CO_2 reduction goal and pathway

In the reporting year, Swiss Prime Site developed a detailed CO_2 reduction pathway for its entire property portfolio. With planned investments of more than CHF 650 million by 2050, particularly in cladding renovations and heating replacement measures, the goal is a CO_2 reduction pathway significantly above the 2-degrees goal of the Paris Climate Accord. In order achieve carbon neutrality in line with the goals of the Swiss government, Swiss Prime Site will also consider CO_2 compensation measures.

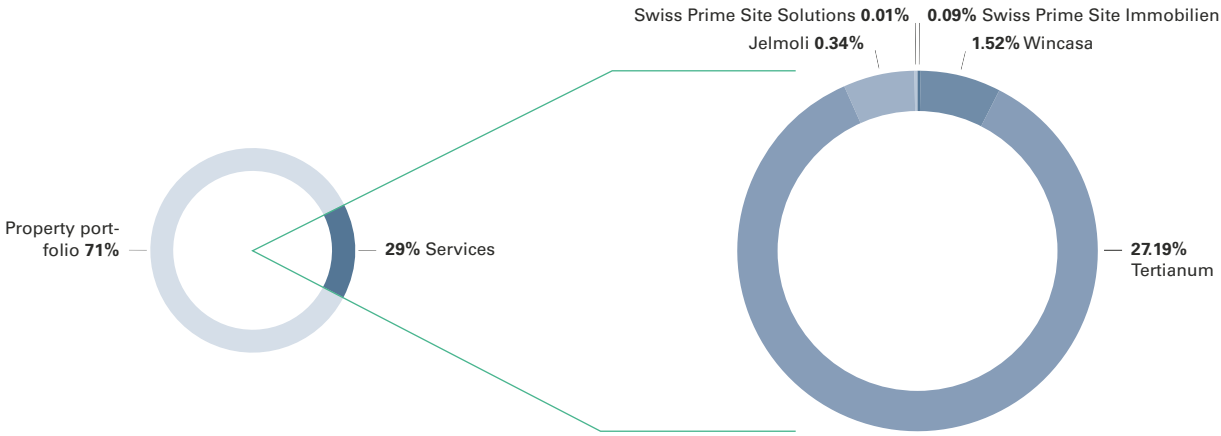
Background

Scientific scenarios such as those published by the Intergovernmental Panel on Climate Change (IPCC)[1] predict that the effects of climate change already seen today will speed up and worsen by 2050. The forecasts assume that the costs of rectifying damage to the climate and adaptive measures will rise significantly. The consequences of unchecked climate change will affect Switzerland, too. According to the climate scenarios published by the National Center for Climate Services (CCS)[2], Switzerland can expect major changes such as more drought, more frequent extreme weather and significantly more heatwaves.

The political situation will change, too. In August 2019, the Swiss Federal Council increased its climate goals, which form part of the discussion about revising the CO_2 law. The climate goals state a reduction pathway for Switzerland by means of which net emissions can be reduced to zero by 2050[3]. The Swiss Government's energy strategy[4] and the Energy Law that was introduced in 2018 represent significant legislative changes. In addition, many cantons and cities are debating initiatives which would increase requirements for buildings and mobility. The assumption is that city and site developments will insist on medium-term climate budgets which contain emissions limits for real estate developments and managers. Against the background of these developments, Swiss Prime Site has defined its own far-reaching reduction goal and a CO_2 reduction pathway for its own property portfolio.

Figure 1:
Proportion of CO_2 emissions
2019

Proportion of CO_2 emissions per group company
2019



[1] The Intergovernmental Panel on Climate Change (IPCC): AR5 Synthesis Report: Climate Change 2014, Online, source: https://www.ipcc.ch/report/ar5/syr/
[2] CCS (Ed.) 2018: CH2018 - Climate scenarios for Switzerland. National Centre for Climate Services, Zurich.
[3] Swiss Federal Office for the Environment 28.08.2019: 2050 Climate Goals, Online, source: https://www.bafu.admin.ch/bafu/en/home/topics/climate/info-specialists/climate-target2050.html
[4] https://www.bfe.admin.ch/bfe/en/home/policy/energy-strategy-2050.html

Initial situation

Swiss Prime Site supports the goals of the Paris Climate Accord[5] (2-degrees goal) and a long-term, carbon-neutral Switzerland, to which business needs to be a significant contributor. Previously, the Company pursued a wide range of initiatives and projects to reduce CO_2 emissions. These ranged from energy control, organisational optimisations, potential analyses for the installation of photovoltaic systems through to promoting e-mobility, but most of them proceeded independently from one another. Swiss Prime Site therefore set itself the goal in 2017 of developing a CO_2 reduction pathway for the property portfolio which would align existing projects and initiatives with a long-term, overarching goal, linked by clear guidelines.

The energy management project initiated in 2012 served as the basis for the creation of a standardised CO_2 balancing process across the whole group, which significantly improved the availability and quality of data. The resulting transparency regarding energy consumption and the associated CO_2 emissions contributed significantly towards the development of the reduction pathway and enabled future progress to be reviewed.

The focus of the CO_2 reduction pathway is on the energy consumption (scope 1 and 2) of the property portfolio, which constitutes far and away the greatest part of the Company's CO_2 emissions (Figure 1). The reduction pathway factors in a total of 165 properties and an annual portfolio growth totalling 20 000 m². As Swiss Prime Site's property portfolio is comparatively young and technologically advanced, energy consumption and CO_2 emissions are relatively low, making the challenge of further improvements much harder.

Developing the reduction pathway

The first step in working out the reduction pathway was to look at all the different areas in which Swiss Prime Site has a direct impact on CO_2 emissions and in which effective measures can therefore be defined (Figure 2). The influence of external factors, such as break-through technologies, was not initially included. The key action areas are in electrical energy, heating and cladding renovations. Swiss Prime Site takes into account the renovation cycles of the existing properties and the assumed annual growth of the stock (10 000 m² à × kg CO_2e/m²) and new build developments (10 000 m² à × kg CO_2e/m²).

Figure 2:
Identified areas for reduction of CO_2 emissions

Action areas	Measures	Implementation
Electrical energy	Hydroelectric power Photovoltaic roof	– Electrical energy obtained from renewable sources – Roll-out of photovoltaic systems on flat roofs for defined locations and evaluation of additional locations – Use of electricity from own energy generation – Electricity obtained from Swiss or European hydroelectric power
Heat energy	District heating/wood-fired heating or other sustainable options	– Gradual move away from natural gas and oil-based solutions – Increase in the proportion of renewable energy based on Swiss-quality district heating and wood-based district heating
Cladding renovation	Factoring in renovation cycle	– Prompt implementation of relevant renovations – Gradual implementation of the Swiss Sustainable Building Standard (SNBS) in building construction (complying with stricter requirements over time)
Forecast Portfolio growth	Not factoring in renovation cycles	– The growth of the stock and new developments are also factored into the scenario analysis and calculation of the reduction pathway. Renovation cycles, however, are not taken into account.

[5] Swiss Federal Office for the Environment 2018: Paris Accord, Online, source: https://www.bafu.admin.ch/bafu/en/home/topics/climate/info-specialists/climate--international-affairs/the-paris-agreement.html

By looking at a range of possible actions in the four main areas of activity, Swiss Prime Site was able to calculate three reduction scenarios. Based on these, Swiss Prime Site decided to follow the most ambitious scenario as a reduction pathway and reduce its relative CO_2 emissions by 75% by 2050. This goal is clearly more ambitious than the 2-degrees goal of the Paris Climate Accord (Figure 3).

In order to achieve this defined reduction pathway, a drastic reduction in relative CO_2 emissions is required, from an annual 22.27 kg CO_2 per square metre (2019) to approx. 5 kg CO_2 per square metre by 2050. The investment costs already budgeted for cladding renovations (windows, façades, roofs) in the property valuations total CHF 610 million. A further CHF 40 million has been budgeted for heating replacement measures. Any additional costs will need to be elaborated on in stages as part of an analysis of the individual property and spread appropriately over the period of 30 years. Swiss Prime Site is also striving to distribute clusters of measures, such as those planned for 2029 and 2030 according to property valuations, for example, (cf. Figure 3), more evenly over the years, making the reduction pathway smoother.

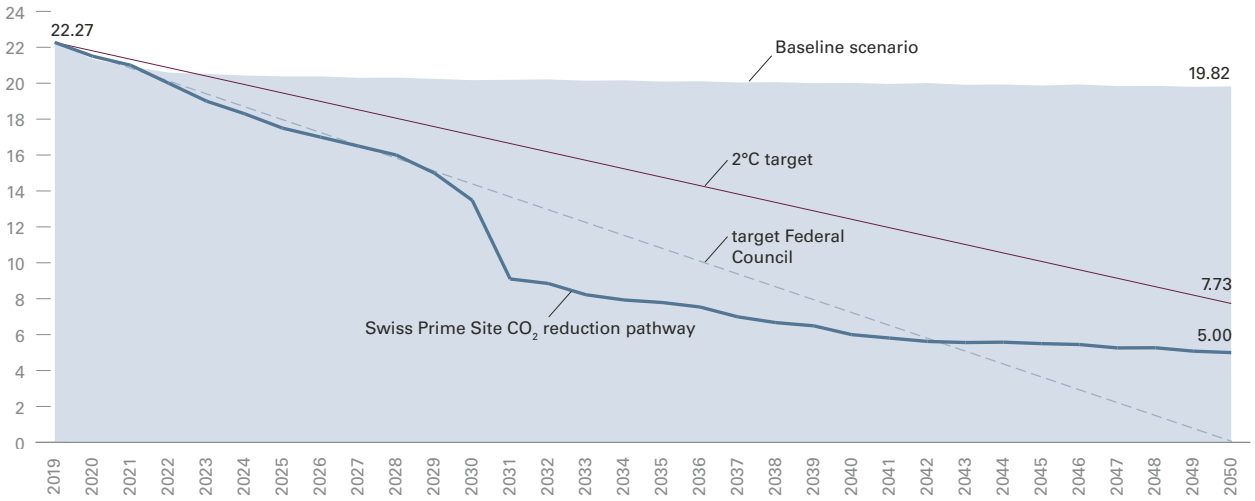
Currently, Swiss Prime Site does not believe it will be possible to reduce CO_2 emissions to net zero by 2050 through these reduction measures alone. That is why the Company is intending to offset the remaining unavoidable CO_2 emissions through compensation measures, particularly projects within Switzerland. Swiss Prime Site estimates that from 2050, annual compensation costs to offset unavoidable CO_2 emissions will total around CHF 2 million. This calculation is based on the assumption of a future CO_2 tariff of CHF 200 per tonne.[6]

How the reduction pathway will be realised

In order to realise its ambitious reduction pathway, Swiss Prime Site has set clear objectives to be implemented in existing properties and future projects. The Company is guided in this process by the Swiss Sustainable Building Standard (SNBS). New build projects and total renovations will include sustainability aspects as early as possible in the planning phase and will factor these in throughout the property's life cycle. In the event that certification becomes a requirement, since 2019 all new build projects must qualify for SNBS Level 4.[7] The requirements for this level will become even stricter in the future, with the primary objectives focusing on CO_2 intensity (see Figure 4).

In addition to these quantitative targets, Swiss Prime Site can also define other criteria to ensure that new builds are emission-free in the medium-term and generate energy in the long-term. These targets include density of use, life cycle costs, mobility, flexibility of use, summer heat protection, accessibility and densification.

Figure 3: CO_2 reduction pathway (blue curve) and 2050 climate goal



[6] For comparison: The CO_2 price in the EU Emissions Trading System was around EUR 24 per tonne in 2019.
[7] The evaluation scale comprises Levels 1-6; for new builds, all indicators must be level 4 for SNBS certification.

Complying with additional criteria, however, will depend on the progress of innovation in construction. Swiss Prime Site follows this market carefully and regularly assesses which innovations can be used to increase energy efficiency and reduce the CO_2 balance.

For existing properties, the greatest reduction potential lies in the procurement of electricity and heat as well as in renovation measures. Swiss Prime Site has defined short-, medium- and long-term targets for existing properties which are based on SNBS criteria and must be included in the individual property strategies. Building certifications are checked on a case-by-case basis, particularly in total renovations. Complying with the CO_2 reduction pathway requires the measures set out in Figure 4 to be implemented from 2020. Additional reductions can be made by implementing stricter measures from 2025 and 2035.

Figure 4: Requirements for new development, operation, and redevelopment[8]

NEW DEVELOPMENT/ REDEVELOPMENT		Standard	Minimum requirement	Target Swiss Prime Site
Primary energy non-renewable		45 – 59.9 kWh/ m²a SNBS-threshold 2 to threshold 1.5	30 – 44.9 kWh/ m²a SNBS-threshold 1.5 to threshold 1	< 30 kWh/ m²a ≤ SNBS-threshold 1
CO_2 emissions		3.6 – 4.6 kg CO_2/ m²a	2.4 – 3.5 kg CO_2/ m²a	0 kg CO_2/ m²a
Operation	Electricity procurement	Procurement of 100% electricity from renewable sources In addition, promotion of electricity produced on site		Positive energy balance per object Obligation for tenants to purchase green electricity
	Procurement of heating energy	Procurement of district heating from low temperature networks and ecological sources Procurement takes technological progress into account and excludes energy contracting		
Energetic renewal of building envelope		Consider stricter legal requirements and additional measures		Planning of renovation cycles at least according to the model regulations of the cantons in the energy sector (MuKEn)
Energy production and storage in portfolio properties		Check suitability of photovoltaics for further objects (roof and facade) Examine the economic efficiency of energy storage		Implement photovoltaics and energy storage for identified objects

[8] The SNBS criteria for greenhouse gases are a target: weighted final energy (national weighting factors).

Operationalise climate goals

To operationalise the quantitative and time-based goals set out in the CO_2 reduction pathway to reduce CO_2 emissions in the buildings portfolio, Swiss Prime Site developed a holistic energy concept (Figure 5). This contains specific recommended actions to implement the CO_2 reduction strategy for properties. Measures for new build projects relate to both the procurement of energy and how it is produced, stored, distributed, consumed, measured and billed.

In the case of existing real estate, the holistic energy concept will determine the specific property strategies and multi-year plans across the whole portfolio, in which investments to reduce CO_2 emissions are planned long-term and aligned with the valuation.

The holistic energy concept will therefore ensure that the CO_2 reduction pathway is operationalised, measured and evaluated as a defined goal within the Company. It should be clear at any given moment where the Company is on the reduction pathway and under what circumstances any timely compensation measures may need to be carried out.

Figure 5: Operationalisation of the CO_2 reduction pathway