Avoided emissions methodology

2024

swisscom

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1 Management summary

At Swisscom, climate action has been part of our sustainability agenda for more than 25 years. A milestone was reached in 2023, with the verification of our 2035 net zero target by the SBTi. Although reducing our own and value chain carbon emissions is our focus, we recognized early the potential of the ICT sector in supporting global decarbonization Chapter 2.1. Indeed, emissions savings from using climate-friendly ICT solutions are estimated to be significantly higher than the sector’s footprint itself. This represents an opportunity, and a responsibility, for our sector to offer this type of solutions.

We’ve reported on our avoided emissions since 2012. We define avoided emissions as the sum of the emissions saved by our customers thanks to the use of our solutions and newly, the emissions saved thanks to the solutions from the startups in which we invest (proportional to our share in the company). In 2024, we reached our 2025 goal for the fourth time, with more than 1 million tonnes CO_2e saved by our customers SIR 2024.

To strengthen the credibility of our actions, it was necessary to be more transparent around our claims. This is why we decided to disclose our avoided emissions methodology.

The methodology is mainly based on the recent “Guidance on avoided emissions” from the World Business Council for Sustainable Development (WBCSD) and the Net Zero Initiative (NZI). After reviewing the latest developments in the field of avoided emissions and mapping our internal processes against requirements, we performed a review of our solution portfolio and calculations with an external consultancy. The methodology was built based on this review.

This methodology follows the six core decision-making principles defined by the WBCSD and the NZI Chapter 3. Eligible solutions are then identified following the 3-gates principles. The solutions must pass the 3 gates by answering three simple questions. Is the climate strategy of our company aligned with the latest climate science and global climate goal? Do our solutions support this global climate goal? And is the impact from our solutions significant enough to justify a claim? Performing this test, we confirmed 11 types of solutions and excluded two former categories from our selection.

In Chapter 5, we present a detailed description of our solutions, grouped in six categories – Work Smart, Internet of Things, Data Center Services, Paperless working, Circular economy, and New businesses Chapter 5. Further, we estimate avoided emissions from our investments in startups with climate-compatible solutions.

This methodology isn’t perfect but is a first step towards better transparency around avoided emissions. It is for now a self-declaration. We commit to review it yearly and adapt it according to the latest advances in the field – based on studies, sectoral guidance or market developments. In particular, we look forward to the Phase 2 of the EU Green Digital Coalition (EGDC) Initiative to support standardization in our sector. We hope that this work will inspire others to disclose their approach, strengthen the credibility, and unleash the potential of avoided emissions. Our ambition is to integrate the decarbonization potential of solutions in our decision-making processes thus contributing to the transformation towards a low-carbon society.

Best regards

Saskia Günther
Head of Sustainability

2 Introduction and context

For more than 25 years, Swisscom has been at the forefront of climate action. Reducing our own and value chain carbon emissions is the focus of our climate strategy, with an ambitious 2035 net zero target in accordance with the Science Based Target initiative (SBTi) verified in 2023.

This focus on carbon emissions reduction is crucial to achieving the goals of the Paris Agreement, but more efforts are needed to allow for a 1.5°C society. Companies can contribute to the decarbonization of society beyond their value chain through their solutions portfolio. Along the ICT sector, Swisscom recognized the potential contribution of digital solutions to the decarbonization of society, resulting in avoided emissions for our customers and stakeholders.

Numerous reports and scientific papers in the last two decades have pointed out that the biggest potential in climate protection of the ICT sector lays in offering smart climate-friendly digital solutions. The Smarter 2030 study by GeSI concludes that up to 20% of all greenhouse gas (GHG) emissions worldwide can be reduced through digital services.[1] That is around six times the emissions from the ICT industry. The WWF was the first to publish supporting evidence, followed by the Smarter 2025 and Smarter 2030 reports from GeSI and by country-specific studies. In 2017, a study conducted by the University of Zurich and EMPA, in collaboration with the WWF Switzerland and Swisscom, estimated that the smart use of ICT services in Switzerland could save around 3.5 times more emissions than the ICT industry produces by 2025.[2]

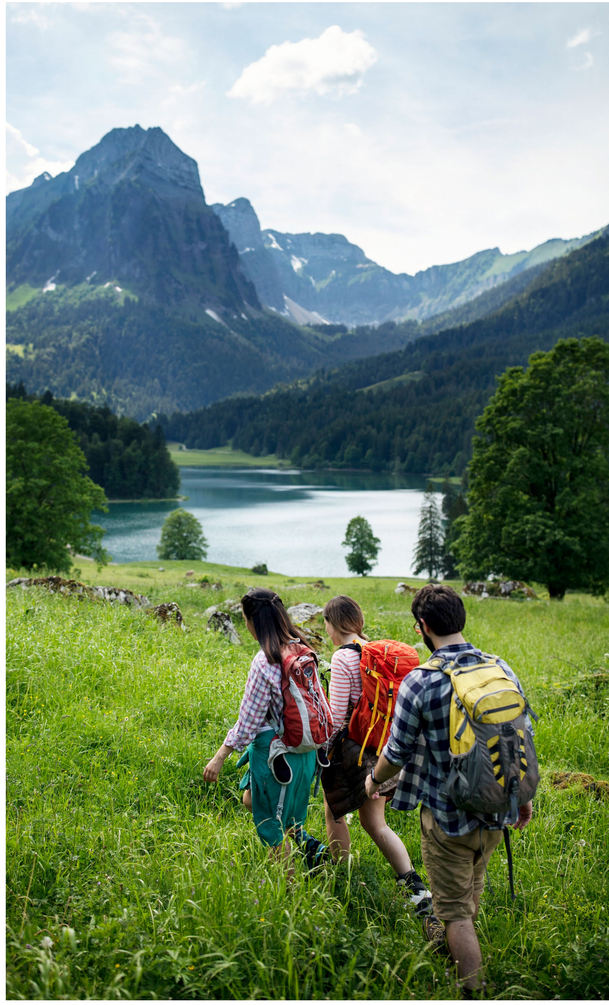
In response to the high relevance of avoided emissions for our sector, we set a first target for avoided emissions in 2014. In 2018, we set a new goal for avoided emissions of 1 million tonnes of CO_2 avoided yearly for our customers by 2025. This goal was achieved in 2021 thanks to our solutions and investments. A new, more ambitious target is currently under development and will be published at the beginning of 2025.

Given the nature of the claims made through the quantification of avoided emissions, we committed to publish our avoided emissions methodology, thus publicly acknowledging both our progress and our improvement potential.

Still, the quantification of avoided emissions should be considered with caution and with the awareness that current methodologies evolve as new findings and studies come to knowledge. For example, so-called rebound effects need to be further studied to allow their quantification. We are therefore committed to report yearly about methodological changes and improvements. We look forward to the publication of the work from the EU Green Digital Coalition (EGDC) to support standardization in the reporting of avoided emissions.[3]

Our ambition is to integrate the decarbonization potential of solutions in our decision-making processes thus contributing to the transformation towards a low-carbon society.

This methodology is based on the latest developments in the field of avoided emissions, mainly the World Business Council for Sustainable Development (WBCSD) Guidance on avoided emissions published in early 2023 together with the Net Zero Initiative (NZI).[4] Further references include the latest recommendations from the IPCC[5] and from the WRI[6].



1 #SMARTer2030, GeSI, 2018 smarter2030.gesi.org
2 Opportunities and Risks of Digitalization for Climate Protection in Switzerland, Hilty and Bieser, 2017 www.ifi.uzh.ch
3 EU Green Digital Coalition (EGDC) www.greendigitalcoalition.eu
4 Guidance on avoided emissions, WBCSD, 2023 www.wbcsd.org
5 IPCC AR6 WGIII Summary for Policymakers, 2023 www.ipcc.ch
6 Estimating and reporting the comparative emissions impacts of products, WRI, 2019 www.wri.org

2.1 Avoided emissions reporting principles

In accordance with the above recommendations, avoided emissions are reported separately from our GHG inventory (scopes 1–3)[7] and from climate compensation projects such as carbon avoidance or removal[8]. In any case, we do not associate claims of carbon neutrality with avoided emissions for our customers and from investments, as these avoided emissions should not be compared to the GHG emissions of a company.

In line with the above and based on the principles of the Net Zero Initiative[9], we define our contribution to an overall reduction in global carbon emissions along three pillars. These pillars are complementary and non-overlapping.

1. Pillar A is the prerequisite for the two other pillars, it covers our own GHG emissions reduction actions (scopes 1–3) with our verified 2035 net zero target according to the SBTi.
2. Pillar B covers our contribution to global decarbonization efforts through avoided emissions for our customers thanks to our digital solutions (portfolio) and investments in companies with emissions mitigation potential (venture).
3. The last pillar C concentrates on the creation of carbon sinks, mainly through direct removals and via investments in removal projects (venture).

Carbon emission compensation mechanisms are excluded.

Swisscom is already addressing the three pillars described above in its current sustainability strategy.

The purpose of this methodology is to quantify the contribution to Pillar B through the carbon saving potential of our solutions and our investments in startups.

The three pillars of global decarbonization, adapted from the Net Zero Initiative[10]

The two levers for reaching global net zero		Global decrease in emissions		Global increase of carbon removals
Actions at the scale of companies		**Pillar A:** A company's emissions reduction (decarbonization)	**Pillar B:** A company's contribution to global decarbonization efforts	**Pillar C:** A company's contribution to global decarbonization efforts
Related to a company's value chain	A company's own operations	... through reduction of direct emissions (scope 1)		... through direct removals (scope 1 removals)
	Upstream and downstream	... through reduction of indirect emissions (scope 2+3)	... through the introduction of solutions (avoided emissions)	... through indirect removals (scope 3 removals)
Outside a company's own operations			... through financing otherwise enabling climate mitigation projects (additional avoided emissions)	... through financing otherwise enabling removal projects (credited/contracted removals)

[7] Swisscom Sustainability Impact Report 2024 www.swisscom.ch/sir2024

[8] Swisscom.ch/climate-neutral www.swisscom.ch

[9] Net Zero Initiative net-zero-initiative.com

3 Principles

In contrast to the GHG inventory, the avoided emissions of a solution cannot be measured precisely. Saved emissions through the use of a solution are the result of the comparison of the emissions along the life cycle of the solution and that of a (hypothetical) reference scenario where the solution is not present (baseline). This is dependent on the context in which the solution is being delivered.

This methodology follows the six core decision-making principles defined by the WBCSD and the NZI[10] and is in accordance with further recommendations:

1. **Climate science alignment**
   Ensure company strategies are aligned with the latest climate science and global climate goal.

2. **Prioritize the reduction of GHG emissions across the value chain**
   Companies shall not make avoided emissions claims without working on reducing their scope 1, 2 and 3 emissions in line with the latest climate science. Companies shall address scope 1, 2 and 3 emissions, even if they consider themselves to be climate solution providers.

3. **Separate reporting of inventory and avoided emissions**
   Companies shall always separate scope 1, 2 and 3 GHG emissions reporting from avoided emissions in their external company reporting and shall not use avoided emissions to offset GHG inventory emissions. As such, avoided emissions should also be kept separate from offsetting claims and carbon credits.

4. **Emphasize the long-term viability of solutions**
   Decisions made in the development of this guidance will support the development or deployment of 1.5°C-compatible solutions that do not lock in GHG-emission-intensive assets or are inconsistent with the global net zero ambition and a 1.5°C pathway.

5. **Drive quality GHG emissions reporting by building on the GHG Protocol accountancy principles**
   Relevance, accuracy, completeness, consistency, transparency, conservativeness, and representativeness.

6. **Deliver actionable recommendations**

3.1 The 3-gates principles

In a first step, it is necessary to define the criteria for which a solution can be considered as contributing to avoided emissions.

The WBCSD Guidance suggests three eligibility criteria that companies should meet ahead of undergoing avoided emissions calculations to determine the legitimacy of their claim:

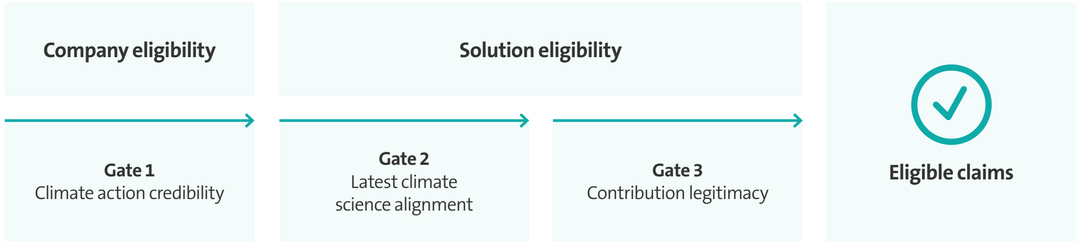
1. **Gate 1: Climate Action Credibility**
   Since Swisscom has committed to a net zero emission target by 2035 according to the SBTi and is already externally reporting about it and related actions, we fulfil the requirements of gate 1.

2. **Gate 2: Latest Climate Science Alignment**
   The solution has mitigation potential according to the latest climate science which is compatible with a net zero world.

3. **Gate 3: Contribution Legitimacy**
   The solution has a significant impact in reducing our customer's emissions. This aspect is addressed directly under Chapter 5 where the enabling effects of the individual solutions are outlined.

Each solution category is analysed for eligibility, through the significance of its contribution to a 1.5°C society, in Chapter 5 of this methodology.

The 3-gates principles, adapted from the WBCSD Guidance[11]



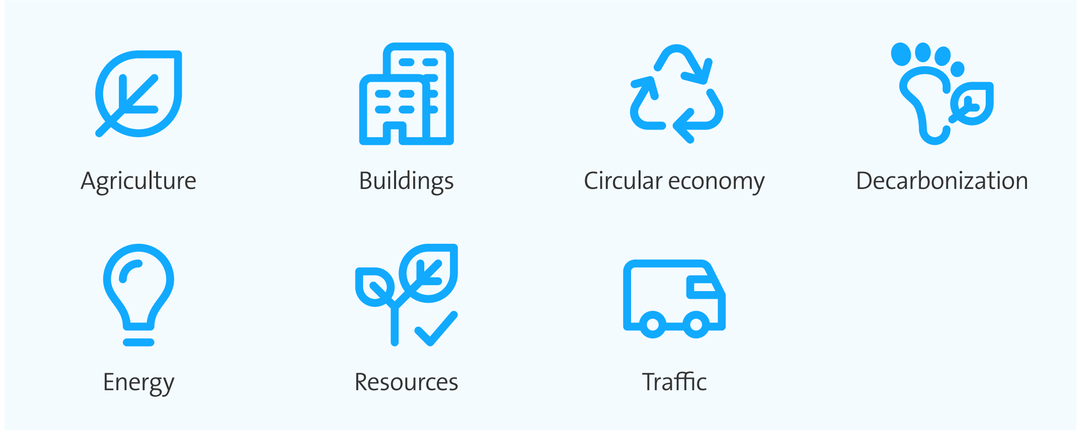
[10] Guidance on avoided emissions, WBCSD, 2023 www.wbcsd.org

3.2 Climate science alignment

To determine whether a solution has a climate mitigation potential according to the latest climate science, we refer to the sectors identified in the latest publication of the IPCC Sixth Assessment Report (AR6. Figure SPM.7)[11]. Our solutions mostly contribute to carbon mitigation in buildings and transport and to improved resources and energy efficiency. This is in line with the priority sectors identified by the EGDC for green ICT solutions – Energy/Power, Transport, Smart cities, Construction/Buildings, Manufacturing and Agriculture.[12] Of note, we adopt the recommendation from the WBCSD to exclude any solution, despite providing emissions reductions, that sustain in any way a carbon-intensive industry.

The selected solutions are grouped by effect categories and outlined in detail in Chapter 5.

Our focus areas



3.3 Portfolio review

After assessment of our solution portfolio against the 3 gates, we removed two categories from our reporting – “Replacement of data carriers” and “e-commerce”. For the replacement of data carriers (e.g. CDs, DVDs) contributing to dematerialization, behavioural patterns have evolved in such a way that the reference scenario does no longer apply while most supports for music or videos have become digital. In the case of e-commerce, the increase of online shopping and back-and-forth shipping of goods does no longer allow legitimate claims of reduced emissions compared to physically visiting shops.

We also critically reviewed IoT solutions to exclude solutions supporting the perpetuation of a carbon-intensive industry. This is in line with gate 2.

We will perform a yearly review of our avoided emissions solution portfolio considering the 3-gates principles. Chapter 3.1

[11] IPCC AR6 WGIII Summary for Policymakers, 2023 www.ipcc.ch
[12] EU Green Digital Coalition www.greendigitalcoalition.eu

4 Assessing avoided emissions methodology

4.1 Definitions

Avoided emissions are defined as the reduced impact on society when comparing the GHG impact of a solution to an alternative reference scenario where the solution would not be used.

Although the estimation of avoided emissions relies on life cycle assessment thinking, only the GHG emissions are considered. However, potential adverse impacts on other environmental factors should be avoided.

For defining the reference scenario, we consider the most conservative situation so that our claims are not overestimated. Unless stated otherwise, our solutions apply to the Swiss market environment and are comprised under the activities of Swisscom AG (Switzerland).

Our digital solutions cover a broad range of activities and sectors and are described in detail in the following chapter.

4.2 Key methodological principles

For our eligible solutions, we follow the 5-step approach to estimating avoided emissions as recommended in Chapter 5 of the WBCSD Guidance[13].

- **Step 1: Time frame**
  For all our solutions, we estimate avoided emissions on a year-on-year basis, consistent with the time frame of the associated scope 3 emissions.[14]

- **Step 2: Reference scenario.**
  We define the reference scenario as the most conservative and well-documented scenario in a particular context (e.g. Switzerland) in which the solution would not be present. A reference scenario may evolve over time and due to changing market conditions, requiring a regular review.

- **Step 3: Lifecycle emissions.**
  We estimate the lifecycle emissions of our solution and of the reference scenario at the most representative and comparable stages. Trade-offs, assumptions, and simplifications are reported in the solution data sheets (see Chapter 5).

- **Step 4: Estimation of avoided emissions.**
  The estimation of avoided emissions is obtained by making the difference between the lifecycle emissions of the solution and that of the reference activity.

- **Step 5: Aggregation of avoided emissions.**
  The total avoided emissions consist in the sum of the avoided emissions achieved in each defined category.

[13] Guidance on avoided emissions, WBCSD, 2023 www.wbcsd.org

[14] Swisscom Sustainability Impact Report 2024 www.swisscom.ch/sir2024

4.3 Data collection and quality

4.3.1 Calculation consistency

We use the same functional unit to compare our solution with the reference scenario and consider the same stages along their life cycle.

Where applicable, the carbon footprint of our solutions is accounted for in our GHG emissions inventory (generally scope 3 categories 1, 3, 4, 11, 12 and 15).[15]

4.3.2 Emission factors and other assumptions

Emission factors, where applicable, account for the solution's entire life cycle or all relevant stages. The emission factors used in our calculations are reviewed yearly through myclimate[16], an independent climate protection organization. Other assumptions (e.g. modal splits, travel patterns) are regularly actualized based on public statistics and our own yearly externally mandated survey on smart working habits of the Swiss population (referred to as the New Way of Working study).

4.3.3 Allocation and double counting

As recommended by the WBCSD, we do not perform any allocation of avoided emissions to a given stage of the lifecycle. This gives an order of magnitude of the global decarbonization effect of the solution. Double counting may occur when another party along the value chain reports on the avoided emissions of the same solution. However, we report on the relevance of our contribution to the decarbonization effect of the solution in our solution data sheets. This type of accounting will encourage action along the entire value chain of a solution.

4.3.4 Conservative factors

In several of our calculation models we use additional conservative factors. These factors ensure that our estimations remain conservative and realistic in contexts that are not yet well documented. For example, where significant rebound effects are expected that cannot be quantified, or the market situation evolves rapidly.

4.3.5 Solution specificity

The specificity of our calculations is defined against three possible degrees.

High: where data, models or studies are readily available, for example where life cycle analysis can be performed at the unit level.
Medium: where some assumptions and simplifications are taken or when a life cycle analysis is too complex to be performed.
Low: where no primary data is available, and estimations must be made at the level of the solution.

[15] Swisscom Sustainability Impact Report 2024 www.swisscom.ch/sir2024
[16] myclimate www.myclimate.org

5 Application of methodology to specific technologies

Following the principles and steps described in Chapters 3 and 4, we have grouped our solutions in 11 categories (with 6 overarching categories) to which avoided emissions can be attributed. For each category, we describe the solution and its enabling effects and disclose the calculation model as well as the parameters contributing to the choice of eligibility, specificity, and related assumptions.

We also evaluate the maturity of the methodology of the solution going from low to high level of maturity. The level of maturity depends on the type of calculation and data sources, whether rebound effects were quantified or whether improvement areas were identified. It is not an assessment of the level of maturity of the solution itself.

Only solutions having generated a turnover in 2023 are considered.

5.1 Work Smart

Thanks to our Work Smart services, our customers can replace part of their travelling by exchanging images, sound, and data over distance.

5.1.1 Saving emissions from traffic – UCC/MCC

Swisscom solution

UCC/MCC (Managed Unified Communication and Collaboration): Swisscom provides smart working solutions for remote collaboration and conferencing to its corporate and SME clients, thus enabling emissions savings from reduced business travels in Switzerland, the EU and abroad.

Solutions comprise the promotion and sales of Microsoft and Cisco platforms and related customized support given by Swisscom.

Functional unit

Avoided emissions per UCC user per year

Reference scenario

Average number of physical business meetings at an average travel distance

Product/service lifecycle

Emissions from the UCC solution per meeting over an average duration

Enabling effects

- Reduction in emissions from reduction in travel to business meetings (quantified, direct)

Additional effects

Rebound effects

- None identified

Secondary effects

- None identified

Basis of calculation

Focus area: Traffic

Methodology Maturity

5.1.2 Saving emissions from traffic – Home office

Swisscom solution

Home office enabled through connectivity: Swisscom provides connectivity to its private clients via broadband solutions, thus enabling emissions savings from reduced travel into the office by homeworkers.

Functional unit

Avoided emissions per Swisscom broadband-enabled homeworker per year

Reference scenario

Working in the office (including commuting to the office)

Product/service lifecycle

Lifecycle emissions of Swisscom broadband solution

Enabling effects

- Reduction in emissions from reduction in travel to work (quantified, direct)

Additional effects

Rebound effects

- (-) Increased energy use in homes: there could be an increase in GHG emissions per homeworker per year resulting from increased home energy consumption. (not quantified)
- (-) Commuter distance: travel emissions for commuting days may also increase, as several studies indicate homeworking can incentivize hybrid workers to move further away from their offices, thus increasing commute distance. (not quantified)
- (-) Travel on non-office days: more travel for social activities might occur on non-office days. (not quantified)

Secondary effects

- (+) Requirements for office space are expected to shift as hybrid working becomes more established. Reduced office energy use (such as heating, cooling, lighting) and dematerialization (reduced equipment) may bring further carbon savings. (not quantified)

Basis of calculation

Focus area: Traffic

Methodology Maturity

5.2 Internet of Things (IoT)

Swisscom enables data transmission using market-leading networks and technologies. Our IoT clients benefit from our comprehensive expertise, from advice and implementation to operation and analyses, rely on our outstanding network coverage throughout Switzerland and the world and benefit from our company and industry-specific, vertically integrated solutions.

We regularly organize competitions such as the IoT Climate Award or the Startup Challenge to identify and promote IoT companies with climate-friendly services.

Swisscom solution

Internet of Things (IoT): The IoT enables data-based control of devices, buildings, and vehicles in real time. Besides mediating relevant support and expertise, Swisscom is the provider of IoT connectivity (network and sensors) enabling the solution. In some cases, Swisscom is also provider of the cloud platform on which the solutions are running.

Note: Since each application category and each client's solution are unique, we currently base our estimation of avoided emissions through IoT on an average carbon saving potential per installation for our major clients, on the number of systems in action during the reporting period and the number of newly installed systems during that same period. The quality of the average saving potential per installation is variable, reaching from scientific studies to rough models which were challenged by our climate consultant and our auditor.

Enabling effects

Generally, IoT-equipped systems are more efficient and resource-saving as the additional information obtained leads to smarter use of things.

Saving emissions from traffic:

- Connected vehicles or vehicle fleets allow a better understanding of traffic conditions and driving behaviours and improved fleet management. This results in the reduction of traffic emissions thanks to more efficient driving and smart fleet use (e.g. less empty travels, less vehicles needed). (quantified, indirect)
- Thanks to sensors, vending machines or heat pumps are remotely monitored, or smart meters share data, replacing the need for service trips and thus reducing GHG emissions. (quantified, indirect)

Saving emissions from buildings:

- Solutions for smart buildings encompass an array of applications leading to the improved energy efficiency of buildings. Typical applications from our clients range from smart valves and smart thermostats for heating optimization in buildings to sensors for monitoring the energy needs of buildings or the optimization of self-consumption of buildings with solar power. (quantified, indirect)
- Solutions for remote building management from our clients allow to turn heating on demand to avoid continuous heating in empty buildings (e.g. secondary residency or rentals) thus resulting in reduced energy costs and GHG emissions. (quantified, indirect)

Focus areas: Traffic, Buildings, Energy

Methodology Maturity

Functional unit

Avoided emissions per installed system

Reference scenario

Average number of trips or average energy spent without the use of the IoT system

Product/service lifecycle

Lifecycle emissions from the IoT system

Additional effects

Rebound effects

- None identified

Secondary effects

- None identified

Basis of calculation

5.3 Data Center Services

Our services in the areas of cloud and housing allow our customers to give up their own data centers and servers and relocate them to highly efficient data centers, mostly operated with virtualized servers.

5.3.1 Saving energy – Cloud

Swisscom solution

Cloud: B2B clients rent space for storage and databases (cloud) in energy-efficient Swisscom physical and virtual servers or at Third-Party Clouds (TPC).

The solution comprises promotion and sales of TPC solutions and related customized support given by Swisscom.

Functional unit

Avoided emissions per server per year

Reference scenario

Emissions from an average server at an average client's location per year

Product/service lifecycle

Emissions from physical and virtual Swisscom servers per year

Enabling effects

- Reduction in emissions through reduced energy needed to host storage space and data in Swisscom servers and TPCs (quantified)
- Cleaner electricity mix used by Swisscom (100% renewable energy) (quantified)

Additional effects

Rebound effects

- (-) Increase in energy needs of data centers through increased data volumes (quantified)

Secondary effects

- (-) Energy used for the storage of non-essential or outdated data (not quantified)
- (-) Impact on biodiversity due to demand of larger data centers (not quantified)

Basis of calculation

Focus area: Energy

Methodology Maturity

5.3.2 Saving energy – Housing

Swisscom solution

Housing: B2B clients buy storage space in Swisscom energy-efficient data centers.

The clients are responsible for the server hardware and software maintenance, while Swisscom provides power, climate control and internet connectivity.

Functional unit

Avoided emissions thanks to housing per server per year

Reference scenario

Emissions from average server at an average client's location per year

Product/service lifecycle

Emissions from the server infrastructure per year

Enabling effects

- Reduction in emissions through reduced energy needed to house storage space and data in Swisscom servers (quantified)
- Cleaner electricity mix used by Swisscom (100% renewable energy) (quantified)

Additional effects

Rebound effects

- (-) Increase in energy needs of data centers through increased capacity (quantified)

Secondary effects

- (-) Impact on biodiversity due to demand of larger data centers (not quantified)

Basis of calculation

Focus area: Energy

Methodology Maturity

5.4 Paperless working

Paper savings are achieved through electronic invoices, the electronic processing of transactions, and e-signatures as an alternative to wet signatures. Through the increased digitalization rate, ever more customers receive their invoices exclusively digitally.

5.4.1 Saving resources – Saving paper (online billing)

Swisscom solution

Online billing: Through our online billing solutions for our private and business customers, traditional paper bills are replaced by digital invoices.

Enabling effects

- Reduction in emissions through the reduced need in paper (over its entire lifecycle) (direct, quantified)
- Reduced pressure on forest through decreased demand for wood pulp (indirect, not quantified)

Functional unit

Avoided emissions per 2-page digital invoice over its lifecycle

Reference scenario

Emissions from an average 2-page invoice over its lifecycle

Product/service lifecycle

Lifecycle emissions from an average 2-page digital invoice

Additional effects

Rebound effects

- None identified

Secondary effects

- None identified

Basis of calculation

Focus area: Resources

Methodology Maturity

5.4.2 Saving resources – Saving paper (e-signature)

Swisscom solution

e-Signature: Using secure digital signatures for our business and private customers, digital contracts can be signed without the need of printing them on paper.

Enabling effects

- Reduction in emissions through the reduced need in paper (over its entire lifecycle) (direct, quantified)
- Reduced pressure on forest through decreased demand for wood pulp (indirect, not quantified)

Functional unit

Avoided emissions per e-signature over its lifecycle

Reference scenario

Emissions from a signed contract printed on paper over its lifecycle

Product/service lifecycle

Lifecycle emissions from an average 3-page digital contract

Additional effects

Rebound effects

- None identified

Secondary effects

- None identified

Basis of calculation

Focus area: Resources

Methodology Maturity

5.5 Circular economy

We refurbish used but still functional mobile phones, tablets and laptops so that they can be reused, thereby extending their service life. In the case of mobile phones, these are reused as low-cost devices in Switzerland or in emerging countries.

5.5.1 Saving resources – Mobile device reuse

Swisscom solution

Mobile device reuse:

Mobile Aid: Our business and private clients can donate their mobile phones and tablets that are no longer in use to our Swisscom shops or via our Mobile Aid Business programme. The mobile phones are, if possible, reconditioned and resold (older models abroad, newer ones in Switzerland). Mobile phones that are no longer functional or obsolete mobile phones are recycled.

Buyback: Functional mobile phones and tablets that are no longer used are bought from our private and business customers (directly or via our Swisscom shops) and reconditioned by our subcontractor. The subcontractor takes over the devices and resells them in Switzerland, some in Swisscom channels as Refreshed devices, others in white-labelled channels.

Enabling effects

- By reusing a used mobile phone, the GHG emissions from the production, transport and disposal of a new mobile phone can be saved (direct, quantified)
- Resources are recovered through recycling and their primary production and associated GHG emissions are saved (indirect, not quantified)

Functional unit

Avoided emissions from a reused mobile phone through its entire lifespan

Reference scenario

Recycling of a mobile phone after a standard use period and producing a new one

Product/service lifecycle

The emissions of a mobile phone over its entire lifespan

Additional effects

Rebound effects

- None identified

Secondary effects

- (+) Reuse of primary resources (not quantified)

Basis of calculation

Focus area: Circular economy

Methodology Maturity

5.5.2 Saving resources – Laptop reuse

Swisscom solution

Laptops that are no longer used can be sold to a subcontractor, which takes over the refurbishment of the devices and resells them in Switzerland.

Enabling effects

- Extension of the use phase of a laptop through its refurbishment and second life (direct, quantified)
- The reuse of a used computer avoids the production and transport of a new laptop (direct, quantified)
- Resources are recovered through recycling and their primary production, and associated GHG emissions are saved (indirect, not quantified).

Functional unit

Avoided emissions from a reused laptop over its entire lifespan

Reference scenario

Recycling of a laptop after a standard use period and producing a new one

Product/service lifecycle

The lifecycle of a laptop over its entire lifespan

Additional effects

Rebound effects

- None identified

Secondary effects

- (+) Reuse of primary resources (not quantified)

Basis of calculation

Focus area: Circular economy

Methodology Maturity

5.6 New businesses

5.6.1 Data-based sustainability

In 2022, along with different partners, among which the software company Sweep, Swisscom has started a new business to provide comprehensive and intelligent software solutions for achieving net zero emissions. These enable the automated collection of emissions from a variety of data sources, facilitate the processing of measurement results for data-based decisions and the tracking of the reduction measures taken over several decades.

As our first clients are establishing their baseline, we do not report yet avoided emissions in this category.

Swisscom solution

Data-based sustainability: Our data-based sustainability solution covers the development and management of a GHG inventory (software) and the development of a climate strategy and measures leading to net zero (consulting). This year, we started the roll-out of this new solution with a focus on GHG inventory and the appropriate software for its management.

Functional unit

Avoided emissions per emitter status implementing a GHG inventory and structured plan of decarbonization with our solution (software) over a year

Reference scenario

Reduction pathway of an average company without a structured and digitized approach to net zero

Product/service lifecycle

Life cycle emissions of the software

Enabling effects

- Efficiency gains in following a net zero goal through the use by our customers of a software tool allowing full transparency on their GHG inventory and on the impact of the reduction measures (indirect, quantified)

The efficiency gains can come from e.g. better data management and detection of hotspots, better workflows for working on the reduction measures, more transparent communication and sensibilization on net zero.

Additional effects

Rebound effects

- None identified

Secondary effects

- (+) Companies can communicate GHG emissions and reduction measures in a more transparent and up-to-date way in and outside their organization and therefore motivate employees to participate. (not quantified)
- (+) Companies address other environmental and social impacts alongside GHG emissions (not quantified)

Basis of calculation

Focus area: Decarbonization

Methodology Maturity

5.6.2 Swiss Climate Challenge

With our Swiss Climate Challenge app, we support partners in the yearly organization of mobility challenges in their organization over a defined period. During this time, participants track their mobility thanks to the app and report on their behavioural changes.

Swisscom solution

Swiss Climate Challenge: The Swiss Climate Challenge is an app which automatically tracks the transport mode and mobility emissions of participants. The goal is to sensibilize people in a company, a community or the public for their emissions from mobility and give them incentives to improve.

The service is mostly used by companies towards their employees and as an option also towards their customers. Alternatively, the app can be integrated in other apps and used for the sensibilization of further groups, as in the initiative “Cyclomania” from Pro Velo for communities.

Functional unit

Avoided emissions from mobility thanks to sensibilization through the app over the duration of the challenge

Reference scenario

Emissions from mobility without any feedback/ sensibilization of the app

Product/service lifecycle

Emissions for running the services for the app in data centers. Small increase of power consumption of the smartphones

Enabling effects

- The app raises awareness of users on their emissions from mobility and gives them feedback on whether their emissions are in line with the goals of the Paris agreement. During challenges, incentives are given to support climate-friendly behaviours. (quantified)

Additional effects

Rebound effects

- None identified

Secondary effects

- (+) The companies receive the anonymized results of the challenges and can use them for reporting purposes or to define actions to improve the modal splits of their company

Basis of calculation

Focus area: Traffic

Methodology Maturity

6 Investments

To fully capture the extent of Swisscom's contribution to a net zero society and to direct actions towards the different action levers, we report avoided emissions from our investments along the avoided emissions from our own solutions.

See also Chapter 2.1

In this chapter, we outline the contribution of our investments to global decarbonization.

Through our arm Swisscom Ventures, we are focused on investing in digital technologies, both in Switzerland and internationally, that are well-positioned to disrupt specific verticals. Swisscom Ventures dedicates a specific fund called the "Venture Initiative on Sustainability" to sustainable technologies whose products contribute to solving urgent sustainability problems, particularly the climate crisis. However, the startups in which Swisscom has invested to date also support other sustainability goals (SDGs), in particular biodiversity.[17] Additionally, Swisscom, together with other investors, invests through a second fund called "Digital Transformation Fund 2". Some of these investments focus on sustainability.

BCG and Gen Zero published a guidance on how the avoided emissions through investments can be evaluated.[18] Among the different options suggested, the approach of Swisscom is as follows:

- Considering direct, indirect and transformational impact
- Considering the ownership share in the startup
- Only considering the impact of the products of the company in the accounting year, not over the whole lifetime of the product.

Of note, GHG emissions from all these investments are accounted for under the scope 3 category 15 of our GHG inventory.

Startup investments

An increasing number of startups focusses on solutions avoiding CO_2 emissions or improving other sustainability goals described in the UN SDGs (sustainable development goals).

To scale these new solutions, the startups need investment during their first periods of growth.

On one hand, Swisscom supports these startups through investment rounds, and on the other hand, we actively participate as guests or members of their boards to bring our know-how.

Enabling effects

There are different types of startups with focus on avoiding emissions. The most relevant categories are:

- **Agriculture:** improve agriculture by reducing the resources (e.g. fertilizer, pesticides, herbicides, water etc.) through the digitalization and optimization of farming. Examples: xFarm, Ecorobotix
- **Industrial processes:** reduce methane and sulphur oxide emissions from post-consumption industrial sources and cargo ships. Example: Daphne
- **Renewable energies:** improve the efficiency of the market for renewable energies through intelligent software. Example: Pexapark
- **Decarbonization:** improve the efficiency of reduction paths to net zero of companies through climate consulting. Example: South Pole

Additional effects

The services can have additional positive impacts on other sustainability goals (SDGs) like biodiversity or the use of renewable energy. These effects are not quantified.

Functional unit

Number of climate-friendly devices or amount of CO_2e, renewable energy or hectares under management during the reporting period

Reference scenario

Emissions, use of resources or of renewable energy without the use of the device, software or service

Product/service lifecycle

Emissions from the operation, manufacturing or disposal of the devices, software or service

Basis of calculation

Focus areas: Energy, Resources, Agriculture, Decarbonization

Methodology Maturity

[17] Swisscom Sustainability Impact Report 2024 www.swisscom.ch/sir2024

[18] BCG and Gen Zero, Investors Can Measure and Maximize Their Climate Impact, 2023 www.bcg.com

7 Appendix

Appendix 1: Work Smart

Saving emissions from traffic – UCC/MCC

Calculation methodology and specificity

Calculation: On the basis of the number of UCC users, the number of estimated saved trips per region and the conservation factor for UCC, we calculate the average number of saved trips in Switzerland, the EU and abroad. Gross avoided emissions per year result from the multiplication of the average number of saved trips per region with the average travelling distance within Switzerland, from Switzerland to the EU and abroad, the emission factors for the respective transportation and the modal split of transportation in Switzerland and the EU. We perform the same approach for corporate and SME accounts.

Net avoided emissions are obtained by the subtraction of emissions that occurred per meeting, based on the average duration of an online meeting, the average emissions per UCC meeting, the number of UCC users and the average number of saved trips.

Specificity: Medium. The avoided emissions are estimated based on an average scenario for replaced business trips. Sufficient data basis is lacking to perform a calculation at the level of the single solution.

Data points

- Number of corporate and SME UCC users (#) *(Swisscom)*
- Proportion of saved trip per region (%) *(New Way of Working study Swisscom)*
- Modal split per transport mode per region (%) *(New Way of Working study Swisscom)*
- Average emissions per transportation mode per km for business trips (kg CO_2e/km) *(Mikrozensus 2021)*[19]
- Average CO_2e emissions per online meeting (kg CO_2e/h) *(myclimate study 2018)*
- Average travelling distance to business meetings in Switzerland (km) *(Mikrozensus 2021)*
- Average travelling distance to the EU and abroad (km) *(myclimate)*

Calculation with formula

Avoided emissions UCC net (Corporate and SME) (t CO_2e) =
Avoided emissions UCC gross Corporate + Avoided emissions UCC gross SME – UCC emissions Corporate – UCC emissions SME

where

Avoided emissions UCC gross (Corporate or SME) =
Avoided emissions by public transport + Avoided emissions by car + Avoided emissions by airplane

and

Avoided emissions by transport mode (public, car, airplane) =
Amount of saved trips per region * Distance to CH * Return trip factor * Emission factor for transport mode * Modal split per transport mode per region

and

Amount of saved trips per region =
Amount of UCC users * Proportion of saved trips per region * Conservative factor UCC

and where

UCC emissions (Corporate or SME) = Amount of UCC users * Emissions per UCC Meeting * Sum of saved trips * Average duration of a UCC meeting

Assumptions

- Travels abroad are exclusively made by air.
- Conservative factor UCC accounting for virtual meetings that would not be physical meetings in the reference scenario and overestimation of stated avoided trips in the study.
- The average duration of an online meeting is of 3/4 of an hour.

Areas of improvement

- Adjustment of reference scenario while online meetings become the norm.

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[19] Mikrozensus 2021 www.bfs.admin.ch

Saving emissions from traffic – Home office

Calculation methodology and specificity

Calculation: On the basis of the working population commuting to work in Switzerland, the share of population regularly working from home in Switzerland, the average days in home office per week and Swisscom's broadband market share, we calculate the total number of home office days per year in Switzerland enabled by Swisscom. This value is multiplied by two times the average commute distance in Switzerland, the modal split of commuting in Switzerland and the CO_2e emissions of the means of transport used.

Specificity: Medium. Currently, the avoided emissions are estimated based on a Swisscom specific scenario for connectivity. Sufficient data basis is lacking to perform a calculation at the level of the user connection.

Calculation with formula

Avoided emissions Home office (t CO_2e) =
Number of people commuting to work in Switzerland * Share of them regularly working from home * Swisscom market share for broadband * Average number of days working from home per year * Average commuter distance * Average emissions per round trip commute to the workplace (separation into types of transport) * Conservative factor Home office

Data points

- Number of people commuting to work in Switzerland (#) *(BfS)*[20]
- Share of people working from home (%) *(New Way of Working study Swisscom)*
- Market share broadband (%) *(Swisscom)*
- Average commuter distance (km) *(BfS)*[20]
- Average number of days working from home per week (#) *(New Way of Working study Swisscom)*
- Average emissions per round trip commute to the workplace (kg CO_2e/km) *(Mobitool V3.0)*
- Transportation means for commuting *(BfS)*[21]

Assumptions

- Conservative factor to account for quantification of rebound effects.

Areas of improvement

- Lifecycle based calculation at the single user level.
- Emissions/lifecycle of Swisscom broadband solution

Back to solution

[20] Bundesamt für Statistik www.bfs.admin.ch
[21] Mikrozensus 2021 www.bfs.admin.ch

Appendix 2: Internet of Things (IoT)

Calculation methodology and specificity

Calculation: Based on the average carbon saving potential per installation for our major clients, on the number of systems in action during the reporting period and the number of newly installed systems during that same period, we calculate the avoided emissions from IoT solutions.

Specificity: Low

Calculation with formula

Avoided emissions from IoT (t CO_2e) =
Sum of (Average carbon saving potential per installation * Number of systems in action during the reporting period + Average carbon saving potential per installation * Number of newly installed systems per year) **per client**

Data points

- Per client: average carbon saving potential per installation (t CO_2e) *(Swisscom with client)*
- Number of systems in action during the reporting period (#) *(Swisscom)*
- Number of newly installed systems per year (#) *(Swisscom)*

Assumptions

- The average carbon saving potential per installation is outlined from publicly available data (annual reports), from studies or from discussions with our clients.

Areas of improvement

- Develop detailed calculation, eventually based on lifecycle analysis, for the main contributors to this category.
- Base our calculations on primary data as far as possible.
- Enhance level of disclosure with representative use cases.

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Appendix 3: Data Center Services

Saving energy – Cloud

Calculation methodology and specificity

Calculation: On the basis of the number of physical and virtualized servers at Swisscom, the average server virtualization rate at clients, the respective average energy consumption of physical and virtual servers, the average PUE value PUE (power usage effectiveness) value of Swisscom Data Centers, the Swisscom electricity mix and the number of operated hours per year, we calculate the emissions resulting from the use of our hosting solutions.

The emissions that would have occurred at our clients' location without the use of our offering are estimated based on the number of physical and virtualized servers at Swisscom, the average server virtualization rate at clients, the respective average energy consumption of physical and virtual servers, the average PUE value clients data centers, the electricity mix for Switzerland and the number of operated hours per year.

Emissions from our Third-Party Cloud offering are estimated based on the emissions from servers at Swisscom, the share of TPC compared to our own offer and an assumed efficiency factor for TPC compared to our own offering.

Specificity: High, for hosting at Swisscom servers. Use of primary data.
Medium, for hosting in TPC. Efficiency factor based on assumptions.

Calculation with formula

Avoided emissions Cloud and TPC (t CO_2e) =
Emissions from servers at clients (= reference scenario) - Emissions from servers at Swisscom + Avoided emissions TPC

where

Emissions from servers at clients (= reference scenario) =
(Amount of physical servers Swisscom + amount of virtual servers Swisscom) * (1 - Average virtualization rate at clients) * Power per dedicated server Swisscom and clients + (Amount of physical servers Swisscom + amount of virtual servers Swisscom) * Average virtualization rate at clients * Power per virtualized server clients) * PUE value client * Electricity mix Switzerland * Hours per year/1000

and

Emissions from servers at Swisscom =
(Amount of physical servers Swisscom * Power per dedicated server Swisscom and clients + amount of virtual servers Swisscom * Power per virtualized server Swisscom) * PUE value Swisscom * Swisscom electricity mix * Hours per year/1000

and

Avoided emissions Third-Party Cloud =
(Emissions from servers at clients - Emissions from servers at Swisscom) * Share Third-Party Cloud (volume) / Share hosting (volume) * (1 + efficiency factor Third-Party Cloud)

Data points

- Number of physical servers at Swisscom (#) *(Swisscom)*
- Number of virtualized servers at Swisscom (#) *(Swisscom)*
- Average PUE value Swisscom (-) *(Swisscom)*
- Average PUE value clients (-) *(European Survey: "Trends in Data Center Energy Consumption under the European Code of Conduct for Data Center Energy Efficiency", 22.9.2017)*
- Power per dedicated server Swisscom and clients (MW) *(Swisscom)*
- Power per virtualized server Swisscom (MW) *(Swisscom)*
- Power per virtualized server clients (MW) *(Swisscom)*
- Emission factor for Swisscom electricity mix (t CO_2e/MWh) *(BAFU/Treeze.ch, 2018)*
- Emission factor for electricity mix of Switzerland (t CO_2e/MWh) *(BAFU/Treeze.ch, 2018)*
- Operating time per year (h) *(Swisscom)*
- Efficiency factor Third-Party Cloud *(Microsoft, Amazon)*

Assumptions

- Level of electricity consumption for reference scenario compared to Swisscom
- The average electricity mix of clients is the average electricity used in Switzerland
- TPCs are expected to be more efficient than our own servers.
- The efficiency factor for TPC is estimated based on the PUE value of a representative third-party server

Areas of improvement

- Data basis for efficiency factor TPC currently based on assumptions.
- Update of electricity mix emission factors.

Back to solution

Saving energy – Housing

Calculation methodology and specificity

Calculation: On the basis of the total power used by the Swisscom Data Centers, the average Power Usage Effectiveness (PUE) of client servers, the average PUE value of Swisscom Data Centers and the number of operated hours per year, we calculate the electricity consumed to house our clients' servers and the electricity that would have been consumed at the clients' average location. Avoided emissions thanks to housing are obtained by applying the emission factor for the electricity mix of Switzerland.

Specificity: High. Use of primary data.

Calculation with formula

Avoided emissions Housing (t CO_2e) =
(Overall electricity consumption at clients, Housing facility - Overall electricity consumption Managed IT housing at CBU, Housing facility) * Electricity mix Switzerland

where

Overall electricity consumption at clients, Housing facility =
Total data center power for all Swisscom sites * Average PUE value clients * Operating time per year

and

Overall electricity consumption Managed IT housing at CBU, Housing facility =
Total data center power for all Swisscom sites * Average PUE value data centers Swisscom (housing) * Operating time per year

Data points

- Total data center power for all Swisscom sites (MW) *(Swisscom)*
- Emission factor for electricity mix of Switzerland (t CO_2e/MWh) *(BAFU/Treeze.ch, 2018)*
- Average PUE value clients (-) *(European Survey: "Trends in Data Center Energy Consumption under the European Code of Conduct for Data Center Energy Efficiency", 22.9.2017)*
- Average PUE value data centers Swisscom (housing) (-) *(Swisscom)*
- Operating time per year (h) *(Swisscom)*

Assumptions

- None

Areas of improvement

- Update of electricity mix emission factors
- Possible improvement of clients' PUE value

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Appendix 4: Paperless working

Saving resources – Saving paper (online billing)

Calculation methodology and specificity

Calculation: Based on the number of Conextrade transactions (business) and online invoices for our private and SME customers per year, the emissions from a 2-page bill printed on paper and sent by post and the emissions from a 2-page e-invoice, we calculate the avoided emissions from online billing.

Specificity: High

Data points

- Number of saved transactions Conextrade per year (#) *(Swisscom)*
- Number of saved e-invoices (private and SME) per year (#) *(Swisscom)*
- Emission factor per 2-page bill by post (paper) (t CO_2e) *(myclimate)*
- Emission factor per 2-page e-invoice (online) (t CO_2e) *(myclimate)*

Calculation with formula

Avoided emissions online billing (t CO_2e) =
Avoided emissions through Conextrade (business) + Avoided emissions through e-Bills (private and SME)

where

Avoided emissions through Conextrade =
Number of saved transactions Conextrade * (emissions per 2-page bill by post (paper) - emissions per 2-page e-invoice (online))

and where

Avoided emissions through eBills =
Number of saved e-invoices (private and SME) * (emissions per 2-page bill by post (paper) - emissions per 2-page e-invoice (online))

Assumptions

- The average size of an invoice is of two pages.
- One Conextrade transaction is equivalent to a 2-page e-invoice.

Areas of improvement

- The reference scenario might evolve over time, as online billing becomes the norm.

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Saving resources – Saving paper (e-signature)

Calculation methodology and specificity

Calculation: Based on the number of e-signatures provided per year and the emission factor per e-signature, we calculate the avoided emissions from e-signatures.

Specificity: High

Calculation with formula

Avoided emissions through e-signatures (t CO_2e) =
Number of e-signatures * Avoided emissions per e-signature

Data points

- Number of e-signatures (#) *(Swisscom)*
- Emission factor per e-signature (t CO_2e) *(myclimate)*

Assumptions

- Average of two signatures per contract.
- Average length of a contract is three pages.
- A conservative emission factor is used to account for the fact that contracts might be printed out.

Areas of improvement

- The reference scenario might evolve over time, as wet signatures are no longer the norm.

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Appendix 5: Circular economy

Saving resources – Mobile device reuse

Calculation methodology and specificity

Calculation: Based on devices collected through our Mobile Aid programme (private and business), the number of devices that are sold (for reuse) in Switzerland and abroad per year and the emissions saved from the reuse of a mobile device in Switzerland and abroad, respectively, we calculate the avoided emissions from the Mobile Aid programme.

Based on the number of devices sold from Mobile Aid to the Buyback programme per year, the number of devices bought through the Buyback programme (private and business) and the emissions saved from the reuse of a mobile device in Switzerland, we calculate the avoided emissions from the Buyback programme.

Specificity: High

Calculation with formula

Avoided emissions Device reuse (t CO_2e) =
Avoided emissions mobile + Avoided emissions tablets

where

Avoided emissions mobile =
(Number of mobile devices resold abroad through Mobile Aid * Emission savings for Mobile Aid mobile phones (abroad)) + (Number of mobile devices resold in Switzerland by Mobile Aid to Mobile Buyback * Emission savings for mobile devices in Switzerland) + (Number of collected mobile phones via Mobile Buyback + Number of collected mobile phones via Mobile Buyback Business) * Emission savings for mobile devices in Switzerland

and

Avoided emissions tablets =
(Number of tablets resold abroad through Mobile Aid * Emission savings for Mobile Aid tablets) + (Number of tablets resold by Mobile Aid to Mobile Buyback * Emission savings for tablets) + (Number of tablets collected via Mobile Buyback + Number of collected tablets via Mobile Buyback Business) * Emission savings for tablets

Data points

- Number of mobile devices resold abroad through Mobile Aid (#) *(Swisscom)*
- Number of mobile devices resold in Switzerland by Mobile Aid to Mobile Buyback (#) *(Swisscom)*
- Number of collected mobile phones via Mobile Buyback (#) *(Swisscom)*
- Number of collected mobile phones via Mobile Buyback Business (#) *(Swisscom)*
- Number of tablets resold abroad through Mobile Aid (#) *(Swisscom)*
- Number of tablets resold by Mobile Aid to Mobile Buyback (#) *(Swisscom)*
- Number of tablets collected via Mobile Buyback (#) *(Swisscom)*
- Number of collected tablets via Mobile Buyback Business (#) *(Swisscom)*
- Emission savings for Mobile Aid mobile phones (abroad) (t CO_2e) *(myclimate)*
- Emission savings for mobile devices in Switzerland (t CO_2e) *(myclimate)*
- Emission savings for Mobile Aid tablets (t CO_2e) *(myclimate)*
- Emission savings for tablets (t CO_2e) *(myclimate)*

Assumptions

- The lifetime of a mobile device and a tablet is assumed to be doubled through reuse.

Areas of improvement

- None

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Saving resources – Laptop reuse

Calculation methodology and specificity

Calculation: Based on the number of laptops collected per year, the average emissions from an average laptop and the average emissions from a reused laptop over their lifespan, we calculate the avoided emissions from the reuse of a laptop per year.

Specificity: High

Data points

- Number of laptops collected per year (#) *(Swisscom)*
- Emission factor for average laptop (t CO_2e) *(myclimate)*
- Emission factor for reused laptop (t CO_2e) *(myclimate)*

Calculation with formula

Avoided emissions Laptop reuse (t CO_2e) =
(Emission factor for average laptop - Emission factor for reused laptop) * Number of laptops collected per year

Assumptions

- The lifetime of a laptop is assumed to be doubled through the refurbishment.
- The other stages of the lifecycle of a laptop are assumed to be equivalent for an average and a reused laptop.
- All laptops are assumed to be recycled at the end of their lifespan.

Areas of improvement

- None

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Appendix 6: New businesses

Data-based sustainability

Calculation methodology and specificity

Calculation: Based on the reduction of GHG emissions achieved by our corporate customers after the introduction of the decarbonization software and a conservative increase of efficiency in the achieved reduction, we calculate the avoided emissions from data-based sustainability.

Specificity: Low

Data points

- Yearly reduction achieved by business customer (t CO_2e) *(Swisscom)*
- Factor for efficiency gain through a more structured and digitized approach (%) *(Swisscom)*

Calculation with formula

Avoided emissions Data-based sustainability (t CO_2e) =
Sum of yearly reductions achieved by business customer * factor for efficiency gain through a structured and digitized approach

Assumptions

- The assumption for the contribution of data-based sustainability to the acceleration of the reduction pathway by company is of 5% of total yearly emissions reduction of the company. Some studies indicate that a structured and digitized approach to a topic might lead to efficiency gains of 20% to 50%. A conservative approach of 5% was chosen.
- The average reduction pathway to net zero according to the SBTi is estimated at 2.5%.

Areas of improvement

- Review of studies or conduct own study on efficiency gains mediated by structured and directed approaches.

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Swiss Climate Challenge

Calculation methodology and specificity

Calculation: Based on the number of participants, the length of the challenges and the average emissions reduction by participant, we calculate the avoided emissions from the Swiss Climate Challenge over the challenges' duration.

Specificity: Low

Calculation with formula

Avoided emissions from Swiss Climate Challenge (t CO_2e) =
Number of participants during challenges in a reporting year * Average emissions of the participants * Average reduction of the emissions found in non-published study * Duration of the challenges

Data points

- Number of participants during challenges in a reporting year (#) *(Swisscom)*
- Average emissions for mobility of these participants (t CO_2e/d) *(Swisscom)*
- Duration of the challenges (d) *(Swisscom)*
- Average reduction of the emissions found in non-published study (%) *(Swisscom)*

Assumptions

- An internal study with the ETHZ found an average reduction of 10.8% of the GHG emissions from mobility of the users of the Swiss Climate Challenge during a challenge.
- The reduction of the emissions through the sensibilization of the users only lasts during the challenges. The long-term impact has not been studied yet and is therefore not considered.

Areas of improvement

- Swiss Climate Challenge will be integrated into an external app in 2025.

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Appendix 7: Investments

Calculation methodology and specificity

Calculation: Depending on the offering of the startups, see calculation with formulas below. Our estimations of avoided emissions are currently based on third-party data obtained directly from the companies coupled to our ownership share. Where needed, we apply an additional conservative factor to avoid overestimating claims.

Specificity: Low

Calculation with formula

There are different formulas depending on the type of startup:

Avoided emissions from investments (t CO_2e) = Sum of:

- Number of devices in the market * Amount of CO_2e reduced through the use of the device * Share of Swisscom in the startup
- Amount of renewable energy under management * Efficiency gain through the use of the software * Share of Swisscom in the startup
- Amount of CO_2e under management * Efficiency gain in CO_2e reduction * Share of Swisscom in the startup

Data points

- Number of devices in the market (#) *(Startup)*
- Amount of CO_2e, renewable energy or area (hectares) under management (resp. unit) *(Startup)*
- CO_2e reduction per functional unit according to models or studies of the startups. External verification preferred (t CO_2e) *(Startup)*

Assumptions

- Models/studies of the different startups are based on assumptions. Wherever possible, the assumptions are verified by external studies and kept conservative.

Areas of improvement

- External verification of the models should be done especially when a startup claims significant avoided emissions.
- Continuous improvement of calculation specificity.

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8 Declaration

The Swisscom avoided emissions methodology is a Type II environmental declaration.

Publishing details

Published and produced by

Swisscom Ltd, Berne

Social and environmental information
Swisscom AG
Group Communications & Responsibility
CH-3050 Bern

E-Mail: corporate.responsibility@swisscom.com
Internet: swisscom.com/responsibility

For the latest information, visit our website
www.swisscom.ch