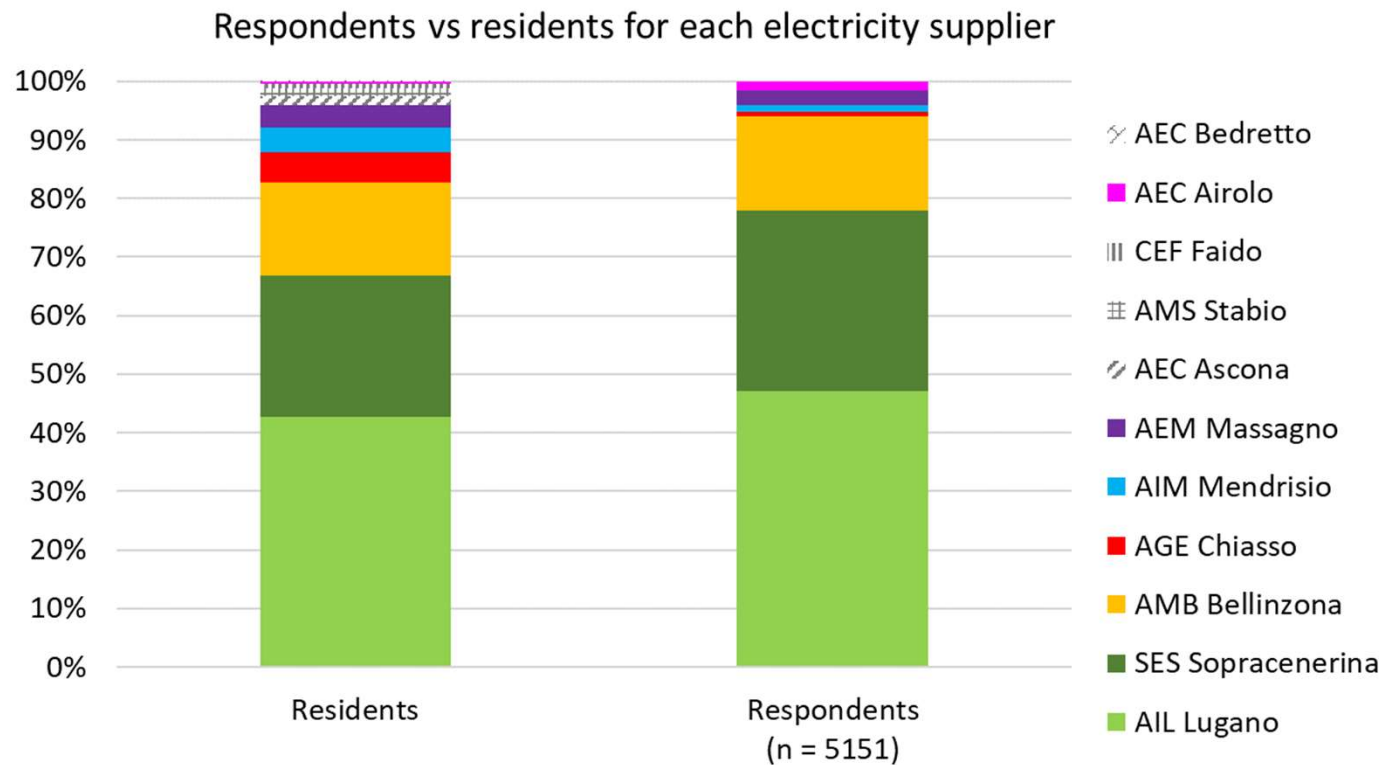
What is the Barometer of renewable energies?

- The Barometer of renewable energies is an analysis of the preferences of the residents of Canton Ticino toward climate change and energy supply and consumption.
- The 2022 edition of the Barometer focusses on:
 - Opinions concerning the technologies for electrifying energy consumptions,
 - Reactions to the energy crisis.
- The analysis is based on data collected through a survey developed in 2022 within an on-going project of the Institute for the Management of Renewable Energies of the University fo St Gallen, originally conducted in the German- and French-speaking regions of Switzerland (<http://kuba.iwoe.unisg.ch>). The Ticinese edition for 2022 includes two additional chapters concerning the attachment to private cars and the attitude toward the risks connected to electricity supply.

How did the data collection process work?

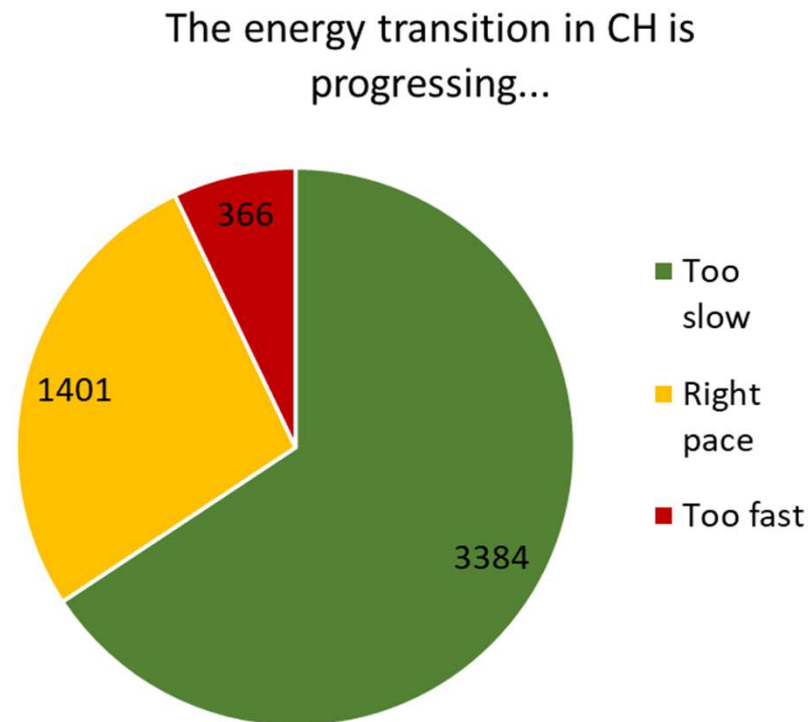
- The data was collected through an on-line survey that was distributed between December 2022 and February 2023 in cooperation with some electricity retailers active in the Canton.
- All in all, 5'151 respondents validly completed the entire survey.
- The sample is reasonably representative of the residents of Canton Ticino in terms of place of residence, age, and demographic conditions.
- However, the sample suffers from a slight over-representation of men and environmentally concerned respondents.

Geographical coverage: population versus sample



The municipalities served by the electricity retailers depicted with grey and white patterns were not included in the sample.

Residents in Ticino and climate change: is the energy transition fast enough?



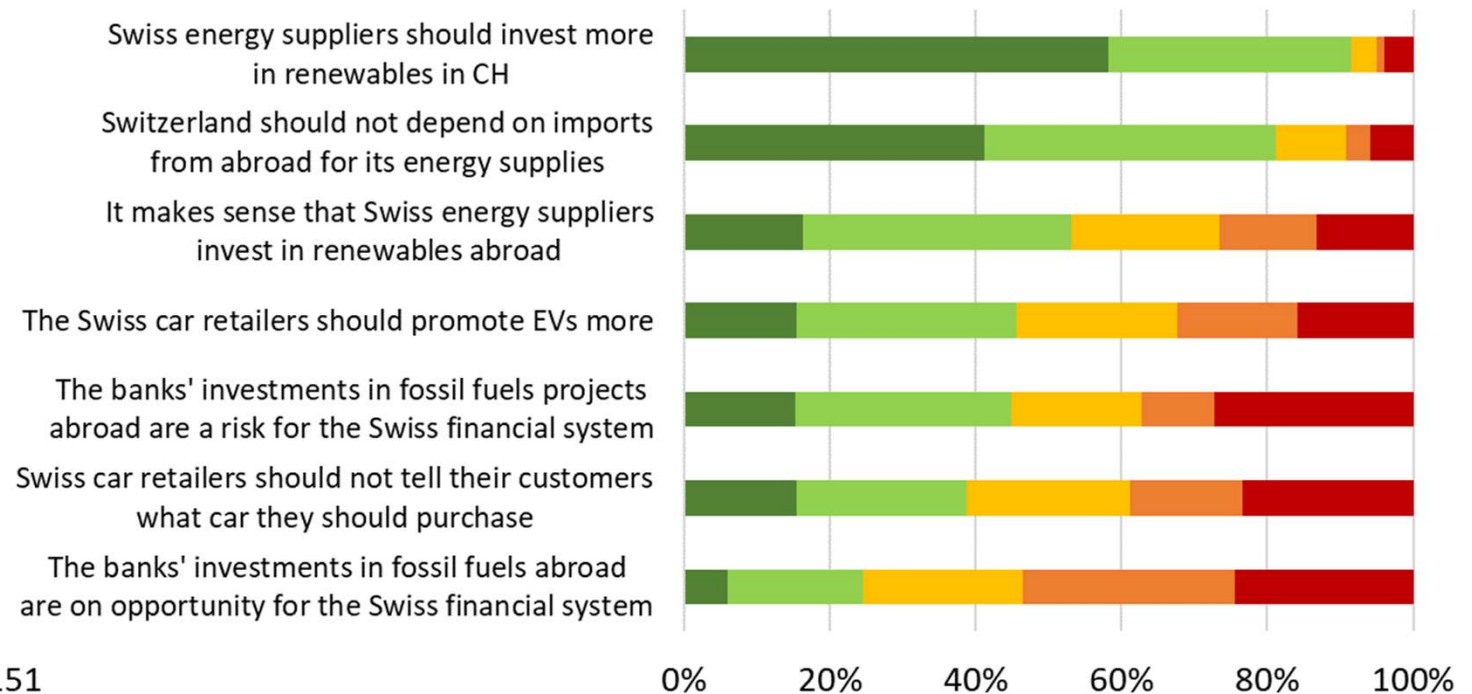
- Around 60% of the sample think that the energy transition is progressing too slowly in Switzerland. This figure is higher than in 2021, when 56% of the sample shared this opinion.
- Only 7% of the respondents think that the energy transition is progressing too fast. In 2021 the same figure was around 8%.

Who should act to mitigate climate change?

As in 2021, most residents agree that the Swiss energy companies should invest in renewable generation in Switzerland.

How much do you agree with the following statements?

■ Completely agree ■ Rather agree ■ Neutral ■ Rather disagree ■ Completely disagree



n = 5151

Electrifying consumptions: how do respondents feel about green devices?

The survey focussed on the adoption of four devices for electrifying households' energy consumptions: photovoltaic (PV) panels, heat pumps, electric vehicles (EVs), and batteries. These devices matter as they enable the replacement of fossil fuels with renewable electricity, and thus lower greenhouse gas emissions.

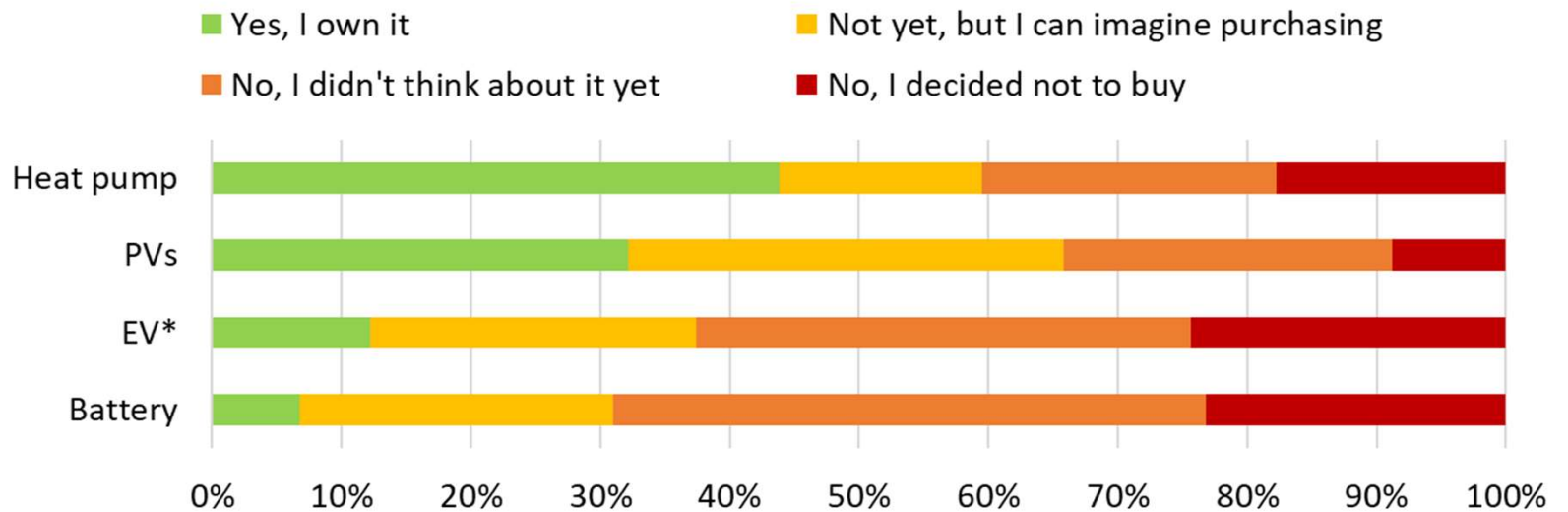
The survey investigated:

- The reasons for purchasing each device,
- The order in which the devices are or could be purchased,
- The impact of a higher propensity to try new technologies and of already having one of the selected devices on the purchase probability,
- The influence of peers on the purchase decisions.

How common are the new devices?

The adoption rate of the new devices among homeowners is stable as compared to 2021. A small growth is observed in the adoption rate of EVs, around 12% in 2022 and up from 8% in 2021 considering both homeowners and tenants.

Ownership of devices for electrifying energy consumption among homeowners: "Do you own any of these devices?"

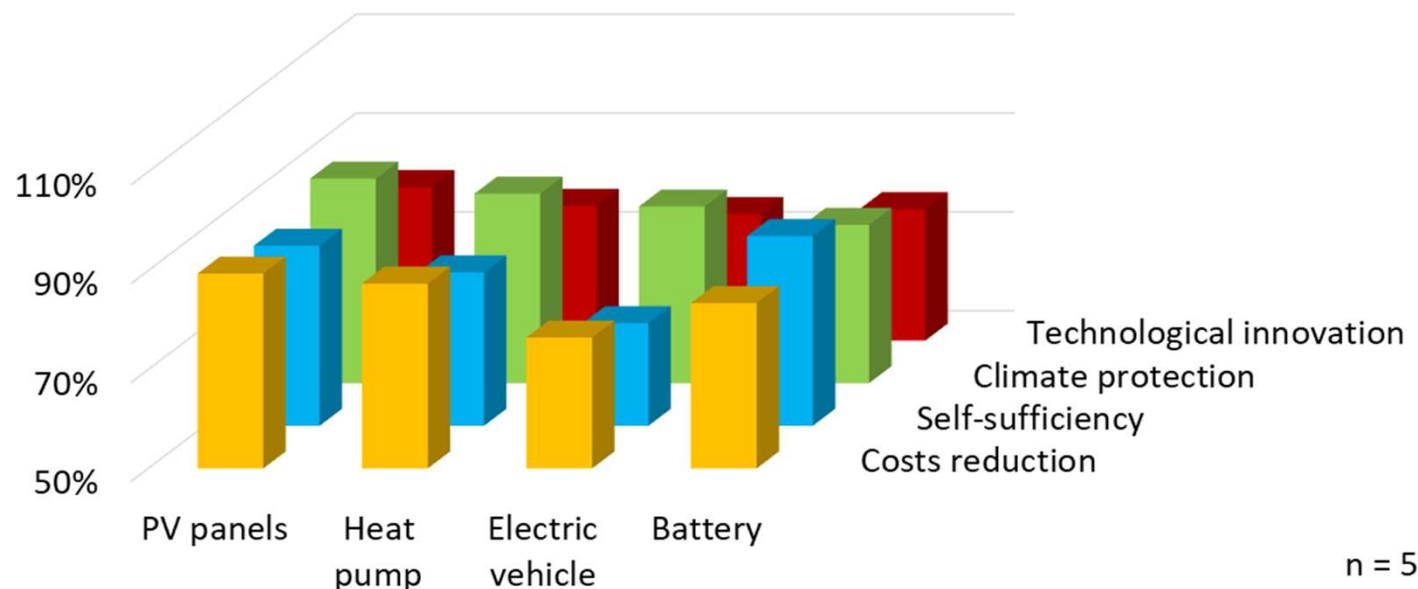


n = 3411, * question asked also to tenants, n = 5151

Why do respondents buy these devices?

Reducing greenhouse gas emissions is the main driver for purchasing PV panels, heat pumps and EVs. Batteries are instead mainly purchased to increase self-sufficiency in the own energy consumption. PV panels and heat pumps are also often purchased to reduce energy bills.

Share of the respondents who deem "very important" or "somewhat important" the following factors in the purchase decision for each technology

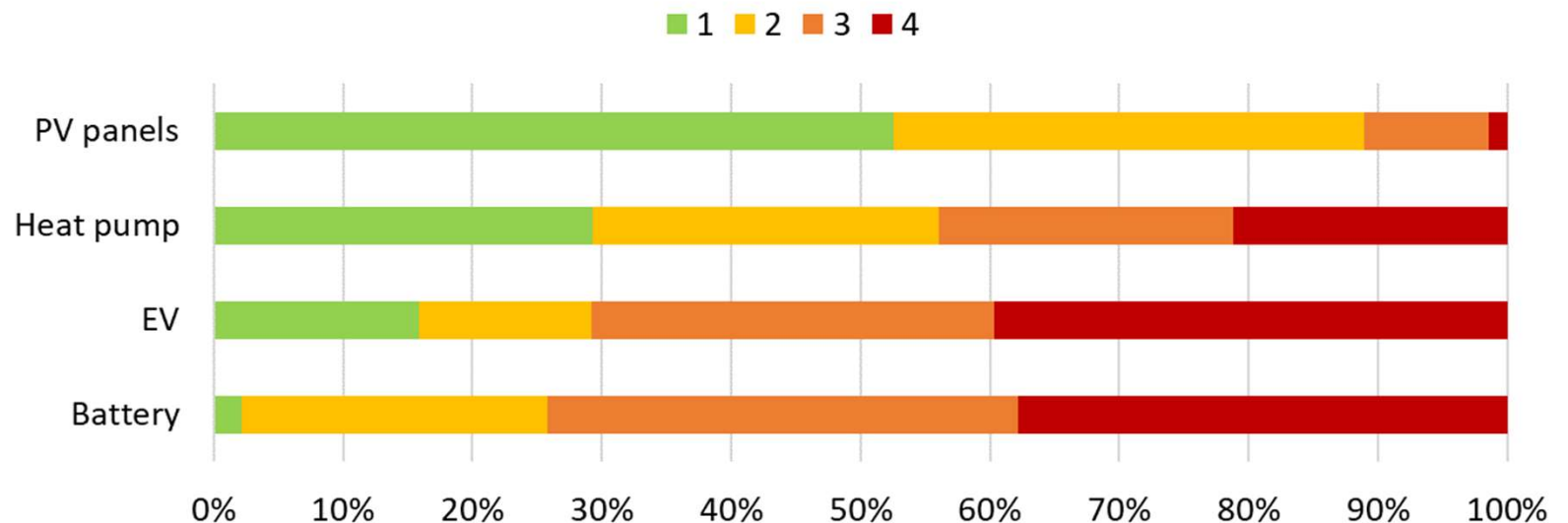


n = 5151

Which devices are purchased first?

When asked about the order in which they purchased or would purchase the four devices, homeowners state PV panels come first, followed by heat pumps, EVs, and batteries.

In which order did you purchase or could purchase the following technologies?
Even if you didn't consider the purchase, please describe the most likely sequence



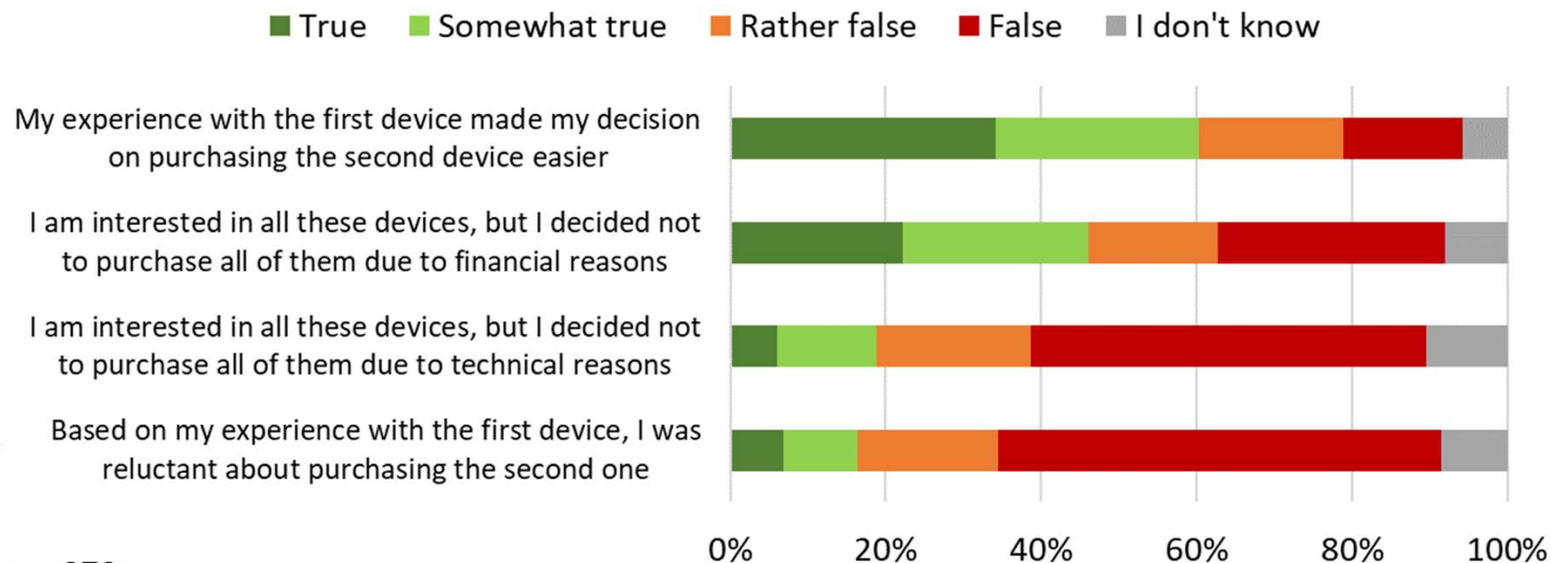
n = 4693

If you have one device, is purchasing the second one easier?

The respondents who own at least one of the four devices can decide more easily on the purchase of another device.

Budget constraints and, to a lesser extent, technical reasons may however limit purchase plans.

You have at least two of the following devices: PV panels, heatpump, EV, battery.
How much does each of the following statements fit to your experience?



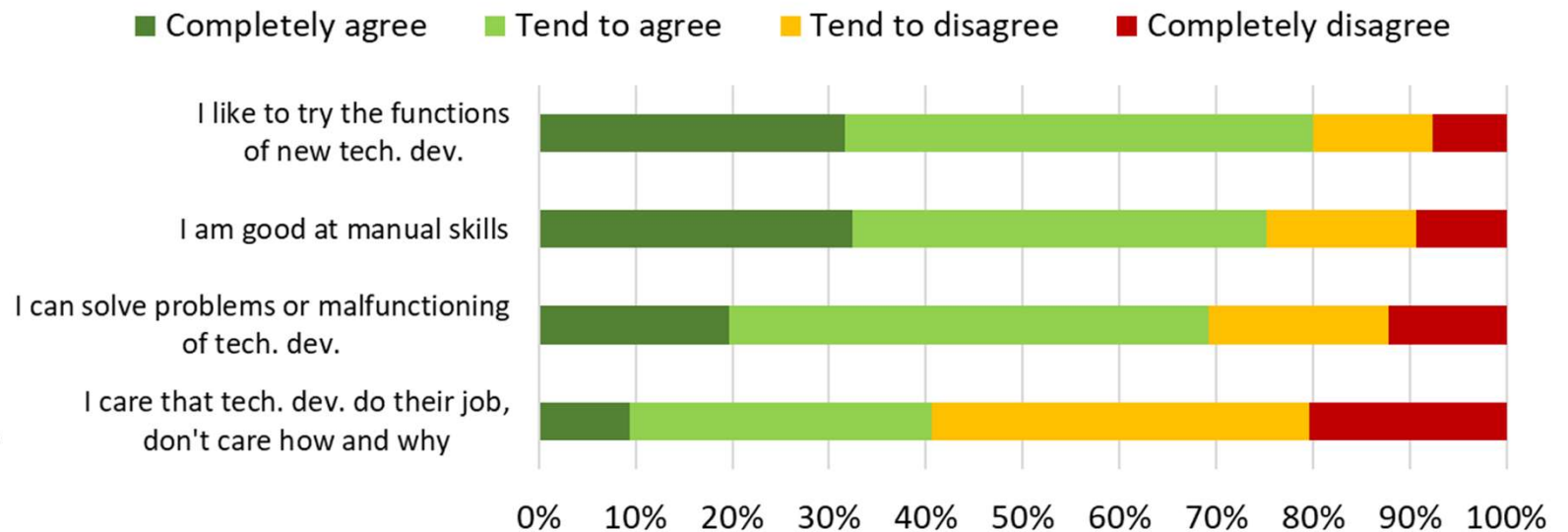
n = 979

How do respondents feel about new technologies?

At least 70% of the respondents state they like to try new technologies and trust their own manual skills, and almost 70% state they can solve small problems or malfunctioning of the new devices.

Only 40% state they don't care about the technical details of the new devices, and are only concerned that the devices do their job.

The following sentences concern your attitudes toward new technological devices.
How much do you agree with each sentence?

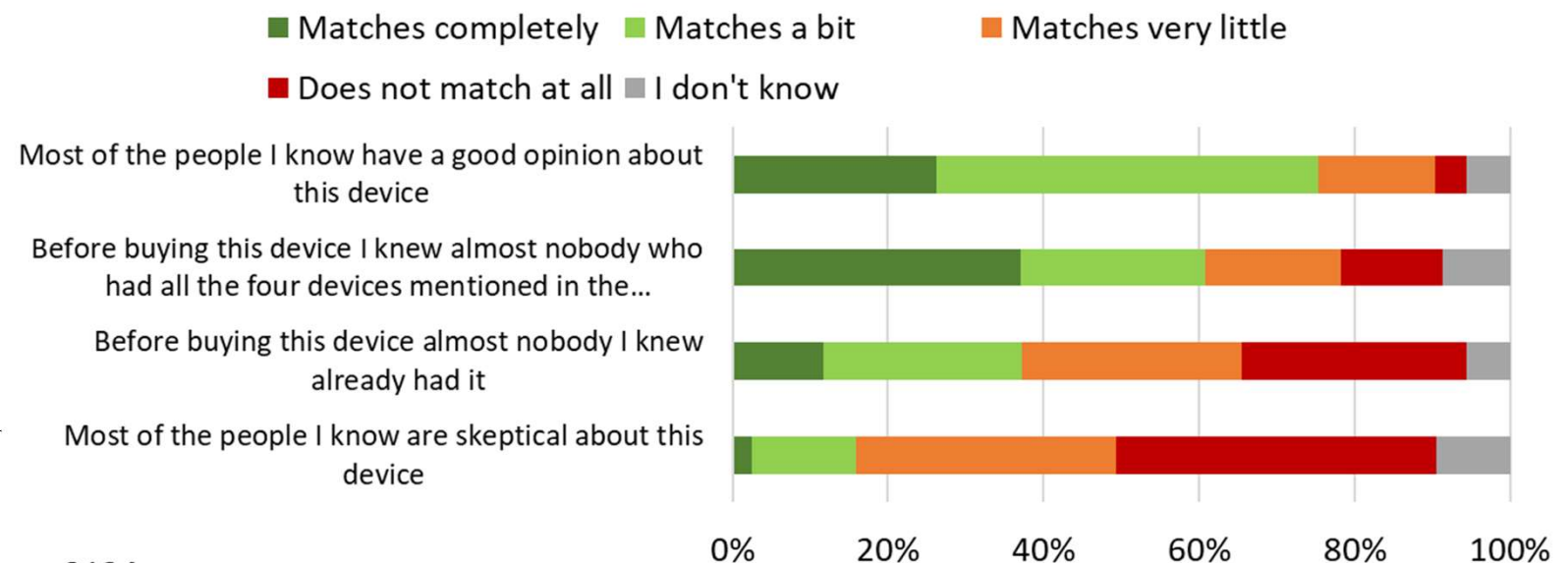


What is the influence of the peers?

People with whom the respondents are in touch on a regular basis have a strong impact on purchase decisions:

- More than 70% of the respondents who have at least one device state that their peers have a good opinion about it,
- Less than 40% state that they knew nobody or very few people owning a given device before they decided to purchase it.

You declared you have at least one device among PV panels, heatpump, EV, and battery. How much do the following sentences match to your situation?



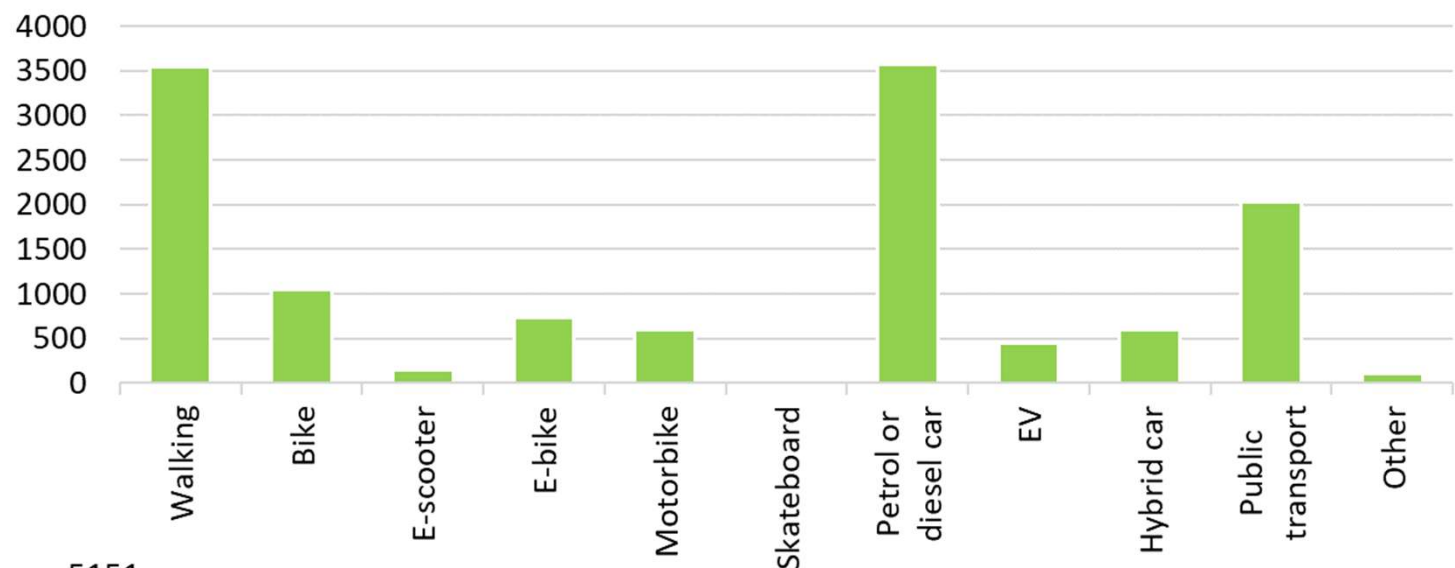
n = 2124

How do respondents travel and commute?

Most of the respondents tend to walk or use their private cars. Public transport is also used, but to a lesser extent. Soft transport modes, EVs and hybrid cars are still used only marginally.

Less than 10% of the respondents state they don't have a car in their household. Around 40% state they have one, and another 40% state they have two. The remaining respondents have more than two cars.

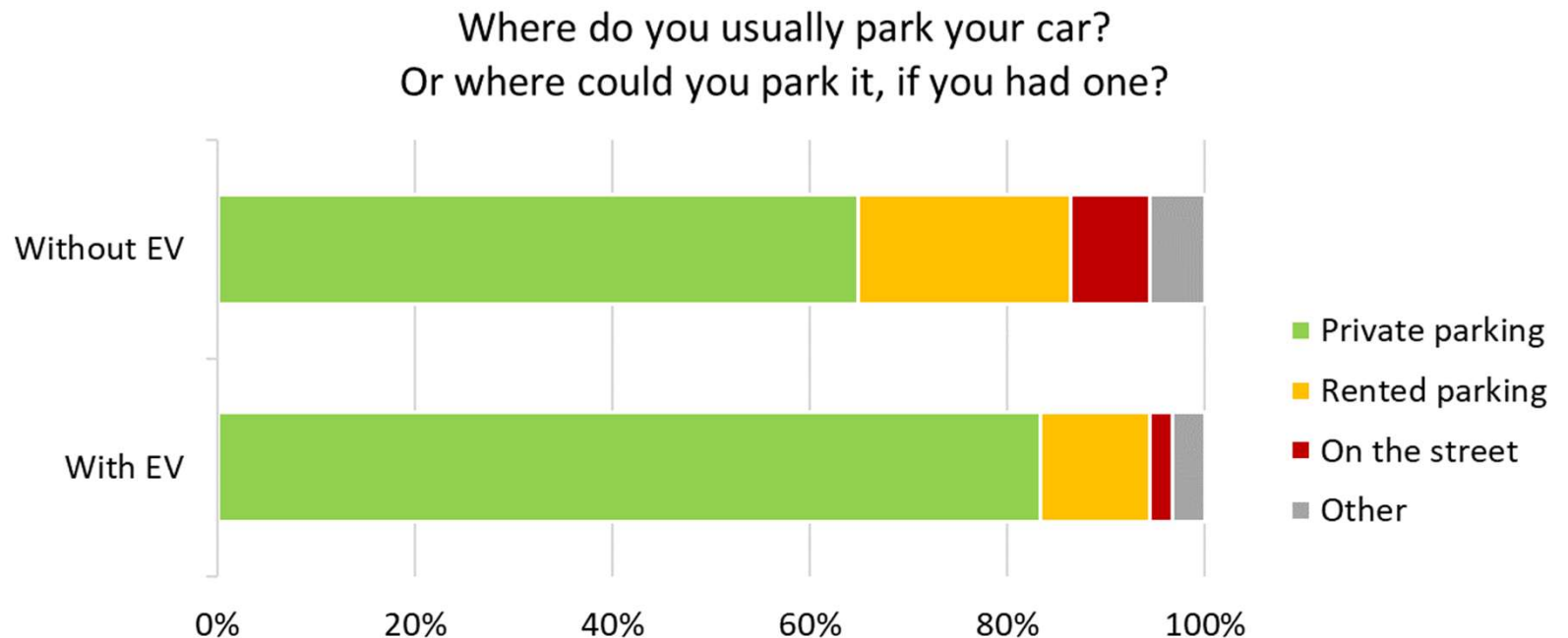
Which transport modes do you use at least once per week?



n = 5151

Where do respondents park their cars?

A vast majority of car owners in Ticino has a private parking, either owned or rented. This share above 60% for respondents without EVs (with or without petrol or diesel car) and above 80% for EV owners.

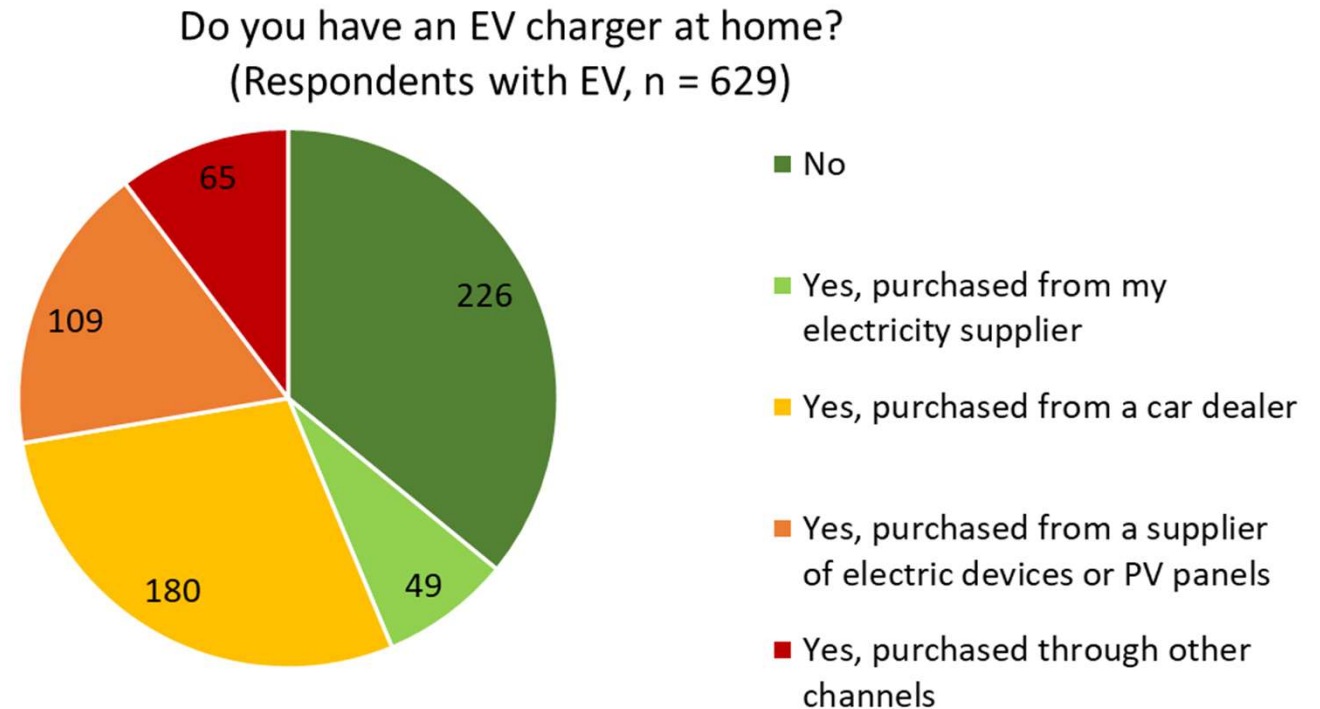


nr respondents: with EV = 629, without EV = 4522

EVs and charging stations

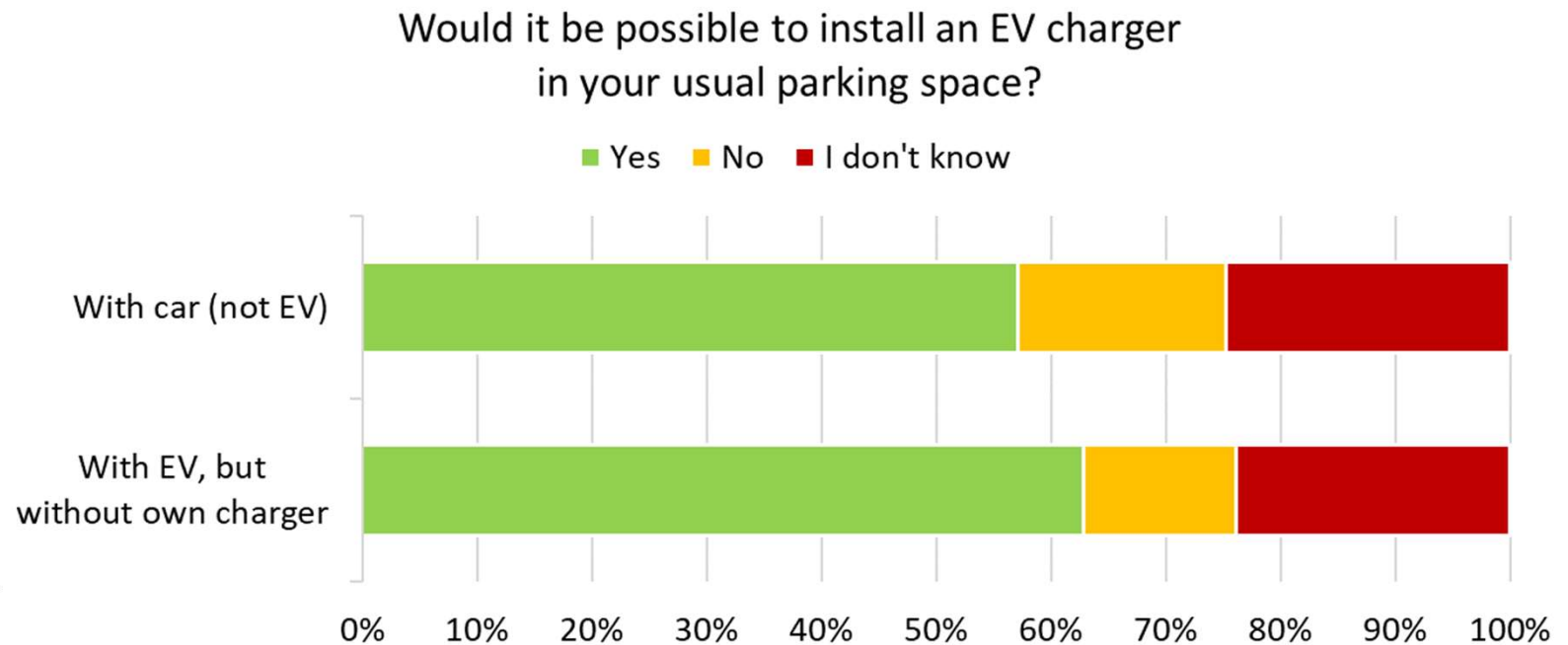
Around two thirds of EV owners have their own charging station at home. The charging stations are usually purchased from a supplier of electric devices or PV panels, from car dealers, through other channels, or finally from the own electricity supplier.

A third of EV owners does not have a charging station at home.



Is it easy to install a charging station?

More than half of the car owners who do not have an EV charging station in their usual parking space think that it would be easy to install it. This percentage is slightly below 60% for owners of non-electric cars, and climbs to above 60% among EV owners.

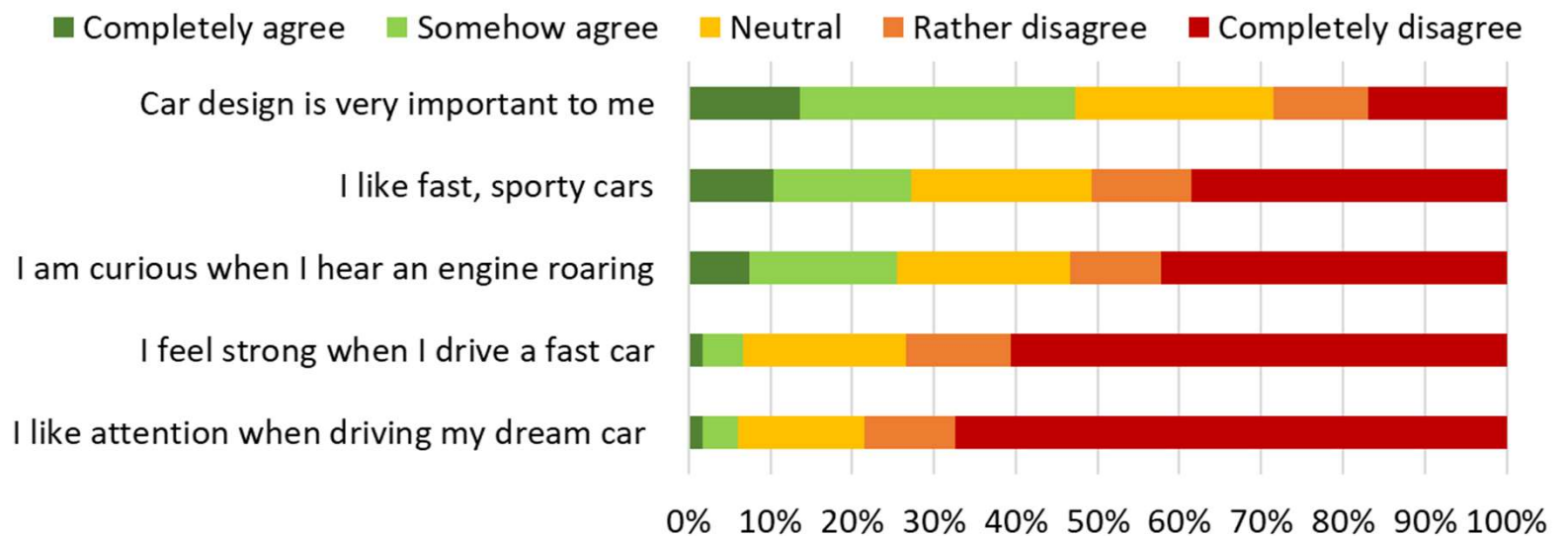


nr respondents: with car other than EV = 4018, with EV but without own charger = 226

Private cars and their use: still a status symbol?

The respondents are rather sensitive to the design of a car (47%). Around one third likes sporty cars and is interested in roaring and powerful engines. Nonetheless, only a small minority (7%) thinks of cars as a way to feel strong and arouse interest.

Attitudes toward cars as a status symbol



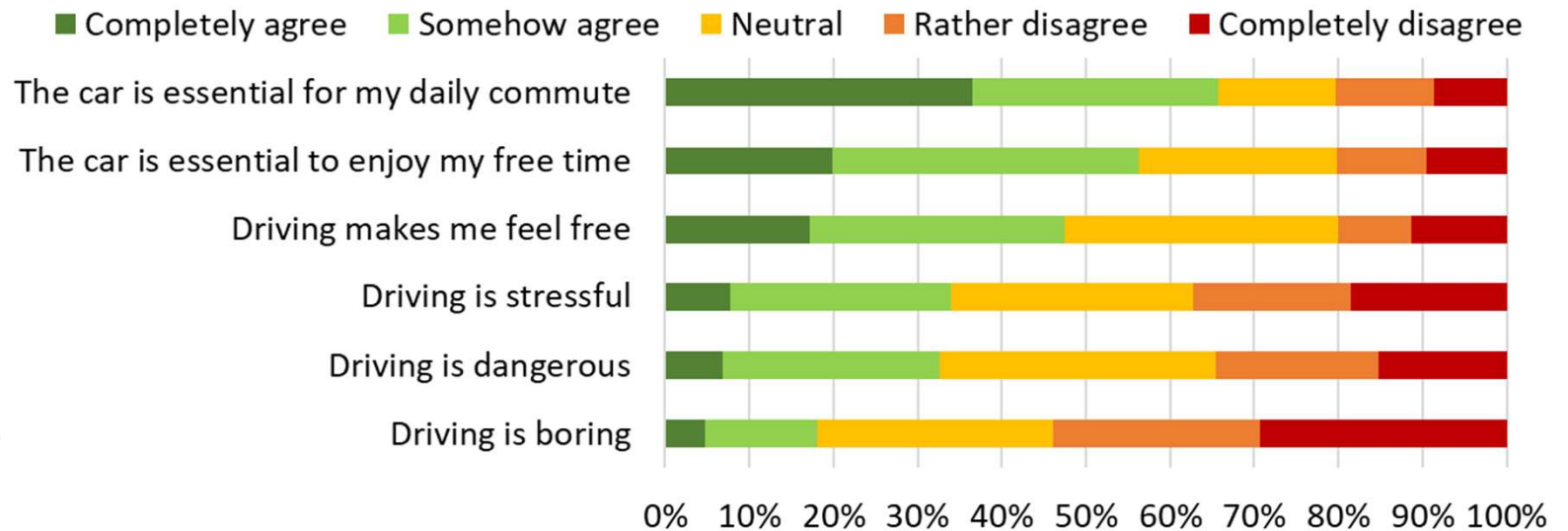
Respondents with at least one car, n = 4632

Private cars for commuting and leisure trips

Two thirds of the respondents state that private cars are essential for daily commuting. More than half think that private cars are essential for their free time, and slightly less than half state that driving makes them feel free.

Around one third thinks that driving is stressful or dangerous.

Attitudes toward the use of cars



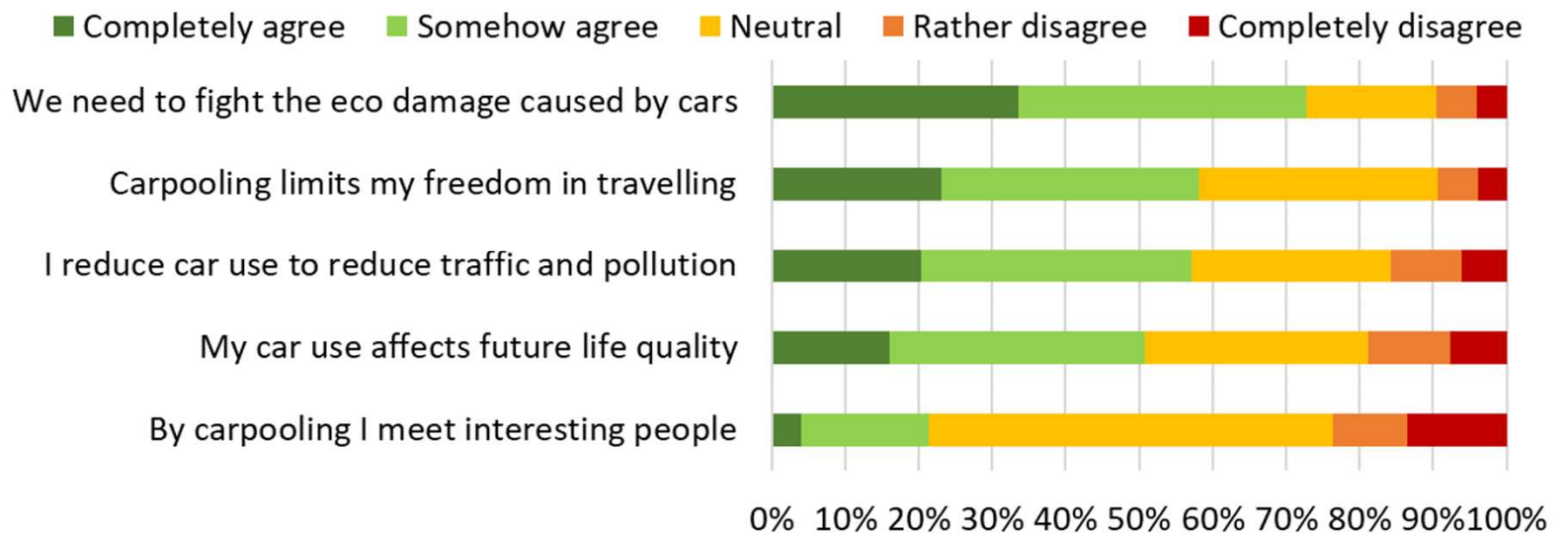
Respondents with at least one car, n = 4632

Private cars and the environment

More than 70% of the respondents think that it is important to withstand the ecological damage caused by cars. More than half state they try to drive less to reduce traffic and pollution, and think that their car use will affect life quality for future generations.

Still, more than half of the respondents think that carpooling limits their freedom in travelling, and only 20% see it as a way to meet interesting people.

Attitudes toward the ecological impact of cars and carpooling

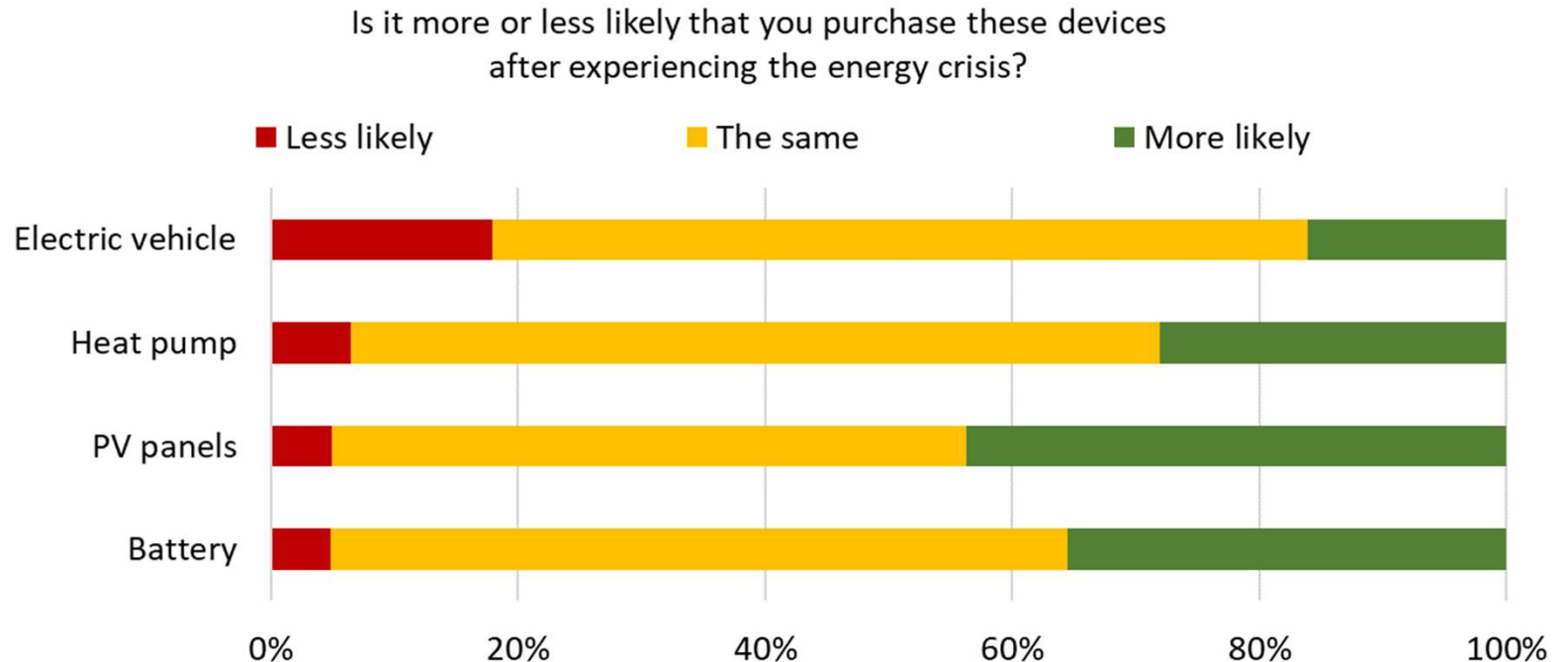


Respondents with at least one car, n = 4632

New technologies and the energy crisis

The energy crisis has increased the likelihood of purchasing some of the devices for the electrification of households' consumptions: this is the case for PV panels, batteries, and heat pumps.

This trend does not hold for EVs. Indeed, only 17% of the respondents state that the probability of purchasing this vehicle has increased with the energy crisis, and 18% state it has decreased.



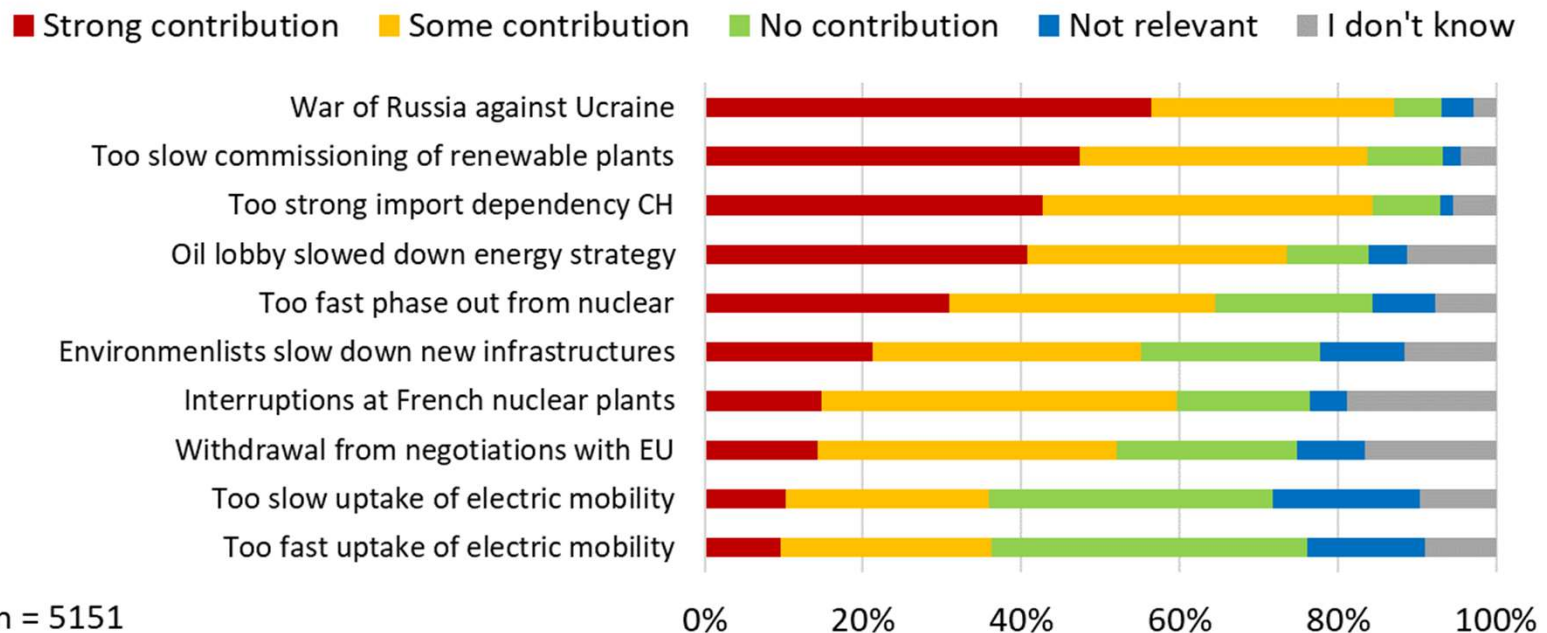
Homeowners who do not have each device yet; for EVs also tenants without EV

What are the causes of the energy crisis?

According to the respondents, the factors that contributed most to the energy crisis are the war between Russia and Ukraine, the slow commissioning of new renewable plants, the strong reliance on energy imports, the effectiveness of oil lobbies in delaying the energy transition, and finally the premature phase out of nuclear plants.

The uptake of electric mobility has instead a lesser role.

Causes of the energy crisis: what is, according to you, the weight of each of these factors in starting the energy crisis?



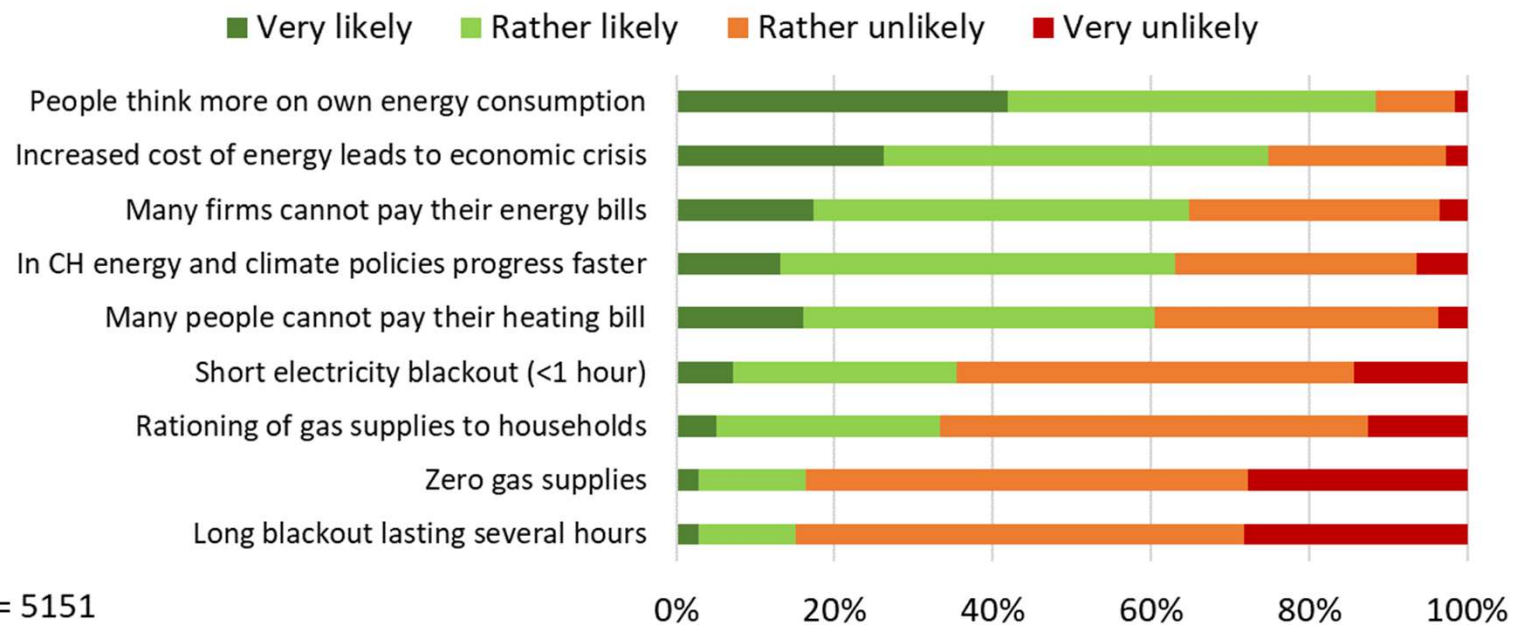
n = 5151

And its impacts?

Almost 90% of the respondents think that due to the energy crisis most people will think more about their energy consumption. Other likely consequences are an economic downturn, increased problems in paying the energy bills for families and businesses, and finally a push toward a faster energy transition.

Electricity and gas blackouts, as well as rationing in energy supply, are deemed less likely.

Impacts of the energy crisis: according to you, what is the likelihood that the following events will happen in Switzerland?



n = 5151

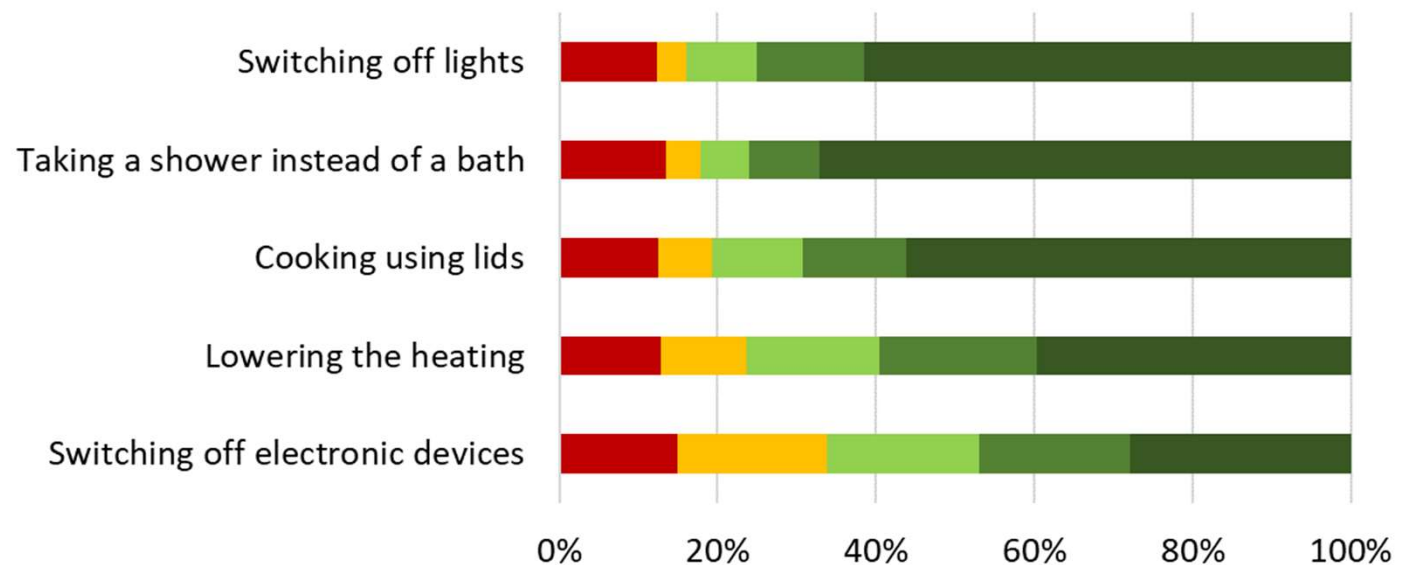
Are respondents ready to save energy?

More than 80% of the respondents state they already adopt or would be ready to adopt energy saving measures such as switching off lights, taking a shower instead of a bath, and cooking using lids.

The propensity to lower the heating and switching off completely the unused electronic devices is instead a bit lower, albeit still well above 60%.

What is the likelihood that you will adopt the following energy saving measures during this winter?

■ Very unlikely ■ Rather unlikely ■ Rather likely ■ Very likely ■ Certain, I already do

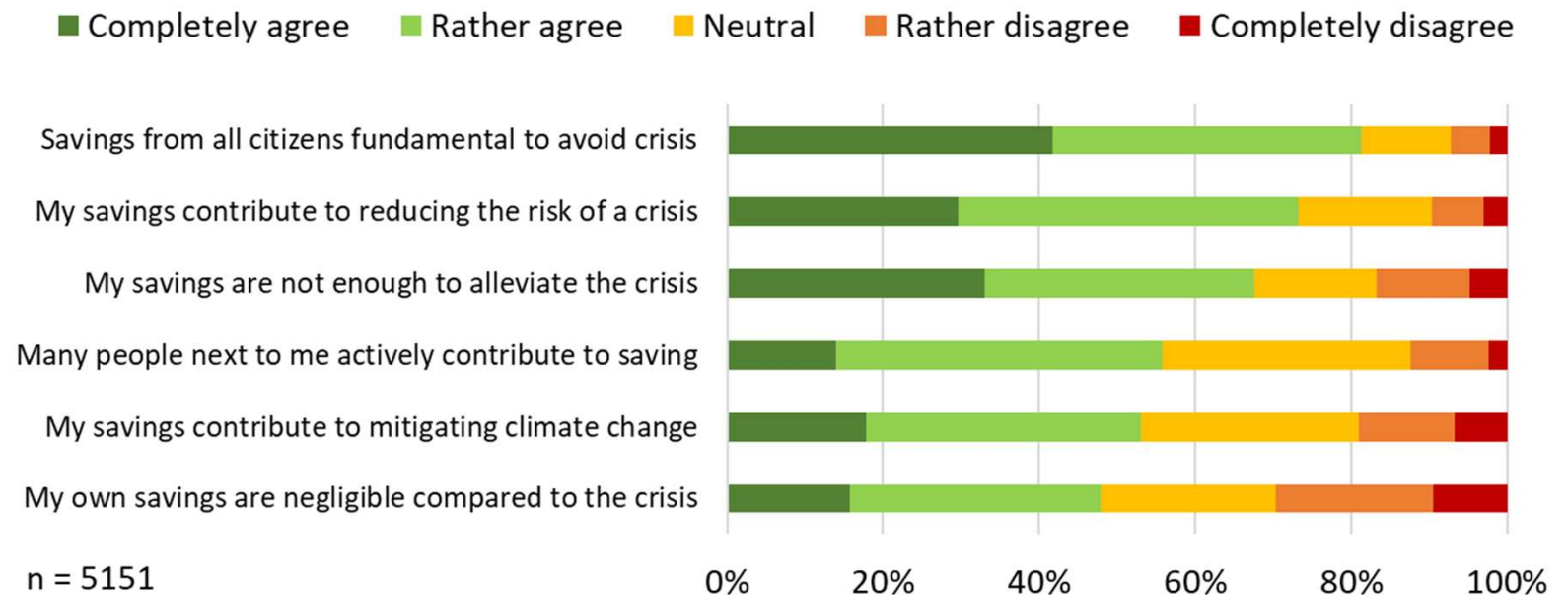


n = 5151

Individual effort is essential, but may not be enough

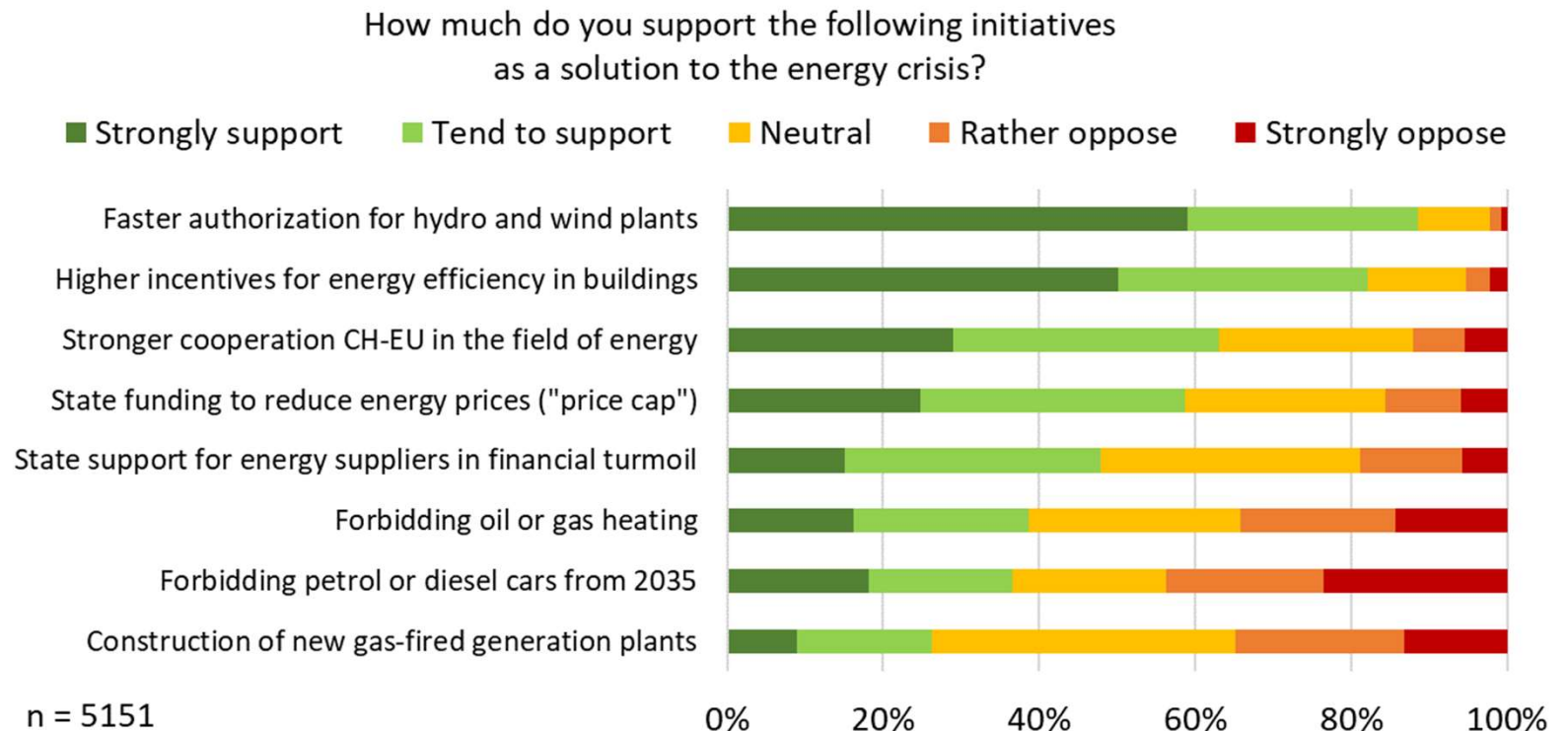
While slightly more than half of the sample think that the own savings contribute to mitigate the crisis, almost 70% believe that individual savings are not enough to solve it. When it comes to climate change, 53% of the respondents think that individual energy savings contribute to mitigation.

How much do you agree with the following sentences concerning the role of energy savings in the current energy crisis?



What is the way out of the energy crisis?

The respondents prioritize a faster authorization of hydroelectric and wind plants, higher incentives for energy efficiency in buildings, a stronger cooperation with the European Union, and some state funding to reduce energy prices.

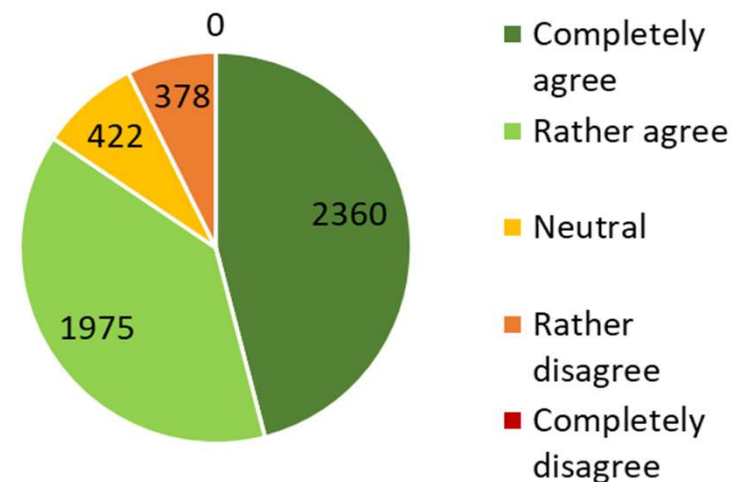


Do wind turbines look nicer?

Besides believing that the Swiss energy suppliers should invest in renewables in Switzerland and abroad and calling for a faster authorization of hydroelectric and wind plants, most respondents state they would approve a project for a wind turbine slightly outside the centre of their municipality.

Less than 10% of the respondents state they would rather oppose the project, and none states he/she would strongly oppose it.

How much do you agree with the following sentence?
"I would approve a project for a wind plant slightly outside the centre of my municipality"

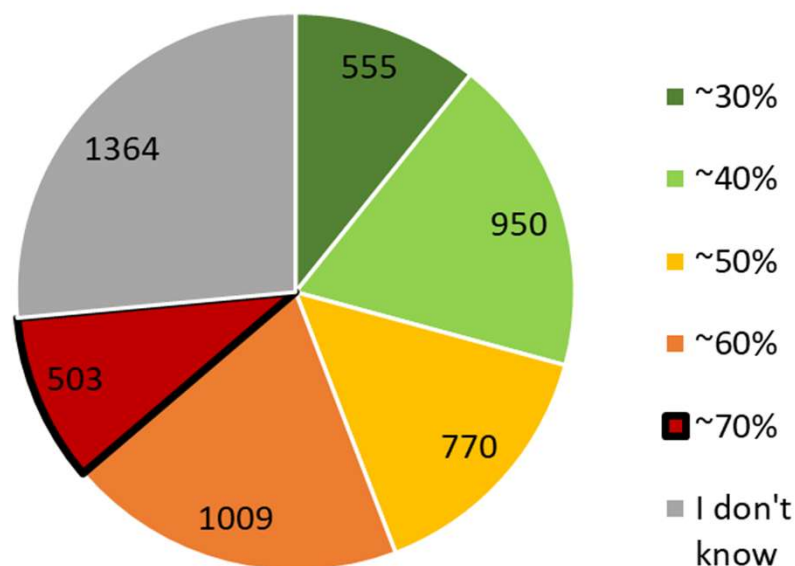


How much energy does Switzerland import?

All in all, Switzerland is importing around 70% of its primary energy consumption from abroad.

Less than 10% of the respondents are able to provide a correct estimate of this figure.

What is the share of imports on total energy consumption in CH?

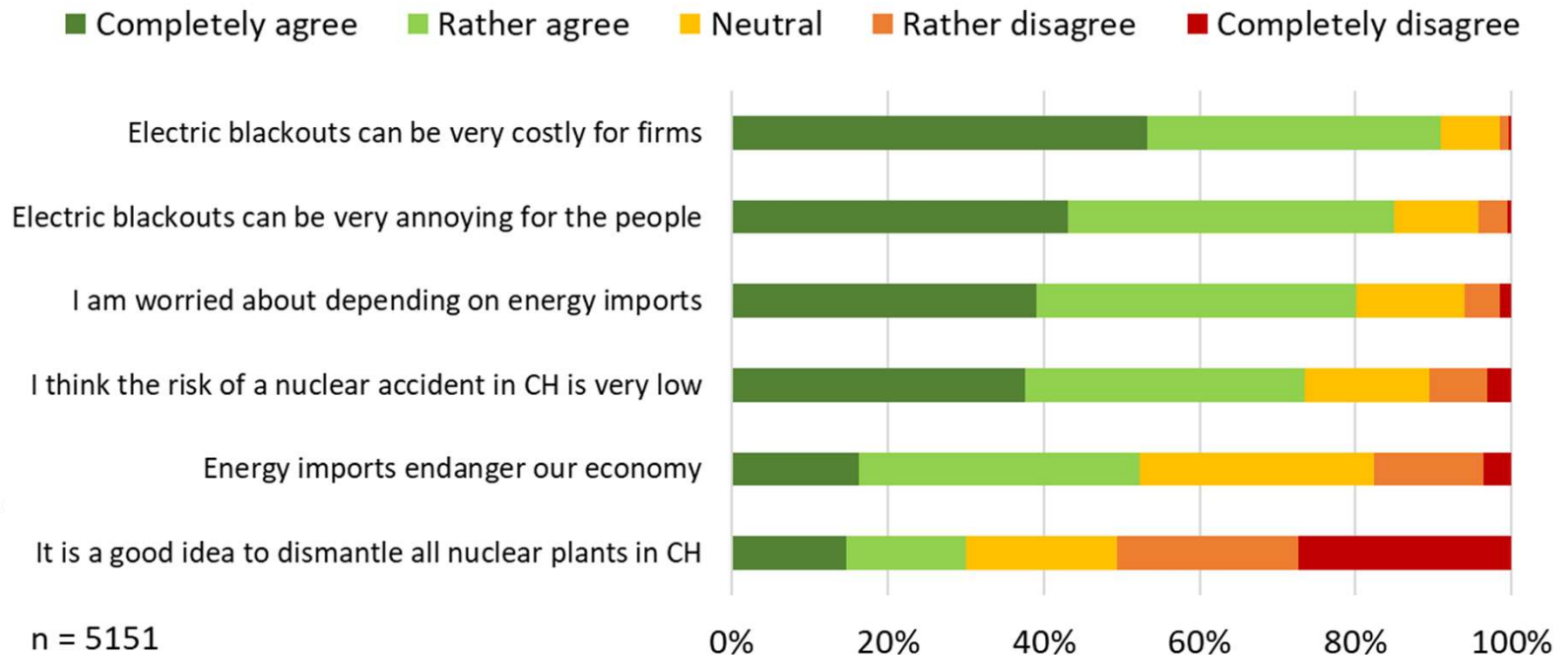


More than 60% of the respondents underestimate the share of imports on primary energy consumption, and 25% state they are not able to gauge it.

Do blackouts, imports, and nuclear accidents cause concern?

More than 80% of the respondents consider blackouts as very costly for businesses and annoying for families. Around 80% are concerned about depending on energy imports. Only 30% think it is a good idea to phase out nuclear generation in Switzerland. The risk of a nuclear accident in the country is very low for more than 70% of the sample.

How much do you agree with the following statements?



In short: individual choices and the environment

A large and growing share of the residents in Ticino thinks that Switzerland needs to proceed faster with the energy transition. Investing in renewables in Switzerland is a priority for most respondents.

The adoption rate of PV panels, heat pumps, and batteries among homeowners is stable. EVs are increasingly popular among homeowners and tenants. Environmental concern is the main purchase driver.

A previous experience with one of the four devices makes purchasing the second one easier, but a low budget may still constrain purchase plans.

Private cars are widely used. Most respondents do not see cars as a status symbol, but think they are still essential for commuting or during free time. There is however a high awareness about the ecological footprint of private cars.

EVs are more popular among those who have private parking space and charger.

In short: individuals and the energy crisis

The respondents think that the energy crisis is mostly due to the war between Russia and Ukraine, the slow progress in the energy transition, and a premature nuclear phase out.

There is strong concern that the energy crisis may induce an economic downturn and weigh on the monthly budgets of families and businesses. Blackouts, in turn, are perceived as heavy for both families and businesses.

Most respondents state that the energy crisis made them think more about their own energy consumption, and that they are ready to adopt simple energy saving measures. The latter are regarded as essential, but not sufficient to solve the crisis.

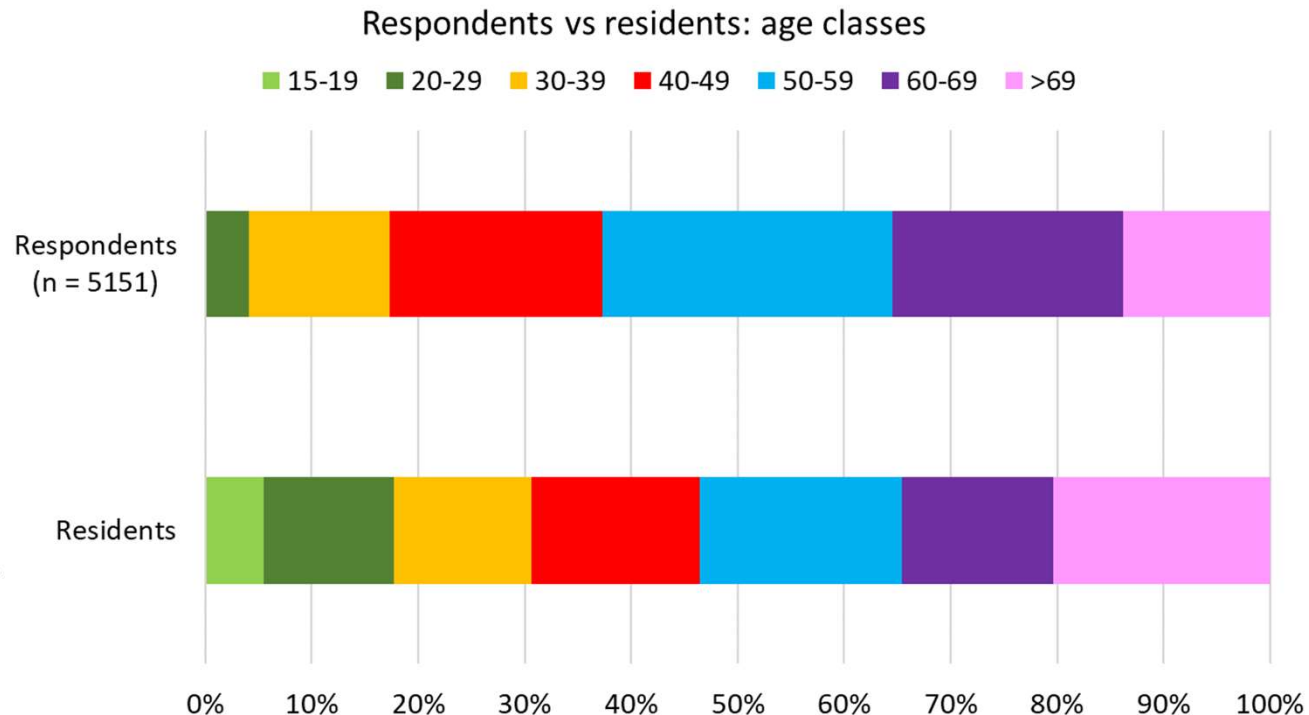
While a vast majority is worried about import dependency, less than 10% of the sample is able to correctly gauge the weight of imports on the Swiss primary energy consumption. Two thirds of the respondents underestimate this figure, and a quarter state they have no clue.

Annex: Sample description

Respondents vs residents

The sample is reasonably representative of the population in terms of age classes.

Please remind that the invitation to fill in the survey was sent to the person in charge of the household electricity contract, so people younger than 18 were mostly excluded.

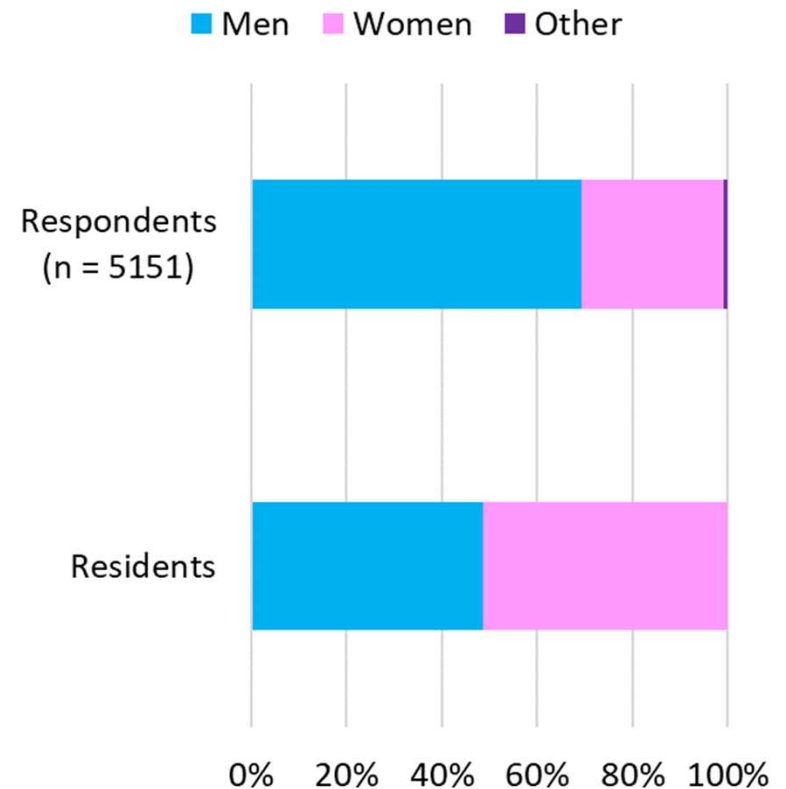


Men are over-represented

Men are often the family members in charge of signing the household's electricity contract.

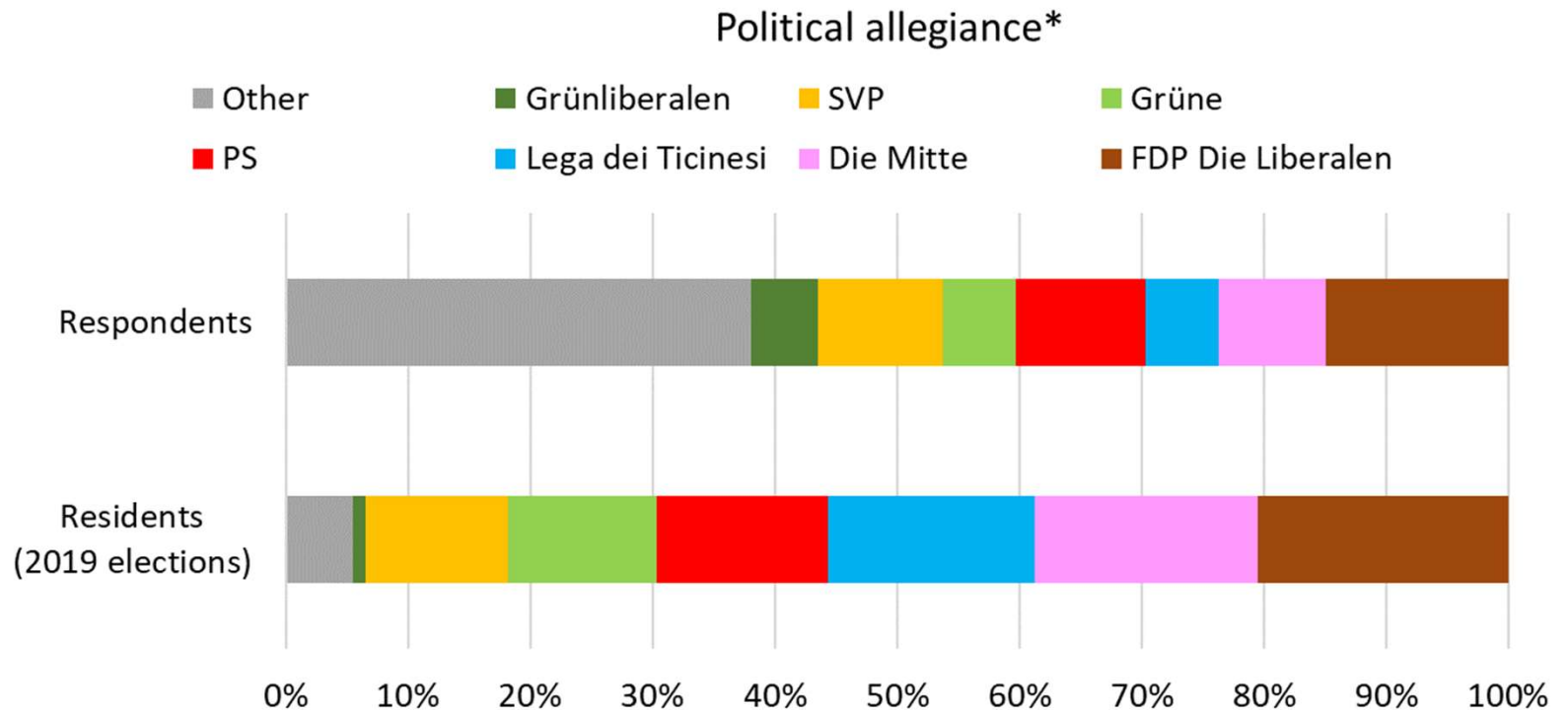
As a consequence, our sample shows an over-representation of men as compared to women and people with non-binary or non-specified gender.

Respondents vs residents: gender



A fair coverage of the political spectrum

We asked more than half of the respondents to state their political allegiance, and included an option «Other» for those who didn't find their choice in our list. Our sample shows a reasonably good coverage of the political spectrum.



* n = 2723. Some respondents did not receive this question

Environmental concern is over-represented

We asked slightly more than half of the respondents whether they participated in the 2021 referendum on the CO2 Law.

Among those who did, the supporters of the «yes» option are over-represented, with 55% against the 45% recorded in the results of the referendum for Canton Ticino.

Vote in the referendum on the new CO2 law (June 2021) among those who declared they participated (n=1964)

