

skyguide

beyond horizons

# Annual report 2022





# Key figures 2022

1 147 007

IFR flights

+ 66.2%

IFR flights growth

420 517

IFR landings/departures

+ 59.4%

IFR landings/departures growth

88 154

Military flights

- 1.5%

Evolution military flights

97.3%

Flights without delay

18.3 sec.

En-route ATFM delay per flight

# Annual report

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# Key events in 2022

## February

### **100 years of air navigation services**

23 February marks the 100th anniversary of the foundation of the Marconi company's Swiss subsidiary Marconi Radio AG to develop wireless telegraphy. The new company represents the birth of Swiss air navigation services and goes on to play a vital part in the swift evolution of aviation. Over the years, Marconi Radio is subsequently renamed and restructured into Radio Schweiz, then into Swisscontrol and eventually into today's Skyguide.

## March

### **Swiss airspace in women's hands**

On 8 March, to mark International Women's Day, Swiss airspace is largely managed and monitored by female Skyguide staff. Some 50 female air traffic controllers are on duty in Zurich and Geneva and at Switzerland's regional aerodromes over the course of the day. Promoting diversity and equal opportunities is a key element in Skyguide's corporate strategy. The proportion of women within the company's ranks has been slowly but steadily growing over the past few years.

## April

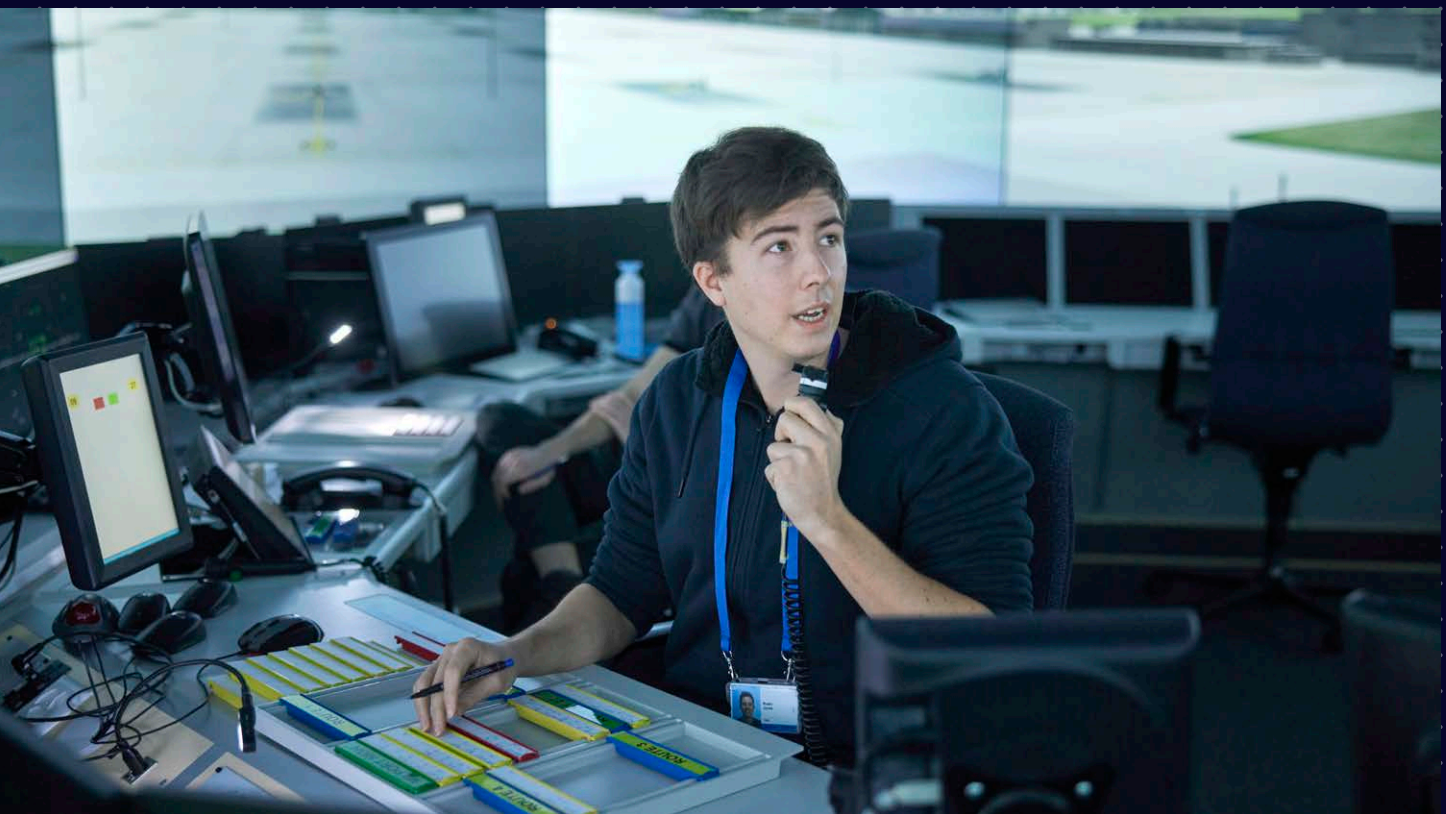
### **Virtual Centre simulations a success**

Can air traffic controllers in Dübendorf manage the airspace above Geneva, and can the controllers based in Geneva do the same for airspace over Zurich? This is what Skyguide's Virtual Centre project is intended to make possible. The clear success of simulations conducted in April 2022 suggests that such arrangements and activities are entirely feasible in operational terms.

## May

### **World Economic Forum returns**

Having been halted by the Covid pandemic, the World Economic Forum returns in 2022 – not at its usual January time, but from 22 to 26 May. Through its close and constructive collaboration with the Swiss Air Force and the Grisons Cantonal Police, Skyguide again makes a major contribution to ensuring the safety and security of this global, high-profile event.



June

#### Technical malfunction halts all morning traffic

Skyguide's air traffic management system experiences a malfunction in the early hours on 15 June. In response, and to exclude any danger to air traffic activity, Skyguide decides to close its airspace for several hours, resulting in delays and cancellations. Over the following months, the company has the incident investigated in the greatest possible detail by both internal and external examiners, to gain precise insights and findings into how systems, processes and expertise can be further improved.

July

#### Automated drone flight authorisations in Canton Valais

Thanks to a newly automated system for authorising drone flights that are subject to permit around Sion Airport, more than 6 000 largely commercial flights can be authorised without any manual intervention from the airport's tower controllers over the course of 19 weeks.

August

#### Swiss Post issues special commemorative stamp

Switzerland's postal service honours the 2022 centenary of Swiss air navigation services by issuing a special commemorative stamp. The 210-centime stamp depicts a modern passenger aircraft in flight with a superimposed stylised snapshot of an air traffic controller's screen display.



December

#### Free Route Airspace adopted

From 1 December, Skyguide adopts Free Route Airspace from a flight level of 19 500 feet upwards throughout the airspace under its control. As a result, airlines can freely plan their route above Switzerland and adjacent parts of neighbouring countries assigned to Skyguide's control between their points of entry to and exit from the Skyguide airspace block – ensuring, for instance, the most fuel-efficient route.

#### Compliance Management System complete

Skyguide concludes the implementation and auditing of a new Compliance Management System which meets all requirements of the ISO 37301 norm.

# A learning organisation ready for tomorrow

## Dear reader,

In 2022, Skyguide was proud to mark 100 years of air navigation services in Switzerland. In this anniversary year, we looked back to learn from the past. We also looked ahead, with both confidence and energy, and in the certainty of pursuing a truly sustainable strategy. Air navigation services are not the same today as they were in the past, and tomorrow they will be different from what they are today. What they will continue to constitute, though, is critical infrastructure – for a well-functioning economy, for sustaining populations and for national security.

After two extremely low-traffic years, 2022 saw a steep increase in flight movements, even though average traffic volumes continued to remain below their 2019 levels. Traffic figures for the upper airspace managed by the Dübendorf Air Navigation Service Centre were even above pre-pandemic levels in the period from July to October. Services provided on behalf of the Swiss Air Force remained as stable and reliable as usual, whether for the military's daily training activities, its aerial policing role or special large-scale events and international conferences such as the annual World Economic Forum.

Our financial figures improved broadly in line with higher traffic volumes. But rising revenues

alone would not have been enough to break even. Skyguide also continued to pursue saving measures – a policy that brought challenges of its own given the renewed traffic growth and the numerous innovation projects under way, and one which will continue to demand major efforts company-wide in 2023.

In its capacity as Skyguide's owner, the Swiss Confederation supported the company financially during the pandemic to ensure the continued availability of air navigation services, a course of action that achieved its aim. We have learnt from previous crises that we must keep ourselves equipped both to maintain our services even at low traffic volumes and to handle the subsequent industry recovery. To these ends, Skyguide continued to recruit and train and to pursue its safety-relevant and future-oriented projects to the best of its abilities, even under the conditions of the pandemic. We owe this to the people of Switzerland, and we owe it to our customers. We are pleased to report that, when demand began to rise rapidly again from spring 2022 onwards, we were able to provide the requisite air traffic management capacities while other parts of our industry experienced shortages with a noticeable impact.

### A major lesson learnt

The technical malfunction that occurred in the early hours of 15 June 2022, causing Swiss airspace to be unavailable to air traffic for almost five hours, was extremely regrettable. The incident caused re-routings, delays and cancellations of affected flights. We would like to take this opportunity to apologise once again to everyone affected. As vexing as the event was, it is a tribute to our company's mature and deeply embedded safety culture that at no point did the incident pose a threat.





When their systems were no longer demonstrating their usual reliability, our frontline personnel assumed the responsibility needed to bring an orderly halt to all air traffic movements within Switzerland and in the adjacent delegated airspace in neighbouring countries. They knew that, for all the inconvenience this would cause to airlines and their passengers, safety always comes first. The public reaction to the incident seemed to confirm a growing awareness and appreciation of safety cultures in many fields and walks of life.

Not that this exempts us in any way from conducting a thorough and self-critical analysis of the incident and how it occurred. Skyguide did just this, with the aim of learning the lessons. After all, our company is firmly committed to the Just Culture approach, essential to any safety-critical business or operation.

We must accept that technically highly complex systems come with a failure risk. This risk can be reduced, however, if these systems are continuously monitored. Various in-house analyses, along with the external investigation commissioned by the Swiss Confederation, have confirmed that we responded correctly when the situation arose, handled the ensuing crisis calmly and drew the right conclusions. What we now need to do is act on these findings. →

“We have learnt from previous crises that we must keep ourselves equipped to maintain our services even at the kind of low traffic volumes we saw during the pandemic.”

“We must accept that technically highly complex systems come with a failure risk. This risk can be reduced, however, if these systems are continuously monitored.”

**Ready for challenges**

Recruiting new specialist personnel continues to be a challenge for our company. Present air traffic trends and the financial situation also remain testing. The war in Ukraine, shortages in energy supplies, climate change: the challenges for society as a whole and for Skyguide within it remain as considerable as they are numerous. We have, however, been able to respond to the threat of an electricity shortage by developing our own emergency plan and liaising closely with the authorities.

Our prime response to the structural challenges faced by the air navigation services sector continues to be innovation, particularly in the shape of our Virtual Centre. Only innovation provides us with the agility that our dynamic business and operating environment demands.

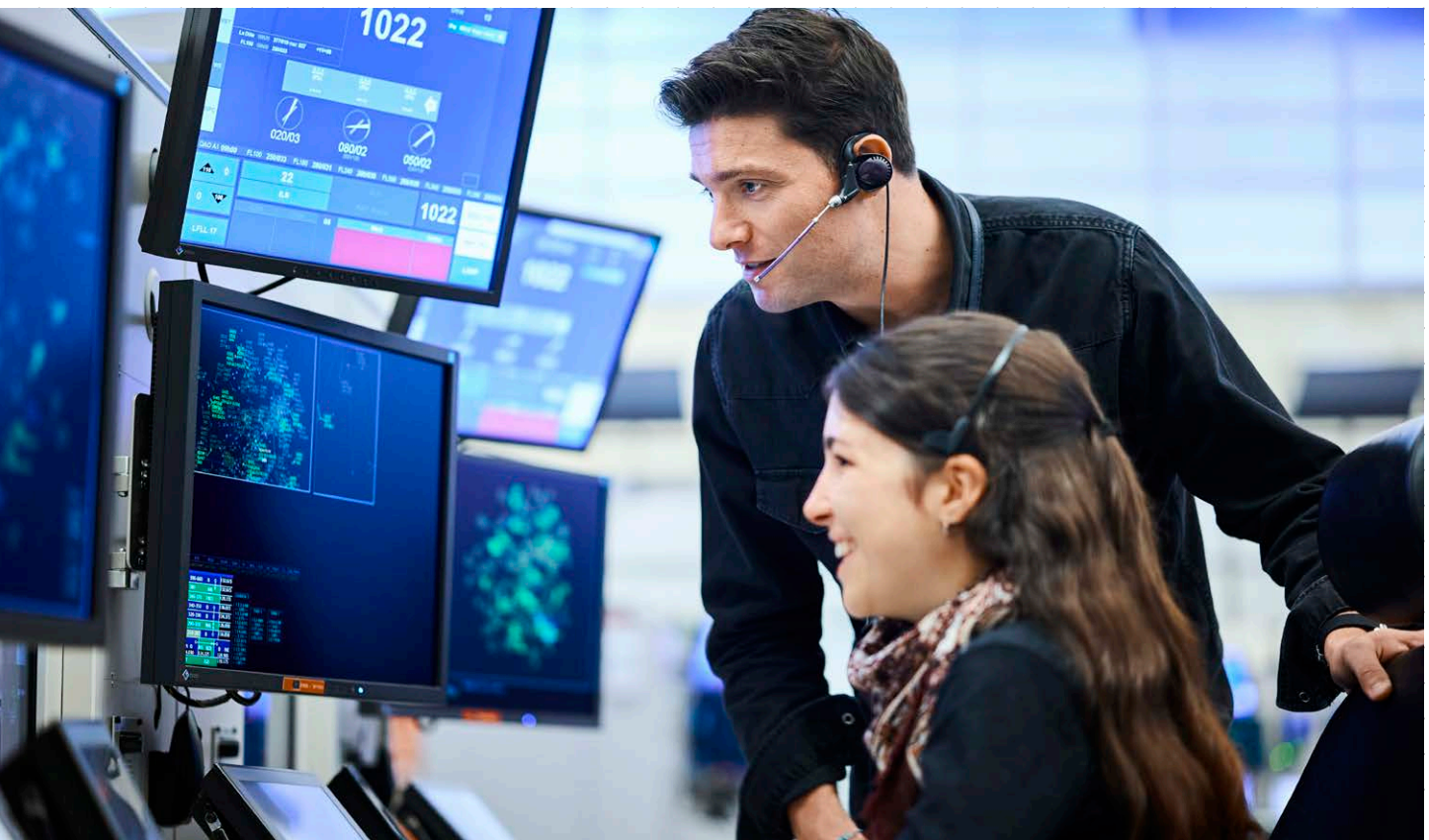
We view anniversaries as opportunities to reflect – together with our staff, our customers and our partners – on the aviation of tomorrow, to help us all jointly meet and master the challenges ahead. We would like to thank you all for the invaluable contribution that you have made to this process throughout this past anniversary year.



Walter T. Vogel  
Chairman of the Board



Alex Bristol  
CEO



# Safety as an achievement

Once again, Skyguide entirely fulfilled its safety mandate in the year under review. Today's high-quality Skyguide safety culture is the result of a decades-long improvement process. Any incident occurring today is fully investigated, not to identify guilty parties, but to learn the right lessons for the future – the epitome of a Just Culture.

The key event at Skyguide in 2022 was the network malfunction on 15 June. The fault was revealed through the loss of key data and functions from radar screens in the control rooms in Dübendorf and Geneva. This severely hampered the work of the air traffic controllers involved. Neither was it possible at the time to predict how extensive this loss might become and how long the problem would last. In view of this, the duty shift leaders decided to close Skyguide airspace for safety reasons. After performing the standard "Clear the Sky" procedure to halt existing air traffic activity with due and proper control, Skyguide adopted a "Zero Rate" policy of accepting no new flights into its airspace until further notice. These actions generated a total of 15 367 minutes of ATFM delays<sup>1</sup> over the approximately five hours of the incident's duration. For the consequences of these developments, Skyguide offers its sincere apologies to its airline customers and their passengers.

## Immediate investigation

In-house and independent external investigations were initiated immediately after the event and were completed by the end of the year. Technical and operational staff, Skyguide Safety & Security, the FOCA, the manufacturers of the network elements in question and an independent company commissioned by the DETEC were all actively involved. The aim of the external investigation commissioned by the DETEC was to determine the root cause of the 15 June malfunction, to critically appraise Skyguide's in-house investigation and to propose improvements.

What has been established to date is that one network component – a switch – contained a faulty routing table which caused a disruption of the data flow within the air traffic management system. The ports provided to ensure multiple redundancy within the system failed to identify the problem and thus failed to intervene as designed.

## Independent DETEC report confirms Skyguide's own findings

The independent investigation report confirms the findings of Skyguide's in-house investigation into the cause of the incident. It also concludes that the decision to close Swiss airspace was appropriate, as it could not be determined at the time how serious the malfunction was or how long it might take to rectify. The report further recognises that Skyguide's crisis management performed well, that the company studied the incident with great care and in detail and that it identified meaningful recommendations on this basis. The report also noted that redundancies had been incorporated into the system concerned, but their effectiveness had been seriously compromised by the malfunctioning of the network switch. The report further includes several recommendations. While some of these have already been adopted by Skyguide, others will follow over the next few months. →

<sup>1</sup> Air traffic flow management (ATFM) delays are delays that can be attributed to air traffic management organisations. An average of 120 000 minutes of ATFM delays are incurred in Europe every day; putting this figure into perspective.

“Much persuasion remains to be done before the Just Culture approach is firmly embedded throughout aviation and is also duly recognised as a safety-enhancing achievement in further safety-sensitive areas.”

#### **Safety – always the top priority**

As its impact in the form of delays, flight cancellations, additional costs and criticism (such as from passengers affected) confirm, the decision to close Skyguide's airspace was not an easy one to take. It is all the more to the credit of the individuals on duty at the time that they did take this decision, based on their keen awareness and appreciation of safety considerations and their corresponding responsibility. It is thanks to this safety culture and its deep roots within the company that at no point during the incident were flight passengers or crews at risk.

The ability to handle an incident of this kind successfully can only be maintained in a working environment that acknowledges that technical systems can never be failure-proof, that processes can never be perfect in every respect and that human beings can never be infallible.

#### **Consolidating the Just Culture**

The greatest resilience for any complex system in which people and technology interact is provided by a culture of safety. This is why due and full attention must consistently be paid to report any irregularity unflinchingly, to analyse problems impartially and to refine constantly the system in its entirety.

At Skyguide, the foundation for all this is provided by the Just Culture that the company has maintained

for many years now. A Just Culture means that employees report any safety-relevant observation, even if it may be attributable to an error of their own. In doing so, they can rest assured that any such report will be used to help identify and rectify any underlying problem, not to penalise them for any “honest mistake”.

It was by no means easy for Skyguide to develop such a strong safety culture. One of the biggest obstacles to this was – and remains – the difficulty of reconciling this reporting culture with the provisions of Swiss law. While the number of such reports may remain very high, the quality of their content will suffer if the reporting person must fear incriminating themselves legally. However, in the last few years, Swiss courts have begun to adopt a more progressive stance on these matters, as reflected in the Swiss Federal Supreme Court's judgment of 29 June 2022, which upheld the previous acquittal of an air traffic controller who had been involved in a serious incident at Zurich Airport in 2012.

Much persuasion remains to be done before the Just Culture approach is firmly embedded throughout aviation and is also duly recognised as a safety-enhancing achievement in further areas within the mobility field or in other sectors like energy or healthcare. Ensuring that the Just Culture concept is effectively anchored within the legal system is of crucial importance. The report approved by the Swiss Federal Council in December 2022 in response to a proposal of 2020 from the Legal Committee of the Council of States only partially achieves this. The report affirms the importance of an “error-reporting culture” and its necessity in highly safety-relevant fields. But the core issue – that persons in positions of trust who perform their duties to the best of their knowledge and abilities should be granted the legal framework necessary for this type of reporting system – is not yet adequately addressed by the report's



proposed sector-specific provisions. Skyguide will continue to do its utmost to ensure that a Just Culture can be practised and maintained within the aviation field.

#### **Statistics confirm what reality implies**

As a result of the Covid crisis, many safety indicators showed far-from-typical trends between the spring of 2020 and early 2022. But the rapid increases and the occasional substantial volatility in air traffic levels in the year under review had no adverse impact on safety levels.

In 2022, the number of incidents reported rose in absolute terms. But this increase is proportionate to the growth seen in air traffic volumes: in relation to flight movement numbers, the number of incidents reported remained stable overall. The number of minimum separation violations aloft and of runway incursions on the ground was broadly in line with pre-pandemic levels.

Reporting levels remain high for all types of incidents. Employees make extensive use of the option to report events or observations not detected by air traffic management systems but which they themselves regard as critical, and they do so in both the operational and the technical field. This is a

good sign for Skyguide's safety culture. Such reports, further safety reviews and improvements resolved could all be pursued as planned over the course of the year. •

“Reporting levels remain high for all types of incidents. Employees make extensive use of the option to report events or observations not detected by air traffic management systems but which they themselves regard as critical.”

# Drawing the right conclusions

Flying is back in demand, and Skyguide was able to deliver the services required. This was by no means self-evident but the result of the decision to begin planning the restart while the Covid crisis still prevailed – a lesson that Switzerland’s air navigation service provider and its owners had learnt from past crises.

Following the pandemic-prompted collapse of commercial aviation and its subsequent partial recovery in 2021, traffic volumes continued to rise in the year under review. However, their volatility remains high, which may yet turn out to be a permanent change. Renewed traffic growth also brought an increase in delay levels. Many of these delays can be attributed to meteorological factors, though some were the result of capacity shortcomings.

## Steep rise in traffic volumes

Skyguide managed and monitored 1 147 007 instrument flight rules (IFR) flights in the year under review. The volume represents a further steep increase on the previous year (by 66.2%), though the volume remains 12.1 per cent below the comparable figure for 2019.

	2022	2021	Change
Total IFR flights	1 147 007	690 275	+66.2%
Of which transit	736 081	435 362	+69.1%

Traffic volumes were highly volatile in 2022. The peak levels seen in some traffic categories even exceeded their pre-pandemic highs. But 2022 also saw very quiet traffic periods. The wide variations in traffic levels were visible not only chronologically, but also in the various market segments:<sup>1</sup>

- Scheduled flights
  - Traditional airlines +83.5% (compared to 2019: –22.3%)
  - Low-cost airlines +102.9% (compared to 2019: –11.5%)
- Charter flights +50.7% (compared to 2019: +5.5%)
- Business aviation +16.8% (compared to 2019: +23.6%)
- Cargo flights +8.8% (compared to 2019: +39.3%)

Of particular note from a longer-term perspective is the growth in charter flights, cargo flights and business aviation, as well as the relative decline in scheduled flights.

The activities of Skyguide’s two area control centres continued to increase overall (for the absolute numbers shown, it should be borne in mind that a single flight generates multiple flight movements if it is handled by multiple control centres along its route):

	2022	2021	Change
Geneva	613 480	378 549	+62.1%
Dübendorf	749 631	450 372	+66.4%

Traffic levels at Switzerland’s various regional aerodromes show more varying trends. The increases in traffic volumes at the two major international airports of Zurich and Geneva can be largely ascribed to the return of vacation air travel.

<sup>1</sup> Figures are for the Swiss flight information region (FIR), i.e., the airspace area for which Switzerland is required to provide air navigation services under international provisions. Segment details for the entire airspace managed and monitored by Skyguide are not available.



Only **2.7%** of all flights are **delayed**

# 1.02%

of the flights with more than 15 minutes delay

IFR landings/takeoffs	2022	2021	Change
Bern Belp	10426	9961	+4.7%
Buochs	2322	2508	-7.4%
Donaueschingen <sup>2</sup>	1389	1869	-25.7%
Friedrichshafen <sup>2</sup>	9794	5956	+64.4%
Geneva	155648	91466	+70.2%
Grenchen	3900	3924	-0.6%
Les Eplatures	2075	2348	-11.6%
Lugano Agno	6390	6012	+6.3%
Sion	8556	6329	+35.2%
St. Gallen-Altenrhein	8952	7720	+16.0%
Zurich	211065	125662	+68.0%
<b>Total</b>	<b>420517</b>	<b>263755</b>	<b>+59.4%</b>

### The air traffic of tomorrow

Current forecasts suggest that commercial aviation will not return to its 2019 levels before 2025. Comparisons with pre-pandemic traffic levels offer useful guidance for operational and financial planning. At the same time, customer behaviour is influenced by societal, economic and political trends and events like climate change, the present economic situation, inflation and geopolitical developments. This explains the greater volatility in air traffic volumes, which has become a constant within the aviation sector.

<sup>2</sup> Donaueschingen and Friedrichshafen aerodromes are in Germany but located in Skyguide-controlled airspace, and therefore have their approach services provided by Skyguide.

<sup>3</sup> This figure includes the delays caused by the incident on 15 June 2022.

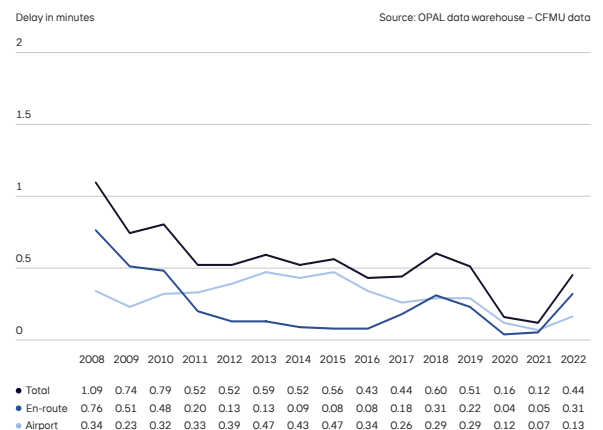
“Volatility has become a constant in air traffic volumes.”

### Punctuality remains a virtue

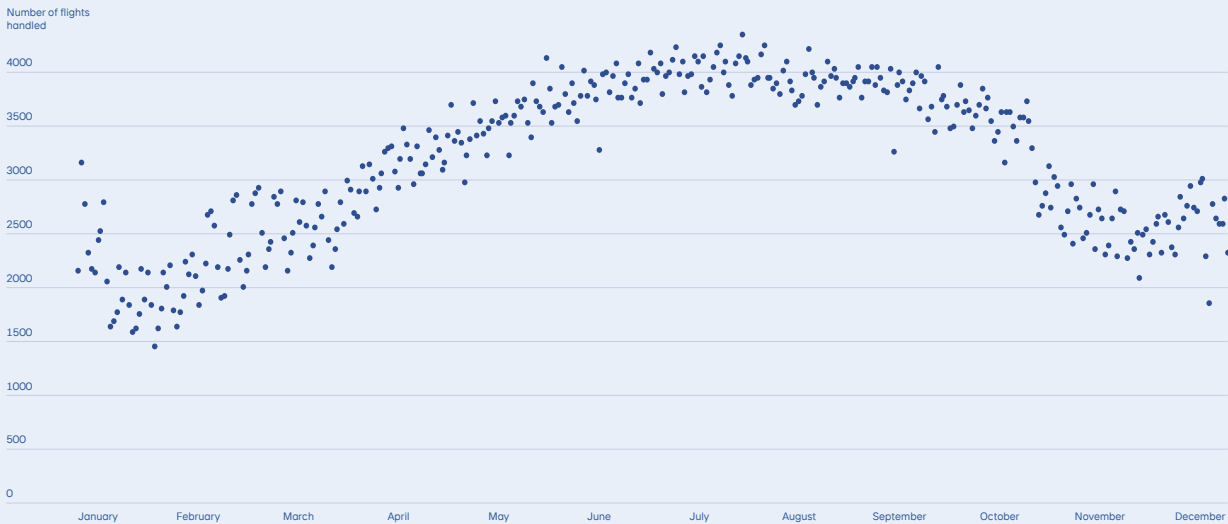
Skyguide’s punctuality was already very high in pre-Covid times. During the pandemic, delays became negligible. This is now slowly changing again. In 2022, some 97.3 per cent of all flights managed by Skyguide were punctual as defined by the corresponding air traffic management parameters, compared to 99.2 per cent for the previous year.

En-route delays attributable to air traffic management averaged 18.3<sup>3</sup> seconds per flight (compared to 3.2 seconds per flight in the previous year). Flights delayed by more than 15 minutes for air traffic. →

Average ATFM delay per flight – airport / en-route (Skyguide airspace)



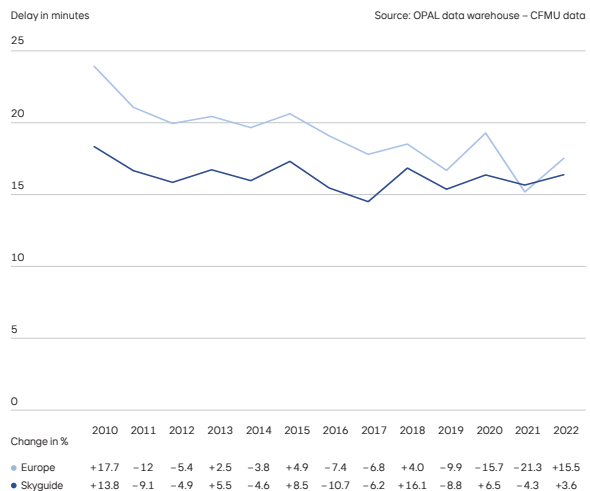
## Fluctuation of traffic in 2022



management reasons are generally unable to make this up and are therefore reported separately. In 2022, some 1.02 per cent of all the flights managed by Skyguide were delayed by more than 15 minutes (0.25% in 2021).

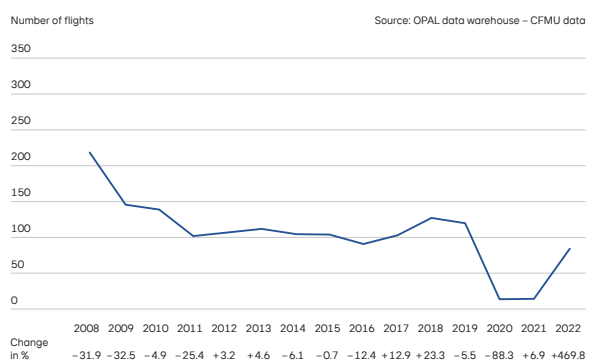
The main reasons for the increase in delays within Europe can be found in the performance inadequacies of the continent's overall air traffic services network. In addition to hard-to-influence factors like the geopolitical situation (such as restrictions relating to the war in Ukraine) and increasingly adverse weather conditions with heavy and prolonged thunderstorms, shortages of resources at

Average ATFM delay per delayed flight (Europe and Skyguide airspace)



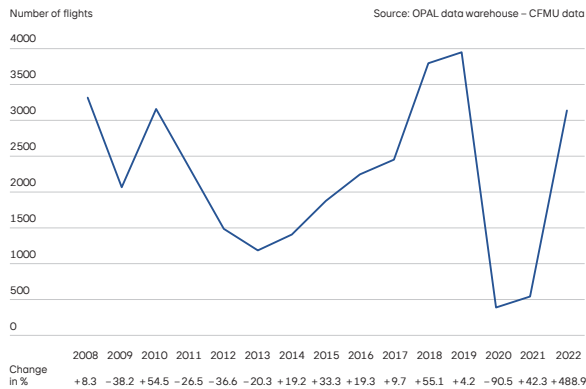
“Many operators had reduced capacities during the traffic slump that accompanied the pandemic which they could not restore promptly when traffic recovered rapidly.”

Average delayed flights per day (Skyguide airspace)





Average delayed flights per day (Europe)



airlines, airports and ground handlers over the summer, when air travel volumes showed particular growth, led to situations described as “chaotic” in the media. Many operators had reduced capacities during the traffic slump that accompanied the pandemic, which they could not restore promptly when traffic volumes recovered rapidly.

Around half of the en-route delays in Skyguide airspace were attributable to meteorological factors, while the rest were largely the result of shortages in capacity. Over a third of these were ascribed to German and French air traffic control,

however, in Eurocontrol’s calculations: with new systems being adopted in both France and Germany and with traffic demands exceeding German airspace capacity, Skyguide was required to handle additional air traffic over the course of the year.

Of the delays incurred at and around airports, two-thirds were attributable to meteorological factors and the rest to shortages of airport capacities.

Even before the pandemic, Skyguide had been aware that the entire aviation system – and air traffic management in particular – needed to raise its resilience to ensure that even with high traffic volatility, it could continue to consistently provide all services required. Skyguide continues to pursue this objective, primarily in the form of its Virtual Centre programme.

That Switzerland’s air navigation service provider was able to provide the operating capacities required in 2022 was also thanks to the financial support it received throughout the pandemic from the Swiss Confederation. •



# National safety for a globally engaged Switzerland

The war in Ukraine has confirmed the need for national defence. With this has come a greater public awareness and appreciation of the close collaboration between Skyguide and the Swiss Air Force.

The close collaboration between the Swiss Air Force and Skyguide has gained in significance since the onset of the war in Ukraine. There is also an increased appreciation of Skyguide's unique status in Europe as an air navigation services company under private law providing both civil and military air traffic services.

## In the service of an international Switzerland

The year under review witnessed a series of major assignments in rapid succession which underlined the effectiveness of a cooperation model that has been in place for over 20 years.

"A series of major assignments in rapid succession underlined the effectiveness of a cooperation model that has been in place for over 20 years."

After a one-year interruption in view of the pandemic, the annual World Economic Forum (WEF) returned to Davos, albeit not in its usual January slot but from 22 to 26 May. Skyguide plays a leading role in the event, in collaboration with the Swiss Air Force and the Grisons Cantonal Police. Skyguide employees are assigned to Davos to ensure that all air transports to

and from the venue are safely and properly conducted. Parallel to this, their colleagues in the Air Defence & Direction Centre remain alert and prepared to provide intensified aerial policing. Additional air traffic controllers are also rostered at the country's air force bases, because the Swiss Air Force must maintain a prime and an alternate operations base throughout the WEF period and keep these fully operational around the clock.

Soon after the WEF, from 12 to 17 June, Geneva was the venue for the World Trade Organization's Twelfth Ministerial Conference. The event had originally been scheduled for late 2021, but after intensive preparations, it was postponed to summer 2022 in view of the pandemic. Conferences of this kind held in Geneva pose the air traffic management challenge of having to simultaneously maintain unrestricted operations at nearby Geneva Airport. In a close collaboration between civil and military air navigation services and with civil and military partner organisations and further partners in neighbouring France, this special assignment was successfully completed as planned.

Finally, on 4 and 5 July, Ukraine and Switzerland jointly staged the Ukraine Recovery Conference in Lugano. The event, attended by 58 international delegations together with representatives from civil society and the private sector, was intended to identify the priorities for rebuilding Ukraine and to coordinate the corresponding support.

For major events of this kind, the Swiss Federal Council temporarily restricts the use of the

“This partnership ensures the safety and security of international events and reinforces Switzerland’s bridge-building role.”

surrounding airspace, while the Swiss Air Force, supported by Skyguide, intensifies its aerial policing and aerial surveillance activities. This partnership, together with collaborations with the local cantonal authorities, ensures the safety and security of international events and reinforces Switzerland’s bridge-building role.

#### For Switzerland’s standing

Ultimately, though, high-profile international gatherings and the mission effectiveness which they enable Skyguide and the Swiss Air Force to demonstrate are only the tip of the iceberg. Skyguide provided the military air navigation services required of it throughout 2022, enabling the Swiss Air Force to conduct both its planned training and its ad-hoc missions without any significant restrictions.

In 2022, total military aircraft movements handled amounted to 88 154, a 1.5 per cent decline from the previous year’s 89 491 movements. Skyguide supported the Swiss Air Force on 211 live or hot missions and 2 397 tactical missions (compared to 219 and 1 958 respectively in the previous year). A live mission is a routine check of an aircraft declared

foreign; a hot mission is a similar verification that additionally foresees immediate intervention if, for example, the foreign aircraft in question were to enter a declared no-fly zone.

In 2022, staffing remained a challenge. Maintaining a round-the-clock aerial policing capability requires sufficient qualified personnel to be constantly available at either end. To this end, Skyguide is making substantial investments in recruiting and training not only civil but especially military air traffic controllers. Their activities are varied, the differing work intensities over the course of a day are stimulating and the role’s vital importance is regularly reaffirmed.

While the public are aware of Skyguide, few people know that the company is active at 14 locations throughout Switzerland, or that it is also responsible for military air traffic control. By providing a series of reportages from various Swiss regions in traditional and social media throughout 2022, Skyguide not only helped inform the Swiss populace: it convincingly conveyed the sheer fascination of the air traffic services world.

The military controller’s profession should also gain in appeal through the ongoing investments in renewing the relevant infrastructure. All of Switzerland’s air force bases are being equipped with identical advanced new tower workstations. Payerne’s was completed in 2022; attention has now turned to Meiringen, where a new tower is being built following the refurbishment of the Skyguide building in 2017 and the provision of a new radar room one year later. Until the new tower is ready for operations, the Meiringen controllers are working in a provisional mobile tower which will then see further service at other Swiss air force bases during similar infrastructure renewals.



# Close financial monitoring in a volatile environment

After two years of being severely depressed by the Covid pandemic, civil aviation began to recover in 2022 and revenues rose accordingly. The crisis has taught us that a clear vision is required to navigate an unpredictable environment. Despite new uncertainties relating to the war in Ukraine and the challenges of energy supply, Skyguide expects to see a steady stabilisation of its financial position. As a first sign of this, additional federal funds earmarked for 2022 did not need to be utilised, and a loan granted in 2021 can be repaid from 2023 onwards.

Even though the aviation sector had experienced volatile times before, the pandemic brought an unprecedented slump. As a provider of critical infrastructure, Skyguide had to keep its capacities available and its service levels flexible 24/7. Doing so entailed high fixed costs at a time of plummeting revenues. Correspondingly, losses were incurred for 2020 and 2021.

## Rising revenues

The tentative recovery of civil aviation that had started in 2021 continued in 2022 at an accelerated pace. The growth in traffic volumes also helped improve Skyguide's revenues.

The Category I en-route and Zurich and Geneva approach/departure services provided by Skyguide are the company's prime revenue source. In 2022, revenues from these activities showed a 442 per cent improvement on the previous year, but were still 11 per cent below their 2019 level. In contrast, revenues deriving from the services Skyguide provides for the Swiss Air Force, unaffected by the pandemic, remained stable in 2022. The services provided for Category II regional aerodromes and the corresponding revenues also remained stable overall, though some aerodromes reported significant fluctuation in their traffic levels. Revenues from Skyguide's non-regulated commercial business showed an 11 per cent decline.

## Stabilised financial situation

When in 2020, the pandemic suddenly put commercial aviation under pressure, Skyguide – like all air navigation service providers – was unable to reduce its costs to match its revenue loss. The supportive actions by the Swiss Confederation and the cost economies initiated at the company helped counter the revenue shortfall and lacking liquidity.

Skyguide performed its mandate throughout the pandemic seamlessly. It continued to do so even during the rapid recovery of air transport in summer 2022, when multiple members of the aviation community – airlines, airports, ground handlers and more – who had scaled back their production capacities during the pandemic had difficulty keeping pace with the new boom in demand.

Throughout the pandemic, Skyguide remained in close consultation with the Swiss Confederation, maintained full transparency and devised various robust scenarios. The Confederation, for its part, made a range of provisions and devised contingency plans. In the end, Skyguide did not have to utilise

“Skyguide performed its mandate throughout the pandemic seamlessly. It continued to do so even during the rapid recovery of air transport in summer 2022.”



an additional CHF 100 million loan facility which had been approved by the Swiss Parliament under the 2022 federal budget in case the situation should deteriorate further.

Skyguide will begin repaying the CHF 250 million loan it received from the Swiss Confederation in 2021 from 2023 onwards. To do so, it will modify its air traffic services fees in line with the European Performance Plan for the third reference period (2020–2024), which was formally approved by the European Commission at the end of 2022. Under this Plan, airlines compensate the air navigation service providers for their revenue shortfalls in 2020 and 2021 via corresponding increases in air traffic services fees between 2023 and 2029. In previous years, under the same principle, the air navigation service providers returned a large part of the surplus revenues they had earned from higher traffic volumes to their airline customers. According to Eurocontrol’s forecasts, 2023 and 2024 are likely to be further transitional years before air traffic volumes will regain their pre-crisis levels in 2025.

For Skyguide, with its fees being calculated in Swiss francs, the financial situation remains challenging. The steep decline of the euro against the franc has

raised Skyguide’s fees to its customers. Maintaining a competitive edge is also far from easy, as the foundations for doing so – for example, in terms of the financial support available to develop and adopt new systems – are very different for Skyguide from those prevailing at Europe’s other air navigation service providers.

#### Lower costs

Back in 2020, Skyguide committed to saving CHF 120 million on its original budget over a five-year period. By consistently pursuing cost-saving measures, the company was able to continue as planned with the agreement reached with the Swiss Confederation under their overall financing accord.

In 2022, Skyguide reduced its operating costs from the originally budgeted level by CHF 15.5 million, achieving savings in personnel expense in particular (of CHF 21.8 million). The salaries awarded to the company’s top management also contributed to this.

The Skyguide Annual General Meeting on 5 May 2022 resolved to set the maximum aggregate remuneration for 2022 for the (seven-member) Executive Team at CHF 4 285 000 (compared to a maximum of CHF 3 950 000 for 2021). The Meeting also confirmed remuneration of the members →

“Within this far-from-stable environment, Skyguide continues to work with a long-term perspective, investing in transformation initiatives and bringing its innovative Virtual Centre programme to fruition.”

of the Skyguide Board of Directors at CHF 151 260 for the Chairman and CHF 336 390 for the six other members combined.

Remuneration effectively paid in 2022 amounted to CHF 138 560 (including pension fund contributions) for the Chairman of the Board (previous year: CHF 137 979), CHF 305 482 for the other Board members combined (previous year: CHF 303 781) and CHF 3 651 784 for the seven-member Executive Team (previous year: CHF 3 547 222). Remuneration paid in 2022 was thus substantially below both the maxima approved and the amounts originally budgeted.

#### **A solid result in a complex environment**

Skyguide reported a slight profit of CHF 11 million for the 2022 financial year, a 109 per cent improvement on the CHF 122.3 million loss of 2021. Thanks to its rigorous cost management and cost economies, and despite the challenging environment, the company was able to post its first annual profit since 2016.

However, uncertainties are only increasing owing to factors like rising inflation, the war in Ukraine and energy prices. A further challenge – perhaps the greatest facing us today – is posed by climate change. Substantial investments into the aviation sector will need to be made to reduce its carbon footprint. Aviation must integrate sustainability even more firmly into its business model, pay due and full regard to all associated costs and benefits and reconcile the financial and ecological issues and demands.

Within this far-from-stable environment, Skyguide continues to work with a long-term perspective, investing in transformation initiatives and bringing its innovative Virtual Centre programme to fruition. The pandemic has only underlined the key importance of technology and digital transformation, giving further impetus to a Skyguide process that was already under way. The Virtual Centre is tantamount to a long overdue paradigm change within Europe’s air navigation services. Not only will it make air traffic management less expensive but also enable the providers of these services to respond more swiftly to fluctuations in traffic volumes and help them play their part in achieving environmental goals more effectively.

That Skyguide is required to finance its investments in technology through the fees it collects while its European competitors can draw on EU funds for their infrastructure financing is a major factor in the unequal and ultimately discriminatory basis on which the company must work. A clear differentiation between (critical) infrastructure and the services provided therewith – as is maintained, for instance, in the rail sector – needs adopting for air traffic management, too. •

# Exemplary governance principles anchored

Skyguide further structured its activities in the environmental, social and governance field in 2022, helping bring greater clarity and visibility to its ESG endeavours.

The services that Skyguide provides for its customers and partners require the observance of the most rigorous safety standards while simultaneously ensuring

- the requisite capacities and the efficacy of military missions.
- cost efficiency and value creation and
- sustainability in environmental, social and governance (ESG) terms

This is how Skyguide seeks to perform its mandate and mission. Similar parameters have also been adopted by the EU for the performance goals of its functional airspace blocks.

Skyguide is a private-law company owned by the Swiss Confederation and performs a public service mandate, making sustainability one of its prime responsibilities towards the society it serves. How the company assumes this responsibility must be

communicated and discussed, both internally and externally. There are few absolute criteria here, though there are best practices to which such activities can be aligned.

## Responsible towards the environment

Skyguide can exert a direct influence on its own environmental footprint – for instance through its energy use – and has been doing so for several years. However, like any means of transport, aviation has an essentially net negative impact on the environment. Accordingly, the prime ecological efforts of any air navigation service provider must be made within its core activities.

Skyguide has achieved a number of successes – particularly through improving the horizontal, vertical and time efficiency of the flights in its care. Skyguide's involvement in European programmes has been beneficial, too – for instance by cutting flight times spent in holding patterns by some 90 per cent, translating into an annual reduction in carbon dioxide emissions of approximately 2 100 tonnes.

Endeavours cannot be limited to specific environmental programmes, however. Rather, ecological sustainability should form an integral part of overall business governance. Skyguide's Environmental Policy – a new version of which was published in 2022 – is a key component here.

Responsibility for Skyguide's environmental performance and its sustainable development lies with its Executive Team. The company also created an interdisciplinary "Green Team" some ten years →

"Skyguide has achieved a number of successes – particularly through improving the horizontal, vertical and time efficiency of the flights in its care."

“The potential for increasing the number of women in technology-strong professions remains substantial throughout Switzerland.”

ago to ensure that its efforts to ease the ecological impact of its activities are coordinated company-wide and that its environmental goals are achieved.

#### Responsible towards employees

Skyguide's employees identify strongly with the company's mission. The company enjoys the reputation of being a good employer and intends to maintain this reputation, also as a key means to find and retain skilled staff, particularly in view of the increasing shortage of skilled workers. In accordance with this, the average years of service within the Skyguide workforce – 16 years – is quite high. The average employee age remains stable; and the gender balance remained largely unchanged in 2022. Skyguide practises equal gender treatment in all salary issues, as is confirmed by the company's "Fair-ON-Pay" certification. At 22 per cent, however, women remain underrepresented within Skyguide's ranks. The company has taken action in the past to increase its proportion of female employees. But the potential for increasing the number of women in technology-strong professions remains substantial throughout Switzerland. In signing up to this year's "25by2025" IATA initiative, Skyguide has committed to ensuring that women make up at least 25 per cent of its workforce by 2025, with a particular focus on leadership positions and activities in which women are traditionally underrepresented.

Skyguide puts a firm emphasis on diversity and inclusion and has committed to fair dealings with all employees and to equal opportunities in the workplace, irrespective of gender, ethnicity, religion,

disabilities or sexual orientation. These principles also have a positive impact on workplace health, well-being and performance. In addition to its duty as an employer to ensure the safety, security and good health of its employees, Skyguide offers staff numerous opportunities to promote their own physical and mental health. This is especially important as almost half the company workforce follows shiftwork schedules.

Skyguide also offers specialised training opportunities and apprenticeship positions, promoting the development of young talents.

It is Skyguide's skilled and motivated employees who enable the company to perform its service mandate to the highest standards. This is not only to the advantage of its airline customers but ultimately helps ensure passengers' safety.

#### Responsible towards stakeholder groups

As a company affiliated to the Swiss Confederation, Skyguide complies fully with its owner's 37 Principles of Corporate Governance, regulating matters like the composition of its top management and supervisory bodies, their interests and remuneration.

The Board of Directors comprises seven members: three women (43%) and four men (57%). The seven-member Executive Board consists of five men (71%) and two women (29%).

Remuneration of the members of the Executive Team is determined by the Board of Directors within the parameters of a maximum aggregate remuneration set by the company's owner. The Executive Team's salary structure is based on the Swiss Federal Council's resolution of 23 December 2016, under which the variable salary component may not exceed 50 per cent of the fixed annual salary and ancillary benefits may not exceed 10 per cent thereof. Remuneration for the Chairman and





**“In establishing its Compliance Management System, Skyguide has further strengthened the integrity of its management and governance.”**

the other members of the Board of Directors is determined in accordance with the Swiss federal resolution of 2007.

Members of the Board of Directors are subject to precise provisions regarding further mandates they may hold. The Board's members are also sensitised to any other interest issues. They are required to communicate any new mandates or any professional developments in advance, to prevent any potential conflicts of interest. They are also required to recuse themselves from any discussion of any business that might conflict with their personal interests or with the interests of any related parties (in the form of persons or legal entities).

In renewing its Compliance unit and establishing a Compliance Management System in 2022, Skyguide has further strengthened the integrity of its management and governance. This was confirmed by an external audit, successfully conducted at the end of the year. Through its anti-corruption policy, Skyguide ensures that all its business is conducted fairly. Its Gift and Hospitality Register prevents possible bribery by specifying that any gift or hospitality worth over CHF 100 must be reported, any such consideration worth over CHF 250 must be approved and any offer worth over CHF 500 may not be accepted. These safeguards have now been complemented by a whistleblowing tool which facilitates the reporting of any unethical actions or behaviour. •

# The Board of Directors



**Walter T. Vogel** since 2015

is Chairman of the Skyguide Board of Directors, chair of its Compensation & Nominations Committee and a member of its Finance & Audit Committee. He served for eight years as CEO and later as Chairman of the Board of the Aebi-Schmidt Group. He holds a degree in Mechanical Engineering from ETH Zurich and business administration qualifications from the University of St. Gallen and INSEAD Fontainebleau. Further mandates held: Chairman of the Board of St. Gallisch-Appenzellische Kraftwerke AG; member of the D-MAVT Industrial Advisory Board at ETH Zurich and member of the Foundation for Aviation Competence Advisory Board.



**Anne Bobillier** since 2014

is Deputy Chairwoman of the Skyguide Board of Directors, chair of its Projects Committee and a member of its Safety & Security Committee. She was Corporate Project Manager at Bechtel Management AG until the end of 2020 and had previously served in executive functions at several well-known companies. She holds an MA in Computer Sciences from the University of Geneva. Further mandates held: Chairwoman of the Board of SkySoft ATM, Deputy Chairwoman of the Board of Romande Energie Holding and Romande Energie SA, member of the Boards of the Franco-Swiss Chamber of Commerce & Industry, Rolex SA and Rolex Holding and LonHea and member of the Executive Committee of the SwissBoardForum.



**Dominik Hänggi** since 2015.

is the employees' representative on the Skyguide Board of Directors and a member of the Board's Projects and Safety & Security Committees. He joined Switzerland's air navigation service provider in 1988 and currently serves as a Geneva-based air traffic controller.



**Aldo C. Schellenberg** since 2021

is a member of the Board's Compensation & Nomination and Finance & Audit Committees. He held various functions in the Swiss Army, most recently as Lieutenant General, Deputy Chief of the Armed Forces and Chief of Joint Operations Command before his ordinary retirement at the end of 2020. He is also active as a business consultant. He holds a PhD in Economics from the University of Zurich and an LL.M. in Commercial Law from the University of Bern. Further mandates held: member of the Board of Swiss Innovation Forces AG.



**Doris Barnert** since 2020

is chair of the Board's Finance & Audit Committee. She is CFO & Head of Corporate Services and a member of the Executive Board of Swissgrid, Switzerland's national grid company. Previously, she served as Director of Finance (CFO) and a member of the Executive Board of Solothurner Spitäler AG and held various functions with SBB AG, the Swiss Federal Railways. She holds an architect's diploma from ETH Zurich, an Executive MBA from the University of St. Gallen (HSG) and a Master of Advanced Studies in Corporate Finance from the Institute of Financial Services (IFZ) of the University of Lucerne.



**Cristina Feistmann** since 2015

chairs the Board's Safety & Security Committee and is a member of its Compensation & Nominations Committee. An attorney at law and the holder of an Executive MBL from the University of St. Gallen, she is Company Secretary at the Swiss Reinsurance Company Ltd. She is familiar with the aviation world, having joined the Swissair Group in 1998 and subsequently serving with Swissport as its General Counsel & Secretary. Further mandates held: member of the Board of B Capital Partners AG and member of the Board of Trustees of the Swissair Staff Foundation for Children in Need.



**Res Schmid** since 2017

is a member of the Board's Safety & Security and Projects Committees. He has been a Government Councillor of Canton Nidwalden since 2010. He has spent over 30 years serving as a military and a qualified test pilot with the Swiss Air Force and with Armasuisse, rising to Chief Test Pilot and head of the flight evaluations for the partial replacement of the F5-E Tiger. Further mandates held: Chairman of the Board of Bergbahnen Beckenried-Emmetten AG and of INSILVA AG, President of the ch-x Swiss Federal Surveys of Adolescents Committee, trustee of the Winkelried House Foundation and of the Schindler Arts Foundation.

# The Executive Team



## Alex Bristol

(CEO) has headed the Skyguide Executive Team since 2017. A Swiss-British dual national, he joined the UK's air navigation service provider NATS in 1992 and served there in various functions including air traffic controller, Head of Operations and most recently Head of Development & Investment Strategy. He joined Skyguide in 2011 as Chief Operating Officer and a member of the Executive Team. He holds a BA from the University of Exeter and has completed INSEAD Fontainebleau and the Singapore Advanced Management Programme.



## Klaus Meier

(Engineering & Technology) has been Skyguide's Chief Technology Officer and a member of the Executive Team since 2014 and Deputy CEO since early 2020. He previously served as CIO Americas for the Schindler corporation, based in the US. He is familiar with the aviation world through his years with Swissair, where he promoted process enhancements and technological innovation in various executive capacities. He holds a PhD in Electrical Engineering from ETH Zurich.



## Hans Bracher

(Human Resources) has been a member of the Executive Team since 2015. He joined Skyguide as Head of Human Resources in 2012. Previously, he acted as Head of Corporate Human Resources and a member of the Group Executive Board of RUAG Holding AG. He also held various functions during many years with Ascom, ultimately serving as Head of Corporate Human Resources and a member of the Extended Executive Board. He is an attorney at law.



## Peter Dietrich

(Legal) has been Skyguide's General Counsel and Head of Legal & Compliance since 2019. He previously held various functions at law courts, with the cantonal authorities and in the private sector. He spent ten years as CEO of Swissmem, Switzerland's umbrella industries' association, followed by two years at a management consultancy advising companies and their executives on change processes. He is an attorney at law and holds an LL.M. in International Economic Law.



## Myriam Käser

(Communications, Public Affairs & Environment) has been Chief Communications & Public Affairs Officer and a member of the Executive Team since 2018. She previously served as a public affairs, PR and branding consultant and as a member of the management board of a reputed communications agency; from 2015 onwards she was Head of Communications and a member of the Extended Management Board of the NZZ Media Group. She studied Political Sciences, International Law and Arabic Language and Culture in Switzerland, the US, the UK, France and Egypt, and holds an MA from the University of Zurich.



**Klaus Affholderbach**

(Safety, Security, Quality) has been a member of the Executive Team since 2018. He has held various functions at Skyguide since joining in 2001, including Head of Air Traffic Management Geneva, Head of International Airports (Zurich and Geneva) and most recently Head of the Virtual Centre with responsibility for all upper airspace. A Doctor of Science, he previously worked at CERN where he conducted research into high-energy physics.



**Götz Ardey**

(Business Development) has been Chief Business Development Officer on the Skyguide Executive Team since 2019. He has been with the company since 2012 and previously served as Head of Communications, Navigation & Surveillance. Before joining Skyguide, he spent ten years with the Lufthansa Group in various capacities. He holds a PhD in Engineering and an MBA.



**Urs Lauener**

(Operations) has been Chief Operating Officer and a member of the Executive Team since 2017. He trained and qualified as an air traffic controller and went on to serve as a Skyguide procedural expert before moving to the Swiss Federal Office of Civil Aviation as an air navigation services specialist. He returned to Skyguide in 2003 and subsequently filled several executive roles in both military and civil air traffic management. He holds an Executive MBA and an Advanced Certificate in Aerospace & Aviation from HEC Paris.



**Nicole Leyre**

(Finance & Services) has been Skyguide's Chief Financial Officer and a member of its Executive Team since 2018. She spent 19 years with Schneider Electric in various management capacities. She then served for over ten years as Chief Financial Officer and a member of the Executive Board of KBA-NotaSys, where she also bore responsibility for IT, HR and facility management. She holds an MA in International Finance and an MBA.

# Different customers, different solutions

Skyguide provides differentiated services for each of its various customer groups. What all its customers share, though, is a cooperative, long-term-oriented relationship with Skyguide.

Skyguide provides specialised services for a wide range of customer segments. The long-term collaborations these activities are based on generate the best possible solutions for any issue arising. This type of partnership also helps all organisations involved to learn to orientate themselves towards future challenges.

Air traffic control – organising and monitoring flights in controlled airspace, but also providing information for the users of uncontrolled airspace – is Skyguide's core business. That these activities are highly diverse is a given considering the many and varied users of the airspace in question: passenger and cargo aircraft of various sizes, military aircraft, lighter powered aircraft, gliders, helicopters, balloons, hang gliders, parachutists and paragliders, model aircraft and (of course) drones.

Skyguide's customer base is correspondingly varied, and includes not just the airlines but also individual pilots, the Swiss Air Force and air rescue

services. All services provided by Skyguide meet international standards. But the situation at Switzerland's regional aerodromes presents something of a special case today.

## Regional aerodromes

In response to an increase in international compliance requirements for air traffic control at regional aerodromes, air navigation services for Swiss regional aerodromes were transferred (with the exception of Samedan) to Skyguide around 20 years ago. These services were largely funded by the fees Skyguide earned for its services at the two international airports of Zurich and Geneva. When this type of cross-financing was outlawed under new European legislation, the regional aerodrome services were newly funded via a "Special Air Transport Financing" arrangement, making use of revenue generated by the mineral oil tax. Since 2017, the Swiss Confederation has been paying subsidies directly to the aerodrome operators, who are in turn debited by Skyguide for the services it provides.

A parliamentary motion submitted in 2020 is now demanding that the financing of air traffic services at Switzerland's regional aerodromes should be placed on a longer-term foundation. And in the autumn of 2022, the FOCA submitted a proposal on how this motion could be turned into practical reality.

Among other ideas, the proposal maintains that the compensation for these services should again

"All services provided by Skyguide meet international standards."



be paid directly to the service provider, i.e., Skyguide. Since Skyguide would be exempt from value-added tax, this would leave several million Swiss francs in the Special Air Transport Financing fund. A return to direct payment would not, however, mean a return to a quasi-monopoly situation. The regional aerodrome operators can still put the services needed by their users out to tender. But this requires a clearer definition of the basic package of services needed, to ensure that all market participants would have the same rights and obligations when tendering. What also needs clarifying is the interim rules that would apply should a service provider no longer be able to offer the services in question.

By using new technologies, a more customer-centred definition of the levels of services required and modified operational procedures, it should also be possible to sustainably reduce the costs of providing air traffic services at Switzerland's regional aerodromes.

### Third-party business

Especially in the technology and the consultancy fields, Skyguide offers further services. Once again, in 2022, the company attended various international conferences and trade fairs. The commissions that these generated not only provided additional revenues: meeting ever new demands from the

various customers involved also provides vital input and impetus for Skyguide's learning abilities and its innovation credentials.

### Better prepared

The market is growing more competitive and customers are getting more demanding – which is a good thing, as it helps Skyguide evolve. The Target Operating Model (TOM) offers a means to optimise organising processes. Progress with TOM in 2022 saw new business areas created and getting started on realigning their services and processes. The company has also devised strategies for such business areas, developed corresponding key performance indicators, laid a requisite foundation for financial transparency and evolved an appropriate monitoring process. Skyguide will continue to steadily develop and refine its new operating model until the end of 2024, extending it to all its divisions, departments and support functions.

**“Meeting ever new demands from various customers is vital to Skyguide's learning abilities and innovation credentials.”**

In pursuing its new TOM programme, Skyguide has set itself ambitious objectives – it will only be able to achieve these by maintaining a strong service and learning culture as well as a continuous dialogue with its entire customers base. •

# Further cultural development

Skyguide's employees are the most vital element in the company's development. They shape its future by putting safety first, day in, day out, while simultaneously helping its various innovation drives succeed.

Skyguide's steady restructuring of its organisation in line with its customers' needs and its TOM aspirations must be able to draw on a corporate culture that supports and promotes such endeavours. For this reason, in 2022, the company put special emphasis on its cultural development. What has emerged is a new Value Framework formulating the company's values and developing them further with a view to tomorrow's business and operating world.

## Inclusive and goal-based leadership

The leadership style within our company is geared towards principles such as flexibility, trust and a focus on results, all based on our new Value Framework, and not just since the Covid pandemic and subsequent new forms of working.

To ensure that everyone in the company can make full use of their potential and make their best possible contribution, our Executive Team is expanding our equal opportunities and diversity programme. It is doing so in the awareness that discussions in mixed teams produce better results. The greater the diversity, the better the company's chances of achieving success.

Women remain underrepresented at Skyguide, especially in technical professions and in leadership capacities. However, they currently account for a quarter of all air traffic controllers. On 8 March 2022, International Women's Day, Skyguide signalled its appreciation of its female employees by putting control of its airspace firmly in women's hands. This initiative generated a substantial media response and it is to be hoped that more young women might have been encouraged to consider this fascinating profession.

June is the traditional Pride Month. The rainbow flags hoisted at Skyguide's various locations to mark

## We team up to succeed

- We trust each other
- We seek diversity
- We include different perspectives
- We span boundaries
- We empower

## We own what we do

- We take initiative
- We take courageous decisions
- We take full responsibility
- We own up to our outcomes - good or bad
- We hold ourselves accountable



## We drive innovation

- We move first
- We live agility
- We are focused & efficient
- We learn & improve
- We make a difference

## We create great customer value

- We put customers centre-stage
- We create value together with our partners
- We anticipate future needs
- We deliver promptly
- We act with a focus on the market



“Skyguide has been finding it far from easy to fill its training places for future air traffic controllers.”

the occasion reflect the company's wish to promote a culture in which everyone is welcome. Such actions are not about statistical diversity, either: they are about creating an environment to which everyone can contribute and in which everyone can develop.

#### **Shortage of specialists felt**

After two low-traffic years because of the pandemic, and with the public growing increasingly sensitised to environmental issues, the image of aviation is currently under significant pressure. Skyguide is feeling the effect of this, too. The company has been finding it far from easy to fill its training places for future air traffic controllers, especially – but not solely – in Western Switzerland.

Skyguide has taken several actions in response, such as intensifying its communications to publicise the profession and other air navigation services occupations, as well as raising remuneration for trainee controllers.

That Skyguide is an interesting company for young people to work at was underlined not least by the results of the Universum Top 100 survey of students, in which the company was placed among the most attractive employers in the fields of science, IT and engineering.

Recruiting new specialists is one thing. The other is providing them with the requisite initial and continuous further training – into which Skyguide invests substantial financial resources through its own Academy.

#### **Responsibly efficient**

In line with the Swiss Confederation's cost-saving requirements, Skyguide has reduced its total workforce numbers over the past years. However, it is taking such action responsibly, as confirmed by its ability to handle professionally the rapid increase in air traffic volumes in spring 2022. In doing so, its employees demonstrated impressive resilience and flexibility.

With air navigation services being a labour-intensive sector, personnel expense accounts for a substantial part of Skyguide's overall costs. All personnel categories must make their contribution if air navigation services are to remain financially sustainable in the longer term. The corresponding actions – including the plan to raise the retirement age for air traffic controllers – were successfully pursued in the year under review.

The collective labour agreement negotiations with Skyguide's social partners were still under way by the end of the year. These had been deferred in 2021 in view of the uncertainties caused by the Covid pandemic. •

“Skyguide's employees demonstrated impressive resilience and flexibility.”

# Progress as a responsibility

With air traffic volumes rising again in the course of 2022, climate and environmental issues started to regain their previous prominence in the public debate. The impact of the war in Ukraine on energy supplies prompted further considerations of both energy savings and alternative energy sources.

Protecting the environment is an integral part of Skyguide's mission. Progress made in 2022 shows the company continued to devote its full attention to this objective throughout the pandemic.

At Skyguide, observing all current environmental provisions and following tried and trusted ecological practices is a matter of course. The company pursues its environmental mission with a particular focus on two areas: infrastructure and flight operations.

## Responsibility assumed

Energy efficiency and sustainability demand responsibility. For Skyguide, this means constantly improving its infrastructure and corporate conduct. Back in 2013, the Swiss Confederation launched an initiative to such ends, under which government-affiliated companies were to set an example with regard to energy and the climate. This has been an opportunity for Skyguide to learn from others and jointly develop new approaches and solutions. In the first phase of the "Exemplary Energy and Climate" programme, the company was able to improve its energy efficiency by 52.4 per cent from its 2006 reference level.

Skyguide, the Swiss Confederation and a grown number of partner organisations signed a new

**"Protecting the environment is an integral part of Skyguide's mission."**

Exemplary Energy and Climate declaration of intent in October 2021. The second phase of the programme will run to 2030; within this framework, Skyguide has committed to improve its energy efficiency by a further 7 per cent by 2026 and by another 9 per cent by 2030.

Skyguide has been focusing on achieving efficiency gains in the areas of facility management, renewable energies, mobility, computer centres and green IT. Especially in the latter, the company sees potential. The Virtual Centre in particular, the centrepiece of corporate strategy, allows its servers to be virtualised, its IT architecture to be optimised and a gradual switch to be made away from physical IT hardware to the use of data services.

The ongoing replacement of existing air traffic monitoring infrastructure offers the prospect of further efficiency gains. Traditional ground radar facilities, with their high energy and maintenance needs, are being steadily superseded by more efficient multilateration technology. This trend affects the six Skyguide secondary radar facilities that will reach the end of their service life in 2023. Already, the company has installed 28 wide area multilateration sensors, nine of them in 2022. Over its full service life, this innovative technology will save Skyguide four gigawatt hours of energy, the equivalent of 100 tonnes of carbon dioxide emissions.

Further environmental actions either planned or already taken include expanding the use of photovoltaics and reducing the consumption of

“Air navigation service providers can and must make their contribution to further reduce aviation’s environmental impact.”

non-renewable fossil fuels. Since the use of such fuels is limited, the potential for improvements here is lower, though by no means non-existent.

In previous years, Skyguide’s own energy needs had been lower, not least because of the Covid crisis and particularly in mobility and building heating. With the recovery in air traffic volumes, it has become more challenging again to make progress in energy efficiency and sustainability. Still, Skyguide met and

even exceeded the targets set under the above-mentioned federal energy and climate programme for 2022.

#### **Bearing co-responsibility**

Aviation accounts for around 4 per cent of Europe’s human-generated carbon dioxide emissions. Its share of the CO<sub>2</sub> emissions generated by all means of transport amounts to 14 per cent. This also involves Skyguide. Air navigation service providers can and must make their contribution to further reduce aviation’s environmental impact.

In Swiss politics, when weighing up aviation’s environmental impact and the various interests involved, noise reduction has sometimes been →



“The industry must invest in its core business to manage air traffic as efficiently as possible and thereby reduce aircraft fuel consumption.”

given priority, at times at the expense of carbon emissions concerns. Such priorities ought to be reviewed.

Europe’s aviation sector has set itself the long-term climate goal of zero net CO<sub>2</sub> emissions. Increasing the efficiency of air traffic management can contribute some 6 per cent to the overall action plan to achieve this objective. Although this may not seem a huge proportion, the actions in question could be taken well before 2050.

The concrete goals for air navigation service providers are formulated in the European Commission’s Single European Sky (SES) programme for a unified European airspace and in the European “Green Deal”. The industry must invest in its core business to manage air traffic as efficiently as possible and thereby reduce aircraft fuel consumption. This is to be achieved by improving efficiency in horizontal flight, in vertical flight and in timings.

#### – Horizontal efficiency enhancements

Over the past years, Skyguide and its partner organisations in Functional Airspace Block Europe Central (FABEC) have developed a network of optimised routes and free route selection. Skyguide adopted this Free Route Airspace on

1 December 2022 for all air traffic above 19 500 feet within the entire airspace under its responsibility. The design for this was developed by a core team of air traffic controllers under a SESAR simulation project and finalised through various validation sessions. This means that airlines can now select the most fuel-efficient routes for their flights as early as during their flight planning.

#### – Vertical efficiency enhancements

The Continuous Descent Approach is an approach procedure that minimises the number of flight segments between top of descent and touchdown on the runway. Avoiding a stepped landing approach keeps engine power more constant and lower on average. This reduces both noise levels and fuel burn. Similarly, for departures, Continuous Climb Operations ensure more efficient vertical flight movements.

#### – Time efficiency enhancements

Twenty years ago, Skyguide was one of the first air navigation service providers to introduce an Arrival Management System, intended to improve time efficiency by synchronising arrival times precisely. This prevents the kind of airborne traffic congestion requiring holding patterns and unnecessary flight kilometres. The system has since been expanded to areas further away from the airport of arrival, providing even better flight planning opportunities.

In 2022, under SESAR’s XSTREAM project, the approach was even trialled beyond Switzerland’s borders. By specifying precise airspeeds for the aircraft in question, arrival sequences can be optimised for flights still hundreds of kilometres away from their destination airport.

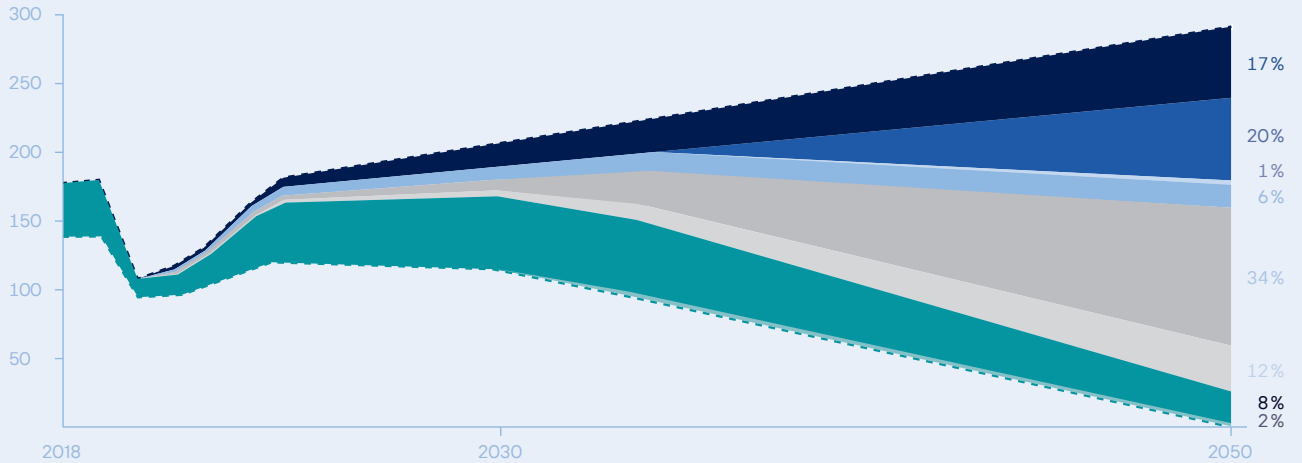
These procedural measures are already well advanced within air traffic management. Further long-term potential for reducing CO<sub>2</sub> emissions lies in airspace design and management, as well as in new approach, runway and departure management possibilities.

At the national level, the Swiss Confederation launched the Avistrat-CH programme in mid-2016. Avistrat-CH is intended to reorganise Swiss airspace and the country’s aviation infrastructure. With its vision and strategy defined, the programme is now entering its

## Decarbonisation roadmap for European aviation

Compared to others, operational ATM measures have a low but nevertheless significant climate-relevant improvement potential. Many individual measures, under the responsibility of different stakeholders such as airlines, airports and ANSPs put together will make an important contribution to the net zero target. The most significant drivers for reduced CO<sub>2</sub> emissions are improved aircraft engine technology and the use of sustainable aviation fuels.

EU+ aviation net CO<sub>2</sub> emissions (Mt)



Source: Destination 2050: A route to net zero European aviation, NLR (Royal Netherlands Aerospace Centre), SEO (Amsterdam economics), 2021, p. i

implementation phase. Skyguide's expectations of Avistrat-CH are considerable and accordingly, the company aims for a close involvement. Airspace must be simplified. What this requires above all is the political will to do so.

In the approach procedures field, Skyguide has already initiated the next steps. The company has become one of the first users of instrument flight rules procedures that use both space-based and ground-based augmentation systems (SBAS and GBAS) to ensure accurate navigation. The satellite-based technology was introduced more than a decade ago. More than 200 satellite-based approach procedures are currently in use throughout Switzerland. These have permitted both shorter and curved approach routes to be flown. Such routes are more fuel-efficient than routes flown using traditional ground-based navigation systems. These new technologies also allow for some of conventional ground-based navigation aids to be deactivated: Skyguide has already decommissioned its first VOR facilities.

Successes achieved to date both nationally and internationally in easing the environmental impact of aviation activities are all attributable to pragmatic and fair collaborations among all specialist entities involved.

### Ambition as responsibility

After two years of radically reduced air traffic levels because of the Covid pandemic, Skyguide was unable to achieve its environmental targets on flight operations in 2022 because of the steep recovery in air traffic volumes. However, the company is not content with merely citing exogenous factors and initiated further action in mid-year as it became clear that the targets would not be met. Among other measures, a salary-relevant target should now help ensure that even more efforts are being put into these endeavours.

Skyguide has also played a major role in the establishment of the "GreenATM" environmental accreditation programme through its membership of CANSO, the international association of →

“Skyguide is convinced that in protecting the environment, technological innovation, operational efficiencies and personal commitment must go hand in hand.”

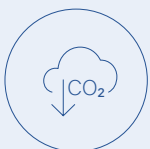
air navigation service providers. The company has set itself the GreenATM objective of earning Level 3 (out of 5) accreditation as early as 2023. This requires using sustainable jet fuel in its own operations (such as calibration flights), promoting more flexible airspace use and a programme to raise more awareness of environmental issues and concerns.

Our understanding of the environmental impact of aviation activities has improved over the past few years. It is now considered proven that, in addition to CO<sub>2</sub>, other emissions also have a detrimental effect on the climate, particularly nitrogen oxides and vapour trails. Both further research and political leadership will continue to be needed to determine how air navigation service providers like Skyguide can have a direct impact in this field.

Skyguide is convinced that in protecting the environment, technological innovation, operational efficiencies and personal commitment must go hand in hand. In this regard, digitisation is one of the key levers. Further progress in digitisation will make air traffic management not just safer but also more efficient. This is the approach that Skyguide is pursuing with its Virtual Centre programme.

### Skyguide's environmental goals for 2030

- Aviation CO<sub>2</sub> emissions
- Saving resources



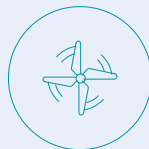
**5%**<sup>1</sup>  
Gate-to-gate  
CO<sub>2</sub> emissions reduction



**97%**<sup>1</sup>  
Efficient trajectories



**10%**<sup>2</sup>  
Buildings are more energy  
efficient



**100%**<sup>2</sup>  
Electric energy used  
is renewable



**20%**<sup>2</sup>  
Energy consumption reduction  
for mobility



**95%**<sup>2</sup>  
IT servers are virtualised

<sup>1</sup> Baseline 2018

<sup>2</sup> Baseline 2019

# Agility is crucial to a learning organisation

As the Covid crisis and the steep subsequent recovery in air traffic showed, carrying on as before is not an option. Digitisation, flexibilisation and service orientation are more vital to air navigation services than ever before, being the only convincing responses to the structural challenges faced by Europe's air navigation services.

The Single European Sky (SES) performance system sets performance targets for Europe's air navigation service providers in capacity, cost efficiency, environmental and safety terms. Exactly how the purely quantitative targets set at the outset of the SES initiative were to be meaningfully achieved remained unclear for a long time. The attempt to optimise the system as a whole based on existing knowledge and assumptions met with little success. Producing more of the same but at less expense also failed to meet the requirements of aviation. A paradigm shift was needed. The Virtual Centre was Skyguide's response.

## The exemplary Virtual Centre

The Virtual Centre programme is the centrepiece of Skyguide's transformation into a more sustainable, more resilient and more efficient air navigation service provider. It enables its employees throughout Switzerland, regardless of location, to provide air traffic services in response to demand from the basis of an open and service-oriented technical platform.

The second of the Virtual Centre's three programme tranches has modernised air traffic management systems to pave the way for the third phase in this innovative programme which is leading the way for Europe. Technologically, the Virtual Centre is now in a phase of stabilisation. The current and final programme tranche – Virtual Centre Touchdown – is focused on the operational side. It is therefore

“Europe's attempt to optimise the system as a whole based on existing knowledge and assumptions met with little success.”

being led by Operations, ensuring that Skyguide's air traffic controllers are fully involved early in the process.

The programme made further progress in 2022. One success in particular was the creation of the new operating concept, which describes how Skyguide will conduct location-independent air traffic management for the upper airspace under its authority. The key features of the Touchdown phase

- some of which have already been achieved while others are still being worked on – include:
  - annual savings of CHF 10 million through the new technological landscape
  - a 20% increase in productivity by increasing the number of flight hours handled per controller
  - more proactive management of flight delays
  - using data to further improve the safety networks
  - more efficient and more eco-friendly flight routes
  - raising the attractiveness of the air traffic controller's profession

Planning for 2023 revealed that, in view of the capacities available within Skyguide's technical unit (and the need to prioritise other safety-relevant matters within the company), the original programme plan would have to be modified. Development resources are also being stretched at →

“It is in its scaling that the Virtual Centre offers the most potential of all.”

present owing to the need to implement the findings from the investigation of the technical incident on 15 June 2022. Both developments will temporarily slow further progress on the Virtual Centre programme in 2023.

Europe’s air navigation services organisations and participants recognise the Virtual Centre’s innovative approach and its potential. The Skyguide-driven programme is fully aligned with the European Commission’s research and development activities. It is the first substantial solution to creating a more unified and thus significantly more efficient airspace over Europe. It also makes Skyguide a pioneer on the continent, with others likely to follow – because it is in its scaling that the Virtual Centre offers the most potential of all.

#### **Drones: a growing field**

When new forms of transport take to the sky, an innovative spirit is needed. Skyguide’s Special Flight Office received over 4 000 requests for drone flights subject to authorisation for various projects in 2022 – almost 25 per cent more than in the previous year.

Skyguide has been quick to invest in the structures and procedures required to integrate drones safely into Swiss airspace. In 2022, highlights of such actions included the automation of authorisations for vine-spraying flights around Sion Airport. Ten

drone and helicopter companies signed the corresponding agreement. As a result, the Skyguide tower personnel at the airport were able to permit more than 6 000 flights without manual intervention over a 19-week period – an achievement not imaginable without the automation involved.

The EU’s legal framework for unmanned aerial vehicles came into effect in Switzerland on 1 January 2023. Among other provisions, the new framework specifies safety standards for the manufacture, certification and operation of drones. Switzerland will also be adopting the EU’s U-Space regulations. U-Space ensures the integration of the growing volumes of civil drone traffic into airspace and its harmonious coexistence with traditional aircraft. This adoption of the corresponding EU ordinance will also enable Skyguide to be certificated as a U-Space service provider.

The new package of regulations also brings new obligations for Skyguide. With the corresponding modification of the company’s overall mandate comes a new financing agreement. Skyguide received CHF 3.2 million from the Swiss Confederation for work performed in 2022 in connection with the U-Space system. Similar sums are expected for 2023 and 2024. The further development of the highly dynamic drone industry will determine how the U-Space, so essential to this new economic sector, will be financed in the longer term.

#### **Infrastructure renewal as an opportunity**

New technological possibilities help to permit radical rethinks of existing infrastructural arrangements.

Examples include the multilateration systems which Skyguide is installing together with Armasuisse for the Swiss Air Force to replace traditional radar. The resulting nationwide civil-military surveillance system with its shared and standardised architecture pays due and full regard to specific military and civil needs. The new system has been in operational use since autumn 2022.

Another exemplary item of such infrastructure is the control towers from which air traffic controllers work with an unencumbered view of an airport’s runways and taxiways. Thanks to today’s technologies, such





visual surveillance can now be assured by digital means, i.e. remotely via video screens. Skyguide intends to deploy such technology at Geneva Airport. The airport's control tower, which is in Skyguide's ownership, needs renovating. The high costs of refurbishing the existing tower or building a new one are just one reason for opting for a digital solution. The real benefit of such an approach lies in its technology. The use of a range of sensors will improve the overall picture presented, compared with the alternative of naked-eye and binocular observation, especially at times of limited visibility. In Zurich, by contrast, a new traditional tower is scheduled for construction in the near future by airport operator Flughafen Zürich AG.

#### **Progressiveness as a tradition**

Switzerland's air navigation services have undergone a remarkable development over the past century. In the years ahead, innovative solutions will feature prominently in the air traffic services landscape. However, progress can only be made in

**“New technological possibilities help to permit radical rethinks of existing infrastructural arrangements.”**

the field in collaboration with a wide range of other participants. Switzerland is by no means a junior partner here: the skills it has to offer and its long tradition of solutions that are as innovative as they are concrete and pragmatic are valued throughout the international community. •

# No solo solutions

The pandemic, the war in Ukraine, the climate crisis and the associated economic challenges are all shaping the development of the aviation industry. As an ecosystem, the sector needs cooperative solutions to give itself a sound foundation for the tasks ahead.

The vision of the Single European Sky was to create a unified European airspace. That vision has been abandoned: the national interests of the EU's member states are simply too diverse. But the SES initiative has given a new dynamic both to international collaborations among air navigation service providers and to the states' attention to aviation concerns. For Skyguide this is a major development, as Switzerland, being a non-EU member, has otherwise only limited means of influencing European affairs.

## Performing together

The performance targets set by the EU have a major influence on Skyguide's strategic priorities. These are the goals of the FABEC airspace block, to which Skyguide and Switzerland belong. FABEC consists of the airspace of Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland and their respective air navigation service providers; some 55 per cent of all of Europe's air traffic is handled within this space.

The Performance Plan for the third reference period (RP3, 2020–2024) was only approved at the end of 2022, after Switzerland, France, Germany and the Netherlands had submitted their own national Performance Plans, with Belgium and Luxembourg having failed to meet their cost efficiency targets, which in turn risked a possible embargo on the special provisions for the reimbursement of costs for 2020 and 2021. At the 26th meeting of the FABEC Council in mid-December 2022, the member states

expressed their willingness to commit to a FABEC-wide Performance Plan for the fourth reference period (RP4, 2025–2029) and to continue to support performance monitoring and reporting at the FABEC level despite the national plans.

## Collaboratively solution-driven

FABEC is not just a loose partnership of convenience to meet the performance requirements of the European Commission. Each of its member organisations contributes its strengths, and Skyguide's specialists also share their expertise. In June 2022, for instance, the FABEC Training Task Force arranged a learning seminar to maintain air traffic controllers' knowledge and skills. The event, held at Geneva Airport and online, focused on new requirements, new technologies and new forms of basic and further training.

## Jointly innovative

Owing to the lack of a framework agreement with the EU, Switzerland, as a non-associated third-party country, is severely disadvantaged in the EU's "Horizon Europe" programme to promote research and innovation. This also hampers Skyguide when it comes to the financing and the leadership of research projects under SESAR, the EU's SES technology programme. That Skyguide was still accepted as a member of the SESAR Deployment & Infrastructure Partnership Consortium is a tribute to the company's key operational role within Europe and to the recognition it enjoys internationally for its expertise.

“Owing to the lack of a framework agreement with the EU, Switzerland, as a non-associated third-party country, is severely disadvantaged in the EU’s programme to promote research and innovation.”

Skyguide participates in variable constellations, depending on their strategic importance, on both overall programmes and individual projects with countries outside the FABEC area. Two examples of such collaborations are:

– **The Skytics Platform**

After two years of development, the Skytics simulation platform was unveiled in early 2022. The platform has been developed under Skyguide’s project leadership, in collaboration with its SkySoft-ATM subsidiary and Airbus. Skytics supports new air traffic management possibilities in the field of datalink exchanges with the cockpit and (above all) new conflict alert and resolution tools.

– **A real-time-simulation validation campaign**

In spring, in a collaboration with Leonardo, NATS, HungaroControl and Airbus Defence and Space, Skyguide and SkySoft-ATM conducted real-time simulations at their Geneva premises. The simulations are part of a programme to reduce air traffic controllers’ workloads. The principle behind this is to feed predictive data from aircraft’s on-board flight management systems into the control system on the ground in order to remove largely conflict-free aircraft movements from the controller’s screen or display them in less bold colours. The simulations also used eyetrackers to assess response times and the quality of the visual guidance displayed. The air traffic controllers involved in the project were enthusiastic about the innovations.

**A Swiss development track internationally acknowledged**

The core element in Skyguide’s innovation strategy – the Virtual Centre – is coming to play an increasingly important role internationally. Under the SESAR ATM Master Plan, the Virtual Centre has now been defined as a solution for the further development of air navigation services. The Master Plan particularly notes the flexibility of service provision that a Virtual Centre can provide and affirms that such an approach will support or improve operational performance.

The CANSO White Paper on New Technologies also devotes considerable attention to the virtualisation approach and prominently features the Skyguide Virtual Centre in this regard. The White Paper details the benefits of such a centre both within an air navigation services organisation and for cross-border operations. CANSO considers Skyguide a global pioneer here. •

“CANSO considers Skyguide and its Virtual Centre global pioneers.”

# List of abbreviations

ATFM	air traffic flow management
ATM	air traffic management
CANSO	Civil Air Navigation Services Organisation
CLA	collective labour agreement
DETEC	Swiss Federal Department of the Environment, Transport, Energy and Communications
ESG	environmental, social and corporate governance
ETH	Swiss Federal Institute of Technology
FAB	functional airspace block
FABEC	Functional Airspace Block Europe Central
FOCA	Federal Office of Civil Aviation
HEC	Haute Ecole Commerciale
HSG	St. Gallen University
IATA	International Air Transport Association
IFR	instrument flight rules
NATS	the UK's air navigation service provider
RP	reference period (for EU Performance Plans)
SES	Single European Sky
SESAR	Single European Sky ATM Research
TOM	Target Operating Model
U-Space	airspace functions and processes for drones
VOR	VHF omnidirectional radio range
WEF	World Economic Forum

# Financial report 2022

# Consolidated financial statements

## Consolidated income statement for the years ended 31 December 2022 and 2021.

in KCHF	Note	2022	2021
Air navigation services revenue		421 579	319 748
Other operating revenue		14 053	19 788
Net revenue from disposal of assets		51	42
(Under-)/over-recovery balance carried over	10	39 785	19 256
Under/(over)-recovery balance carried forward	11	8 376	-9 975
<b>Total operating revenues</b>	<b>1</b>	<b>483 844</b>	<b>348 859</b>
<b>Total personnel expenses</b>	<b>2</b>	<b>306 032</b>	<b>304 555</b>
Eurocontrol contribution	3	12 148	10 901
Meteorological services contribution		14 168	13 706
Other external air navigation services		1 049	1 342
Leased communication lines		1 239	1 776
Material and supplies, maintenance		30 560	25 954
Property-related expenses		8 564	9 129
Energy		2 080	2 201
Administrative expenses	4	38 310	31 452
Allowance for bad debt	5	-345	-2 030
Unplanned depreciation	6	1 703	1 777
Depreciation		55 495	61 043
<b>Total other operating expenses</b>		<b>164 971</b>	<b>157 251</b>
<b>Total operating expenses</b>		<b>471 003</b>	<b>461 806</b>
<b>Operating result</b>		<b>12 841</b>	<b>-112 947</b>
Financial income	7	1 115	220
Financial expenses	8	2 536	6 794
<b>Financial result</b>		<b>-1 421</b>	<b>-6 574</b>
<b>Result of an associated entity</b>		<b>-31</b>	<b>113</b>
<b>Result before tax</b>		<b>11 389</b>	<b>-119 408</b>
Taxes	9	363	286
<b>Net result after tax</b>		<b>11 026</b>	<b>-119 694</b>
<b>Profit / (loss) for the period</b>		<b>11 026</b>	<b>-119 694</b>

## Consolidated balance sheet as at 31 December 2022 and 2021

in KCHF	Note	31.12.22	31.12.21
<b>Assets</b>			
<b>Current assets</b>			
Cash and short-term cash deposit below 90 days	12	80 940	102 142
Receivables and advances	13	75 107	48 888
Derivative assets	18	102	0
Prepaid expenses	14	28 412	29 566
<b>Total current assets</b>		<b>184 561</b>	<b>180 596</b>
<b>Non-current assets</b>			
Long-term advances and other long-term assets	15	15 443	3 097
Property, plant and equipment	16	206 057	263 905
Securities and investment in associate		2 069	2 174
Intangible assets	17	142 441	109 480
<b>Total non-current assets</b>		<b>366 010</b>	<b>378 656</b>
<b>Total assets</b>		<b>550 571</b>	<b>559 252</b>
<b>Liabilities</b>			
<b>Current liabilities</b>			
Trade and other payables		7 750	7 671
Derivative liabilities	18	12	0
Advances and other short-term liabilities	19	6 793	5 689
Accrued liabilities	20	56 289	89 222
Short-term provisions	21	30 098	9 781
<b>Total current liabilities</b>		<b>100 942</b>	<b>112 363</b>
<b>Non-current liabilities</b>			
Long-term debt	22	250 000	250 000
Other long-term liabilities	23	2 078	10 365
<b>Total non-current liabilities</b>		<b>252 078</b>	<b>260 365</b>
<b>Total liabilities</b>		<b>353 020</b>	<b>372 728</b>
<b>Shareholders' equity</b>			
Share capital	24	50 098	141 120
Treasury share	25	-25	-25
Legal reserves from retained earnings		19 706	19 706
Legal reserves from capital		5 380	50 880
Voluntary retained earnings		0	253 932
Retained earnings / (accumulated deficit) brought forward		111 366	-159 395
Profit / (loss) for the period		11 026	-119 694
<b>Total shareholders' equity</b>		<b>197 551</b>	<b>186 524</b>
<b>Total liabilities and shareholders' equity</b>		<b>550 571</b>	<b>559 252</b>

## Consolidated cash flow statements for the years ended 31 December 2022 and 2021

in KCHF	2022	2021
<b>Operating activities</b>		
<b>Profit / (loss) for the period</b>	<b>11 026</b>	<b>-119 694</b>
Depreciation	57 198	62 820
Financial income	-211	-219
Financial expenses	1 103	4 152
Dividends received	-294	-931
Taxes	363	286
Gains and other changes on property, plant and equipment and intangible assets	-51	-42
Fair value change on available for sale securities and associated entity	3	-141
Change in long-term deferred revenues and advances received	-8 971	-34 420
Change in advances and other short-term receivables	-25 874	34 144
Change in prepaid expenses, long-term advances and other long-term assets	-11 192	-8 954
Change in trade and other payables	78	-999
Change in advances and other short-term liabilities	1 104	-53
Change in accrued liabilities	-33 062	20 499
Change in provisions	19 971	-2 492
<b>Cash flow from operating activities</b>	<b>11 192</b>	<b>-46 045</b>
Taxes paid	-363	-286
Interest paid	-841	-3 992
Interest received	91	123
<b>Net cash flow from operational activities</b>	<b>10 078</b>	<b>-50 200</b>



in KCHF	2022	2021
<b>Investing activities</b>		
Investment in property, plant and equipment	-19 754	-34 316
Proceeds from sale of property, plant and equipment	51	42
Investment in intangible assets	-12 556	-1 071
Inflows from disposal (selling) of financial assets	684	534
Dividends received	294	931
<b>Net cash used from investing activities</b>	<b>-31 282</b>	<b>-33 880</b>
<b>Financing activities</b>		
Reimbursement of short-term debt	0	-200 000
Long-term loan received	0	250 000
Change in cost of hedging instruments	2	930
<b>Net cash used in financing activities</b>	<b>2</b>	<b>50 930</b>
<b>Change in cash and cash equivalents</b>	<b>-21 202</b>	<b>-33 149</b>
Cash and cash equivalents at 1 January	102 142	135 291
Cash and cash equivalents at 31 December	80 940	102 142
<b>Change in cash and cash equivalents</b>	<b>-21 202</b>	<b>-33 149</b>

### Consolidated statement of changes in shareholders' equity, for the years ended 31 December 2022 and 2021

in KCHF	Share capital	Treasury share	Legal reserves from retained earnings	Legal reserves from capital
Shareholders' equity at 1 January 2021	141 120	-25	19 706	148 880
Perimeter change	0	0	0	0
Allocation to reserves	0	0	0	-98 000
Net result for the year	0	0	0	0
<b>Shareholders' equity at 31 December 2021</b>	<b>141 120</b>	<b>-25</b>	<b>19 706</b>	<b>50 880</b>
Allocation to reserves	-91 022	0	0	-45 500
Perimeter change	0	0	0	0
Net result for the year	0	0	0	0
<b>Shareholders' equity at 31 December 2022</b>	<b>50 098</b>	<b>-25</b>	<b>19 706</b>	<b>5 380</b>

Voluntary retained earnings	Translation reserve	Retained earnings / (accumulated deficit) brought forward	Profit / (loss) for the period	Total shareholders' equity
155 775	-354	6 047	-164 609	306 540
158	354	-832	0	-320
98 000	0	-164 609	164 609	0
0	0	0	-119 694	-119 694
<b>253 932</b>	<b>0</b>	<b>-159 394</b>	<b>-119 694</b>	<b>186 526</b>
-256 696	0	273 524	119 694	0
2 764	0	-2 764	0	0
0	0	0	11 026	11 026
<b>0</b>	<b>0</b>	<b>111 366</b>	<b>11 026</b>	<b>197 551</b>

## Notes to the consolidated accounts as at 31 December 2022

### General information

Skyguide, Swiss civil and military air navigation services Ltd (hereafter "Skyguide"), operates under a mandate given by the Swiss Confederation. This mandate is governed by the Federal Aviation Act and the associated ordinances. The company is domiciled at 15-17 route de Pre-Bois, in Meyrin (Switzerland).

### Relations with the Swiss Confederation

The Swiss Confederation is the majority shareholder in Skyguide. The Federal Aviation Act provides that the majority of the capital belongs to the Swiss Confederation. The bylaws of the company state that this holding must be at least 51%. A reduction in the holding of the Swiss Confederation would necessitate a modification of the law by the Federal Chambers, and such a decision, under certain circumstances, might be subject to a referendum. As the majority shareholder, the Swiss Confederation has the power to control all decisions taken at the company's general meetings, including the election of the members of the Board of Directors.

### Transactions with the Swiss Confederation

Skyguide maintains various business relationships with the Swiss Confederation and other companies in which it is the majority shareholder. These transactions include the payment by the Swiss Confederation of exempted flights. These transactions are conducted under the usual market conditions.

### Basis for the establishment of the consolidated accounts

The consolidated financial statements have been prepared in full compliance with the Swiss GAAP ARR accounting standards and in accordance with the specific rules in force in our industry.

In accordance with the specific rules in force in this industry, Skyguide applies the European Commission's "Principles for establishing the basis of assessment of route air navigation services and principles for calculating unit rates", as well as the Swiss Ordinance on Air Navigation Services. The treatment of over- and under-recoveries is based on these texts (see Skyguide's business model). The accounts have been prepared on a historical cost basis, with the exception of the items "derivative financial instruments", which are valued at fair value. The accounting periods are delineated according to the accrual basis of accounting. All companies included in the scope of consolidation close their accounts on 31 December.

### Estimates and judgements

The preparation of consolidated financial statements in accordance with Swiss GAAP ARR requires certain estimates and judgements to be made in terms of the accounting. These affect the assets and liabilities, expenses and income as well as the contingent liabilities. These estimates and judgements are reviewed continuously and are based on experience and other factors, particularly expectations of future events that it is reasonable to assume might occur in the circumstances. Actual results could differ from these estimates. The Group's management continuously monitors and revises, where necessary, the estimates and underlying assumptions. Any changes are recorded in the period in which the estimate is revised.

### Key facts

After two crisis years due to the Covid-19 pandemic, civil air traffic rose again in 2022 and increased by 73% compared to 2021, for en-route and category 1 activities, which represent the majority of the revenues. This resulted in an increase in operating income of CHF 135 million, or +39%, year-on-year.

Although the volume of air traffic is increasing, it is still lower than the pre-Covid level (2019). In the first half of 2022, the impact of the pandemic was still being felt, with traffic being 20% lower compared to 2019. In the second half of the year, activity picked up more significantly without reaching the volumes recorded in 2019 (-9%). Indeed, the geopolitical context with the war in Ukraine and energy supply issues slowed the recovery. Thus, over the year as a whole, air traffic for en-route and category 1 activities remained 14% lower than in 2019.

Thanks to the significant increase in revenues and the cost controls that were put in place, the net result is positive and stands at CHF 11 million following two years of record losses.

In addition, the performance plan submitted by Switzerland for the reference period 3 (2020–2024) has been validated by the European Commission. As a result, Skyguide will start charging airlines for the revenues missing in 2020 and 2021 due to the decline in traffic. In accordance with the emergency plan of the European Commission issued during the Covid crisis, billing will be spread over a period of seven years, from 2023 to 2029. The corresponding revenues will be recognised annually, once they have actually been invoiced, in accordance with the revenue recognition rule related to under-recoveries specified in note 15.

### Going concern

After two challenging years and heavy losses that required two refinancing cycles, the significant increase in revenues and the cost controls that were put in place allow Skyguide to post a positive result of CHF 11 million.

This positive development has enabled Skyguide, in agreement with its shareholder, to waive the additional financial injection of CHF 100 million, as voted by Parliament in autumn 2021.

For the coming years, Eurocontrol expects traffic to return to 2019 levels, starting in 2025, after three years of successive increases between 2022 and 2024, and despite the new uncertainties linked to the geopolitical context and its economic consequences in terms of energy supplies.

As a result, Skyguide anticipates a stabilisation of the financial situation.

In addition, as of 2023, Skyguide will begin to repay the CHF 250 million loan granted to it by the Confederation in 2021. Skyguide's ability to make repayments is directly linked to its invoicing airlines for the loss of profits for the years 2020 and 2021 by means of tariff increases from 2023 to 2029.

Competitiveness remains a challenge for Skyguide.

In the short term, the sharp decline in the euro leads to an increase in tariffs for European customers. At the same time, the air navigation services revenues calculated in euros show a loss. Innovation continues to be Skyguide's strategy to address these challenges, particularly with regard to the Virtual Centre, which will ultimately make it possible to flex the production costs of services and to optimise the air navigation systems.

The scale and speed of the recovery of traffic after the Covid crisis and the prospects for the coming years confirm the sustainability of Skyguide's economic model. Management is confident in the company's ability to generate the necessary cash flows to finance its activities and future investments.

### Perimeter and consolidation method

The consolidated annual accounts include the accounts of Skyguide and of its subsidiaries listed in the scope of consolidation.

### Skyguide subsidiaries included in the scope of consolidation

Name of subsidiary	Activity	Country	2022	2022	2021	2021
			% held % controlled	Paid in nominal capital by Skyguide (KCHF)	% held % controlled	Paid in nominal capital by Skyguide (KCHF)
SkySoft-ATM SA	Software development	Switzerland	100	95	100	95
Swisscontrol SA	Dormant	Switzerland	100	50	100	50

Skyguide fully consolidates subsidiaries in which it has a holding of more than 50% or exercises exclusive control, either directly or indirectly.

The assets and liabilities of its subsidiaries, together with the expenses and income, are included in full in the annual consolidated accounts. The book values of the affiliates' investments, plus the shareholders' equity, are eliminated. Any minority shareholdings in the net equity and the result appear separately in the balance sheet and the consolidated income statement. Under the unity principle, the minority interest is included in the shareholders' equity. Intercompany balances, expenses, income and profits are eliminated upon consolidation.

#### **Conversion into Swiss francs**

The consolidated accounts are prepared in Swiss francs (CHF) and presented in thousands of Swiss francs (KCHF). The subsidiaries of the Group express their financial statements in local currency.

#### **Consolidation of the capital**

The book value of the investments is eliminated with the share of the net assets at the time of the acquisition or foundation using the purchase method.

#### **Authorisation of the annual accounts**

The annual accounts were authorised for publication by the Board of Directors in its meeting of 24 February 2023 and must still be approved by the general shareholders' meeting of 8 May 2023.

#### **Accounting rules**

The accounting rules of SkySoft-ATM SA and Swisscontrol SA follow the rules described for Skyguide. The main accounting rules used in the preparation of Skyguide's consolidated financial statements are described below.

#### **Foreign currencies**

##### **Functional currency**

The elements included in the financial statements of Skyguide are measured in the currency that best reflects the economic reality of the transaction. The accounts are presented in Swiss francs (CHF), which is the functional currency of Skyguide.

##### **Transactions in foreign currencies**

Transactions in foreign currencies are converted to the functional currency at the previous month's closing rate. The exchange losses and gains arising from the settlement of these transactions and from the valuation of the balance sheet items expressed in foreign currencies as at the balance sheet date are posted to the statement of income, unless the transactions qualify as "cash flow hedge" – in which case the exchange difference is posted to shareholders' equity.

##### **Cash and short-term cash deposit below 90 days**

This item represents assets in current accounts as well as short-term cash deposit below 90 days. These transactions are recorded at the exchange rate prevailing at the time of the transaction. These items are revalued at year-end at closing rate.

**Receivables**

Receivables are recorded at the amount originally billed. A provision for bad debts is established on the basis of a review of the open items at the end of the period, when there is high probability that the amounts will not be recovered by the company. Amounts which are definitely unrecoverable are written off.

**Prepaid expenses**

This caption includes the prepaid expenses relating to the following accounting period, as well as accrued income, including under-recoveries (see note 14).

**Securities and associate**

The securities are presented as non-current assets. They are valued at market rate at the closing date. Re-evaluations and losses and gains on the sales of such securities are accounted for under financial income or expense.

An associated organisation is an investment in which a decisive influence can be realised. A significant influence can be assumed if the share of the voting rights is at least 20% but less than 50% and control cannot be exercised. An associated organisation is recognised using the equity method. The result of the associated organisation is disclosed separately in the consolidated income statement.

**Property, plant and equipment**

Property, plant and equipment are recorded at historical cost, less accumulated depreciation. Depreciation method is straight-line and based on the following useful lives, by category of assets. Depreciation terms are estimated according to the following guidelines:

Nature of the assets	Depreciation term (years)
Buildings: shell	40
Buildings: internal and external layout	10 to 15
Land	No depreciation
Fixed assets under construction	No depreciation
Building infrastructure	Based on the residual lifetime of the underlying equipment
Vehicles	5 to 8
Air navigation facilities (ANF): buildings	40
Air navigation facilities (ANF): technical installations	15 to 20
Furniture and equipment	3 to 10
Computer equipment (without ANF)	3 to 8
Measuring devices	3 to 15
Instruction and simulation equipment: software and hardware	4 to 8
Instruction and simulation equipment: technical equipment for simulation	3 to 15
Instruction and simulation equipment: simulation facilities	10



Write-offs of fixed assets are posted to the statement of income, under "Unplanned depreciation". When applicable, the interest on loans used to finance the acquisition of tangible assets is posted to the statement of income under "Financial expenses". Expenses for repairs and maintenance are posted to the statement of income under "Material, repairs and maintenance". Expenses for major renovation are capitalised and amortised over the life of the element replaced, but never beyond the remaining useful life of the underlying asset. Exchange losses and gains on transactions specifically attributable to a tangible asset are added to the value of the respective asset. In accordance with the standard, any research costs (e.g. expenditure incurred in the pre-project phases or in connection with feasibility studies) are not capitalised but recognised as of the date that they are incurred.

In 2021, Skyguide adapted the method to capitalise costs to the new iterative IT development approaches and, consequently, reduced the amounts recorded on the assets side.

### **Intangible assets**

Intangible assets are included at their historical value, reduced by depreciation. Depreciation method is straight-line and based on a standard useful life of generally between 3 and 8 years.

Intangible assets created by the company (mainly software linked to air navigation) are capitalised under "Software", when launched into production. As of 2019, new software development is recorded under intangible assets if development started in 2019. Development commenced earlier is still recorded under "Fixed assets under construction" as part of property, plant and equipment.

Intangible assets acquired by the company are included under this heading at their historical value, reduced by depreciation.

### **Impairment of assets**

The company assesses each asset at the balance sheet date. An estimate of the net realisable value of the asset concerned is made if there are indications of a permanent impairment in value. The net realisable value corresponds to the value in use.

When the net realizable value of an asset cannot be determined, Skyguide makes an estimate at the level of the smallest cash-generating unit to which the asset concerned belongs. If the book value of an asset is higher than the value in use, an impairment loss is recognised and recorded in the income statement.

Nevertheless, the qualitative analysis of a potential indication of impairment takes into account specific contextual factors directly related to Skyguide's mandate. The following clarifications are made regarding the method for calculating the value of use of assets:

- According to Skyguide's business model, airlines finance the company's operational costs, including the amortisation of fixed assets. In the event of fluctuations in traffic, the European regulations comprise a risk-sharing system that allows Skyguide to invoice the airlines 'a posteriori' for any costs not covered. This system was confirmed by the European Commission in the context of the Covid crisis.
- Where an activity is not financially autonomous, the Swiss Confederation takes the place of the end users in order to finance the services that Skyguide must provide to ensure the safety of air navigation in Switzerland, such as the regional aerodromes, adjacent airspace areas which have been delegated to its control, unoccupied civil aircraft flights (drones) and exempted flights.

#### **Goodwill**

The goodwill depreciation period is established on acquisition. The current term is 5 years.

#### **Financial debts**

All debts are recorded at their net proceeds received on the date the funds are received. The long-term debt is initially recorded at the net proceeds received and then recognised in accordance with the amortised cost method.

#### **Accrued liabilities**

This item includes expenses payable relating to the current period, which will only be paid in the following period, as well as short- and long-term deferred income (see note 20).

#### **Provisions**

A provision is recorded when the company has a probable obligation that is based on a past event and its amount and/or its due date is uncertain but can be estimated.

This obligation gives rise to a liability.

#### **Revenue**

Revenue is recognised when the service is delivered. The amounts are posted to the statement of income, net of taxes.

#### **Investment with co-financing**

In order to streamline the balance sheet and present revenues and expenses in a way that is more in line with our service provider business model, management decided to change the accounting principle for co-financed projects by dividing them into 3 categories:

- **Deferred revenue:** For contracts containing an obligation for Skyguide to provide a service, the amount of co-financing is deferred, and revenue is recognised periodically according to the service rendered.
- **Immediate revenue:** Contracts that do not contain an obligation for Skyguide to provide a service are recognised immediately as revenue.
- **Reduction of assets:** Contracts related to a government grant or partnership without a service obligation are treated as an asset reduction. The presentation of net assets requires switching from the gross book value method to the net book value method.

## Business model

Skyguide's business model comprises two main categories: regulated and non-regulated services. Regulated services are financed primarily by charges that are billed to the users (en-route, approach category 1) or by contractually agreed charges (approach category 2, military), while non-regulated services are financed by winning tenders on the open market.



## Route and approach category 1

### General

En-route and category 1 approach activities (Geneva and Zurich airports) are governed by the European Commission Implementing Regulation No. 2019/317, by Eurocontrol's "Principles for the establishment of the cost-base for en-route air navigation services and principles for the calculation of unit rates" and by the Ordinance on Air Navigation Services.

The modalities of this economic regulation system are fixed for a period called "reference period" (RP). For each reference period, a performance plan agreed at national and European level frames the en-route and category 1 approach charges. The current reference period covers the years 2020–2024.

The main modalities of the economic regulation system are the following:  
A cost base (1) and a traffic forecast (2) are determined in advance and included in the performance plan for each year of the reference period:

1. The amount of costs foreseen annually to finance air navigation services is composed of the costs of Skyguide, the costs of MeteoSwiss, the costs of the Federal Office for Civil Aviation and the costs of Eurocontrol. All these costs are referred to as "determined costs". Any difference between the actual costs and the determined costs is entered in Skyguide's profit and loss account, thus generating a profit or loss. However, a number of cost adjustments are made for inflation and so-called uncontrollable costs (e.g. Eurocontrol costs). The inflation adjustment is carried forward to year n + 2. Depending on its nature, the adjustment for uncontrollable costs is carried forward either to year n + 2, or to one or more years of the following reference period, or to the two following reference periods.
2. The traffic forecast is made for each year of the performance plan on the basis of the information provided by Eurocontrol at the time the plan is drawn up. This forecast is the basis for calculating the unit rate charged to users of air navigation services. The difference between actual and forecast traffic generates a surplus or shortfall of revenue to cover the determined costs. To counterbalance the financial impact of traffic variations, a risk-sharing mechanism has been put in place which is applicable only to the costs determined by Skyguide.

The first 2% of the variation is entirely for Skyguide's account, as is 30% of the variation in traffic between (+/-) 2% and (+/-) 10%. The other 70%, as well as variations above (+/-) 10%, are passed on to the users in year n + 2. Thus, the maximum loss or profit that Skyguide can make from traffic fluctuations is 4.4%:  $2\% + 8\% * 30\%$ . Example: if the actual traffic is 6% lower than the performance plan, Skyguide would bear 3.2% (the first 2% and 30% of the variation between 2% and 6%) of the traffic reduction and the users 2.8% (70% of the variation between 2% and 6%).

The other components of the defined costs (MétéoSuisse, FOCA, Eurocontrol, carry forwards from previous years) are not subject to traffic risk sharing. This means that the over- or under-coverage due to traffic generated on these cost elements is fully offset through a carry forward to users in year n + 2.

Provisions for the carry forwards mentioned above relating to the costs or the variation in revenues are created in the year in which they occur (creating carry forwards).

- A positive carry forward represents an under-recovery of costs and results in an increase in the net result. The counterpart on the balance sheet is recognised in "Advances and other long-term assets".
- A negative carry forward represents an over-recovery of costs and results in a decrease in the net result. The counterpart on the balance sheet is recognised in "Other long-term liabilities".

The carry forwards will be integrated in the calculation of the rates for the year to which they are carried forward. Thus, they increase or decrease the annual revenues concerned through an increase or decrease in the unit rate. As the change in revenues is recognised in the year in which it is generated, its impact on the net result of the year in question is neutralised through the carry forwards line item.

**Approach category 1 (national airports)**

Category 1 includes the airports of Geneva and Zurich. Since 2015, the same economic regulation system and the same reference period as for the route have been in place.

**Approach category 2 (regional civil aerodromes)**

Category 2 comprises the aerodromes of Berne-Belp, Buochs, Grenchen, La Chaux-de-Fonds, Les Eplatures, Lugano-Agno, Sion and St Gall-Altenrhein.

Since 2017, the responsibility for financing the air navigation services has been transferred to the regional civil aerodromes. Each aerodrome constitutes a specific tariff zone and sets the charges relating to air navigation. Skyguide invoices them for its services.

**Military activities**

The services that Skyguide provides to the Swiss Air Force are governed by the full-cost recovery principle. A quarterly lump-sum compensation paid by the Swiss Air Force to Skyguide is fixed by a service agreement. A financial statement is prepared at year-end with regard to the military activities. In principle, a provision is created for the balance between the income and the cost of the activity in the year ended and reversed the following year in favour of the Air Force or in favour of Skyguide.

**Financial and derivative instruments**

Skyguide uses derivatives to hedge its exchange and interest rate risk, which are related to the normal course of its activities. These instruments are recorded on the basis of the "trade date". Derivative financial instruments can consist of forward exchange contracts, currency options, cross-monetary swaps, interest rates swaps and swaptions.

Fair value hedging includes derivatives used to hedge the exchange risk and/or the interest rate risk. The gain or loss resulting from the revaluation of derivatives is recognised through profit or loss or in equity. The cash flows that generate an exchange rate risk primarily concern the revenue from route services and equipment purchases in foreign currency. Interest rate derivatives are essentially long-term loans underwritten by Skyguide. The unrealised gain or loss on the revaluation to fair value of derivatives used to hedge cash flows is recorded in equity if the hedging is efficient; if necessary, hedging efficiency must be verified. If hedging is deemed not to be efficient, the cumulative gain or loss from revaluation to fair value is recognised immediately through profit or loss. In 2022, no audit was performed of the effectiveness of risk coverage.

If the hedged item is a fixed asset, the cumulative gain or loss of the hedging instrument previously recorded in equity is charged to the acquisition cost of the fixed asset. If the hedged item is a financial instrument, the cumulative gain or loss of the hedging instrument is included in the amount of the loan and amortised over the term of the loan.

**Pension plan**

The Group covers the costs relating to the professional pension of all its workers, as well as their assignees, under the legal prescriptions. All pension plans are covered by Swiss law. The pension obligations and the plan assets are managed by a legally independent pension fund. The organisation, the management and the financing of the pension plans are governed by the law (LPP), together with the deed of foundation and the regulations applicable to pensions in force.

### Transactions with related parties

Under Swiss GAAP ARR 15, transactions with the Swiss Confederation, including departments and other companies in which it is the majority shareholder, are not considered as related parties. In 2022, Skyguide has a loan of 2 476 KCHF (2021: 2 782 KCHF) to FCS (Flight Calibration Services) in which it holds a direct 25% stake. The terms of this loan were made under market conditions.

### Risk management policy

#### Risk assessment

To achieve the goals set up by the company, Skyguide introduced a systematic and complete risk management framework. The enterprise risk management (ERM) that started as a corporate governance tool enhances the transparency and provides an adequate risk assessment when taking a decision. All the strategic, financial, operational and compliance risks are identified and quantified based on their probability of likelihood and impact. These risks are then categorised and classified in a risk matrix. The key risks are regularly reviewed, and actions are taken if needed. The Board of Directors formally reviews the key risks twice a year.

#### Management of exchange risk exposure

The Swiss franc is the functional currency of the Group. Skyguide receives a significant part of its revenue in euros. Most expenses are in Swiss francs and euros. Exchange rate fluctuations versus the Swiss franc may have a significant impact on the company's result. To reduce this risk, the company enters into certain instruments (options, forward exchange, swaps, etc.) on the currency market, within the limits of the rules set out by the Board of Directors.

The main objective of this risk management is:

- a) to avoid significant exchange losses on exposure to the functional currency; and
- b) to limit revenue volatility related to fluctuations in the exchange rate of foreign currencies.

#### Management of interest rate risk exposure

Skyguide mainly intends to protect itself against significant increases in net interest expenditure due to market fluctuations in interest rates. Given its position of net borrower, the interest rate risk is mainly addressed by managing the ratio of the fixed rate to the floating rate of the net debt. To limit the negative effects on the result of net interest expenditure linked to the potential rise in market interest rates, Skyguide keeps at least 50% of the net debt at fixed interest rates.

#### Management of liquidity risk

Skyguide is exposed to this risk in the event of default of certain counterparts or a refinancing problem. The liquidity of the group is proactively supervised to ensure that the company can cover its obligations at all times.

#### Market risk

The company is exposed to market risk, primarily vis-à-vis the airlines, its major clients. This risk is mainly linked to the dependence on the national carriers, Swiss and Lufthansa, which represent almost 24% of the total revenue of Skyguide (2021: almost 23% between Swiss and Ryanair). The 15 largest customers represent almost 64% of the route facility income (2021: almost 78%). A decrease of the activity for these clients would have negative consequences for the company's revenue.

## Notes to the consolidated financial statements as at 31 December 2022

## 1. Operating revenue – segment analysis

in KCHF	2022	2021
Route charges (RC)	196 378	142 588
Approach charges (AC)	122 777	78 385
Air Force compensation	46 149	45 210
Contributions from the Confederation	42 618	42 089
Other air navigation services revenue	13 657	11 475
<b>Total air navigation services revenues</b>	<b>421 579</b>	<b>319 748</b>
(Under-)/over-recovery balance brought forward	39 785	19 256
Under-/(over)-recovery balance carried forward	8 376	-9 975
<b>Total carried forward</b>	<b>48 161</b>	<b>9 281</b>
<b>Total air navigation services revenues, net carried forward</b>	<b>469 740</b>	<b>329 030</b>
Other operating revenue	14 053	19 788
Net revenue from disposal of assets	51	42
<b>Total other operating revenue</b>	<b>14 104</b>	<b>19 830</b>
<b>Total operating revenue - net</b>	<b>483 844</b>	<b>348 859</b>

The segment analysis of the air traffic is composed as follows:

- overflight traffic (route charges, RC);
- traffic from and to Swiss airports (approach charges, AC);
- for the Swiss Air Force Skyguide provides services that are essential to maintaining the sovereignty of Swiss airspace.

The geographical airspace region managed by Skyguide overlaps the national borders and extends to France, Italy, Austria and Germany.

The item "Other air navigation services revenue" includes revenue from maintenance and repair contracts, instruction, training and technical consulting.

1% of billable revenue is not recognised in the result due to the uncertainty related to its collection.

## 2. Personnel expenses

in KCHF	2022	2021
Salaries and social benefits	232 592	218 087
Other benefits	13 325	11 871
Social charges	54 730	72 861
Other staff costs	13 258	10 966
Internal hours capitalized	-7 874	-9 230
<b>Total personnel expenses</b>	<b>306 032</b>	<b>304 555</b>

Bonuses and allowances are mainly attributable to work conducted outside regular hours.

The social charges include the employer's contributions in respect of pension benefits as indicated in the table below:

in KCHF	2022	2021
Employer's contribution	31 270	49 615

The reduction in the employer's contribution is explained by a refund of CHF 40 million following the repeal of the CHF 53 million agreement previously signed between Skyguide and Skycare, as well as a provision of CHF 20.5 million for the transition plan related to the increase in the retirement age of air traffic controllers (see note 28).

The average number of personnel, including personnel under training, was 1 520 in 2022, versus 1 525 in 2021. In 2022, no compensation was received for reduction in working hours (2021: CHF 8.4 million).

### 3. Eurocontrol contribution

As a state member of Eurocontrol, the Swiss Confederation was bearing this contribution until the end of 2010. Since then, Skyguide bears these costs, considering the new contribution received from the Swiss Confederation (see note 1).

### 4. Administrative expenses

The administrative expenses include subcontracting costs as well as purchase costs for material sold amounting to KCHF 585 (2021: KCHF 1 184).

### 5. Net allowance for bad debt

in KCHF	2022	2021
Allowance for bad debt (RC)	-49	60
Allowance for bad debt (AC)	122	381
Allowance for bad debt (other)	-418	-2 471
<b>Total allowance for bad debt</b>	<b>-345</b>	<b>-2 030</b>

The very slight recovery in the allowance for bad debt in 2022 is due to the recovery, in 2021, of the provision previously recorded for regional aerodromes. In 2022, the recovery in the allowance for bad debt is mainly due to a claim against Zurich Airport.

### 6. Unplanned depreciation

Unplanned depreciation amounting to KCHF 1 703 was recorded in 2022 (2021: KCHF 1 777).

### 7. Financial income

in KCHF	2022	2021
Interest income	91	123
Foreign exchange transaction gains/losses - net gain	0	0
Revenue on foreign exchange instruments	904	0
Other financial revenue	120	97
<b>Total financial income</b>	<b>1 115</b>	<b>220</b>

### 8. Financial expenses

in KCHF	2022	2021
Interest expenses	841	3 992
Foreign exchange transaction gains/losses - net loss	605	2 643
Expenses on foreign exchange instruments	829	0
Other financial expenses	261	159
<b>Total financial expenses</b>	<b>2 536</b>	<b>6 794</b>

### 9. Taxes

According to article 40e of the Federal Act of 21 December 1948 on Air Navigation, Skyguide is exempted of all federal, cantonal and communal taxes, except for value-added tax and withholding tax. The other companies are subject to taxes in their respective countries.

### 10. (Under-)/over-recovery balance brought forward

For route services, like approach services in category 1, the balance brought forward relates to the over-/under-recovery generated in the year  $n - 2$ .

### 11. Under-/(over)-recovery balance carried forward

This item represents the carry forwards to subsequent years of any over- and/or under-recovery of charges for route services and approach services in category 1 recorded in year  $n$ . The over-/under-recoveries in connection with the traffic an inflation is transferred to users in the year  $n + 2$ . The over-/under-recoveries in connection with unavoidable costs will be carried forward to the subsequent reference period.



## 12. Cash and short-term cash deposit below 90 days

in KCHF	2022	2021
Cash and cash equivalents	80 940	102 142
Short-term cash deposit below 90 days	0	0
<b>Total cash and cash equivalents</b>	<b>80 940</b>	<b>102 142</b>
Average interest rate on short-term deposits (%)	0	-0,42
Average duration of short-term deposits (days)	0	119

## 13. Receivables and advances

in KCHF	2022	2021
Receivables from collecting organisations	31 770	23 620
Other receivable	4 790	7 569
Personnel related receivable	39 179	20 066
VAT receivable	2 589	2 129
Allowance for bad debt	-3 220	-4 496
<b>Total receivable and advances</b>	<b>75 107</b>	<b>48 888</b>

The net amount of receivables related to charges as at 31 December 2022 increased by 7% compared with 31 December 2021 to CHF 32 million, mainly due to an increase in air traffic. Work on the valuation of receivables resulted in Skyguide recording an allowance for bad debt of CHF 1.3 million in the 2021 financial year.

## 14. Prepaid expenses

in KCHF	2022	2021
Accrued income: other	20 947	22 461
Prepaid expenses	7 465	7 105
<b>Total prepaid expenses</b>	<b>28 412</b>	<b>29 566</b>

## 15. Long-term advances and other long-term assets

in KCHF	2022	2021
Gross long-term advances and other long-term assets	300 726	296 191
Deferral of under-recovery balances	-300 726	-296 191
Other	15 443	3 097
<b>Total long-term advances and other long-term assets</b>	<b>15 443</b>	<b>3 097</b>

"Gross long-term advances and other long-term assets" comprise the accrued revenue related to the under-recovery generated in 2020 and 2021, recorded as a negative amount under "Advances and other long-term assets" and not in the income statement. In view of the scale of the Covid crisis, the European Commission published an emergency plan for 2020 and 2021, whose recovery periods are exceptionally long. Skyguide therefore decided, in order to reflect the uncertainty resulting from the situation, to specify its revenue recognition criteria as follows: under-recoveries are recognised through profit or loss in as far as the methods and recovery periods are in accordance with customary practice, clearly defined and agreed by all parties.

As a precaution and in accordance with the accounting framework, no revenue has been recorded to date. An adjustment of CHF 4.5 million was made in 2022, bringing the total balance of gross long-term advances and other long-term assets to CHF 301 million (2021): CHF 296 million. As of 2023, Skyguide will include these under-recoveries in the invoiced unit rate to airlines according to the implementing rules, linear from 2023 to 2029.

"Other" comprises mainly under-recoveries amounting to KCHF 9 337 (2021: KCHF 0), multi-year prepaid expenses of KCHF 3 315 (2021: KCHF 0), a loan in the amount of KCHF 2 476 (2021: KCHF 2 782) granted to a company in which Skyguide has a 25% holding and guarantee deposits.

## 16. Property, plant and equipment

in KCHF	Buildings	Land	Total land and building	Fixed assets under construction	Building infrastructure
<b>Acquisition value</b>					
Status as at 1 January 2021	274 001	2 227	276 228	53 593	50 737
Additions	10	0	10	30 068	2 491
Reclassifications	8 577	0	8 577	-23 862	-94
Disposals	-4 150	0	-4 150	0	-1 467
<b>Status as at 31 December 2021</b>	<b>278 438</b>	<b>2 227</b>	<b>280 665</b>	<b>59 799</b>	<b>51 667</b>
<b>Depreciation</b>					
Accumulated depreciation as at 1 January 2021	-178 340	0	-178 340	0	-26 187
Depreciation	-7 178	0	-7 178	0	-3 056
Unplanned depreciation	-135	0	-135	-1 431	-137
Accumulated depreciation of reclassifications	-7 054	0	-7 054	0	6 909
Accumulated depreciation of disposals	4 150	0	4 150	0	1 467
<b>Accumulated depreciation as at 31 December 2021</b>	<b>-188 557</b>	<b>0</b>	<b>-188 557</b>	<b>-1 431</b>	<b>-21 004</b>
<b>Net book value as at 31 December 2021</b>	<b>89 882</b>	<b>2 227</b>	<b>92 109</b>	<b>58 368</b>	<b>30 663</b>
<b>Acquisition value</b>					
Status as at 1 January 2022	278 438	2 227	280 665	59 799	51 667
Additions	225	0	225	16 220	598
Reclassifications	1 013	0	1 013	-57 196	1 753
Disposals	-1 667	0	-1 667	0	-821
<b>Status as at 31 December 2022</b>	<b>278 009</b>	<b>2 227</b>	<b>280 236</b>	<b>18 824</b>	<b>53 197</b>
<b>Depreciation</b>					
Accumulated depreciation as at 1 January 2022	-188 557	0	-188 557	-1 431	-21 004
Depreciation	-7 228	0	-7 228	0	-3 373
Unplanned depreciation	-137	0	-137	-928	-2
Accumulated depreciation of disposals	1 667	0	1 667	0	821
<b>Accumulated depreciation as at 31 December 2022</b>	<b>-194 255</b>	<b>0</b>	<b>-194 255</b>	<b>-2 359</b>	<b>-23 558</b>
<b>Net book value as at 31 December 2022</b>	<b>83 754</b>	<b>2 227</b>	<b>85 981</b>	<b>16 465</b>	<b>29 639</b>

Vehicules	Air navigation facilities (ANF)	Furniture and equipment	IT facilities (excl. ANF)	Measuring devices	Instrument and simulation facilities	Total property, plant and equipment excl. land and buildings	Total
1 816	272 177	21 858	6 291	9 164	6 611	422 247	698 475
43	529	395	731	13	36	34 306	34 316
0	10 051	-3 000	204	864	112	-15 725	-7 148
-71	-59 217	-7 294	-655	-7 675	-1 294	-77 672	-81 822
<b>1 788</b>	<b>223 540</b>	<b>11 959</b>	<b>6 571</b>	<b>2 367</b>	<b>5 465</b>	<b>363 155</b>	<b>643 821</b>
-1 468	-188 899	-19 185	-4 217	-8 670	-5 311	-253 937	-432 277
-114	-15 208	-533	-849	-332	-432	-20 524	-27 702
-5	-45	0	0	0	-4	-1 622	-1 757
0	-3 176	3 277	41	0	0	7 051	-3
71	59 217	7 294	655	7 675	1 294	77 673	81 823
<b>-1 516</b>	<b>-148 111</b>	<b>-9 147</b>	<b>-4 370</b>	<b>-1 327</b>	<b>-4 453</b>	<b>-191 359</b>	<b>-379 916</b>
<b>272</b>	<b>75 430</b>	<b>2 812</b>	<b>2 201</b>	<b>1 039</b>	<b>1 012</b>	<b>171 797</b>	<b>263 905</b>
1 788	223 540	11 959	6 571	2 367	5 465	363 156	643 821
213	1 364	435	698	0	0	19 529	19 754
0	4 384	467	0	0	0	-50 592	-49 579
-200	-10 244	-3 638	-2 787	-294	-1 530	-19 514	-21 181
<b>1 801</b>	<b>219 044</b>	<b>9 223</b>	<b>4 482</b>	<b>2 073</b>	<b>3 935</b>	<b>312 580</b>	<b>592 816</b>
-1 516	-148 111	-9 147	-4 370	-1 327	-4 453	-191 359	-379 916
-107	-13 747	-569	-886	-381	-355	-19 418	-26 646
0	-109	0	-188	-13	-1	-1 241	-1 378
200	10 244	3 638	2 787	294	1 530	19 514	21 181
<b>-1 423</b>	<b>-151 723</b>	<b>-6 078</b>	<b>-2 657</b>	<b>-1 427</b>	<b>-3 279</b>	<b>-192 505</b>	<b>-386 759</b>
<b>378</b>	<b>67 321</b>	<b>3 145</b>	<b>1 825</b>	<b>646</b>	<b>656</b>	<b>120 075</b>	<b>206 057</b>

## 17. Intangible assets

in KCHF	Software under development	Software	Goodwill	Other	Total
<b>Acquisition value</b>					
Status as at 1 January 2021	3 574	424 441	1 721	14	429 750
Additions	889	183	0	0	1 071
Reclassifications	-1 624	8 772	0	0	7 148
Disposals	0	-170 393	0	0	-170 393
<b>Status as at 31 December 2021</b>	<b>2 839</b>	<b>263 002</b>	<b>1 721</b>	<b>14</b>	<b>267 576</b>
<b>Depreciation</b>					
Accumulated depreciation as at 1 January 2021	0	-293 824	-1 291	-14	-295 129
Depreciation	0	-33 219	-123	0	-33 342
Unplanned depreciation	0	-21	0	0	-21
Accumulated depreciation of reclassifications	0	2	0	0	2
Accumulated depreciation of disposals	0	170 394	0	0	170 394
<b>Accumulated depreciation as at 31 December 2021</b>	<b>0</b>	<b>-156 668</b>	<b>-1 414</b>	<b>-14</b>	<b>-158 096</b>
<b>Net book value as at 31 December 2021</b>	<b>2 839</b>	<b>106 334</b>	<b>307</b>	<b>0</b>	<b>109 480</b>
<b>Acquisition value</b>					
Status as at 1 January 2022	2 839	263 002	1 721	14	267 576
Additions	13 355	-798	0	0	12 556
Reclassifications	42 685	6 894	0	0	49 579
Disposals	0	-50 351	0	0	-50 351
<b>Status as at 31 December 2022</b>	<b>58 878</b>	<b>218 747</b>	<b>1 721</b>	<b>14</b>	<b>279 360</b>
<b>Depreciation</b>					
Accumulated depreciation as at 1 January 2022	0	-156 668	-1 414	-14	-158 096
Depreciation	0	-28 698	-150	0	-28 848
Unplanned depreciation	0	-325	0	0	-325
Accumulated depreciation of disposals	0	50 350	0	0	50 350
<b>Accumulated depreciation as at 31 December 2022</b>	<b>0</b>	<b>-135 341</b>	<b>-1 564</b>	<b>-14</b>	<b>-136 919</b>
<b>Net book value as at 31 December 2022</b>	<b>58 878</b>	<b>83 406</b>	<b>157</b>	<b>0</b>	<b>142 441</b>

As of 2019, software development is recorded under intangible assets if development started in 2019. Development commenced earlier is still recorded under "Fixed assets under construction" as part of property, plant and equipment.

The amount of commitments as at 31 December 2022 with suppliers for the acquisition of tangible and intangible assets is KCHF 13 171 (31 December 2021: KCHF 8 534).

## 18. Derivative financial instruments

in KCHF	Contractual value - net		Positive fair value		Negative fair value	
	2022	2021	2022	2021	2022	2021
<b>Exchange rate instruments</b>						
Forward foreign exchange contracts	42 331	0	102	0	-12	0
Options	0	0	0	0	0	0
Swaps	0	0	0	0	0	0
<b>Total of exchange rate instruments</b>	<b>42 331</b>	<b>0</b>	<b>102</b>	<b>0</b>	<b>-12</b>	<b>0</b>
<b>Total derivative financial instruments included in assets and liabilities</b>			<b>102</b>	<b>0</b>	<b>-12</b>	<b>0</b>

### Derivative instruments have the following maturities

in KCHF	2022	2021
Within one year	42 331	0
Within the second year	0	0
Between the third to the fifth year inclusive	0	0
After the fifth year	0	0

## 19. Advances and other short-term liabilities

in KCHF	2022	2021
Other personnel related liabilities	1 636	1 230
VAT payable	5 157	4 459
Accrued liabilities	0	0
<b>Total advances and other short-term liabilities</b>	<b>6 793</b>	<b>5 689</b>

## 20. Accrued liabilities

in KCHF	2022	2021
Deferred revenue: over-recovery AC	9 378	34 631
Deferred revenue: over-recovery RC	302	5 154
Deferred revenue: other	16 974	18 575
Charges to pay	29 635	30 862
<b>Total accrued liabilities</b>	<b>56 289</b>	<b>89 222</b>

Some deferred revenue is refundable in case Skyguide would be unable to meet its contractual obligations.

## 21. Short-term provisions

in KCHF	Litigation	Personnel related	Other	Total short-term provisions
At 1 January 2021	180	7 215	2 847	10 242
Additional provisions	89	2 435	250	2 774
Utilised during the year	-53	-2 379	-2	-2 434
Unused provisions reversed	0	-551	-250	-801
<b>At 31 December 2021</b>	<b>216</b>	<b>6 720</b>	<b>2 845</b>	<b>9 781</b>
At 1 January 2022	216	6 720	2 845	9 781
Additional provisions	20	22 366	250	22 636
Utilised during the year	-35	-963	0	-998
Unused provisions reversed	0	-979	-342	-1 321
<b>At 31 December 2022</b>	<b>201</b>	<b>27 144</b>	<b>2 753</b>	<b>30 098</b>

## 22. Long-term debt

in KCHF	2022	2021
<b>Total long-term debt</b>		
Long-term debt	250 000	250 000
Borrowing from financial institutions	0	0
<b>Total long-term debt</b>	<b>250 000</b>	<b>250 000</b>

The long-term loan concluded on 22 July 2021 with the Swiss Confederation is the subject of a subordination agreement to all other debts of the company in the event of a loss of capital. This agreement entered into force on 22 July 2021 at the same time as the loan and is valid for the duration of the loan, i.e. until 18 October 2031. Nevertheless, the subordination agreement was not activated as of 31 December 2021, as the company's financial solidity was sufficient.

in KCHF	2022	2021
<b>Maturity of debt</b>		
Within one year	0	0
In the second year	0	0
In the third to the fifth year inclusive	0	0
After the fifth year	250 000	250 000
<b>Total</b>	<b>250 000</b>	<b>250 000</b>
<b>in %</b>		
Weighted average interest rate	0.2708	1.7558
<b>in KCHF</b>		
<b>Interest rate structure of borrowings</b>		
Fixed interest rate debt	250 000	250 000
<b>Total</b>	<b>250 000</b>	<b>250 000</b>
<b>in CHF</b>		
<b>Long-term loan</b>		
Grant date	18.10.21	18.10.21
Date of reimbursement	18.10.31	18.10.31
Amount in CHF	250 000 000	250 000 000
Interest rate	0.27%	0.27%

The fair value of the financial debts does not deviate significantly from their book value. No guarantee or pledging of assets has been issued in relation to the financials debts.

#### **Covenants linked to the long-term loan**

In case of the total loss of the mandate as defined in the Ordinance on the provision of air navigation services (OSNA) in article 2, paragraph 2, this could lead to an immediate cancelation of the ongoing loan.

#### **Covenants linked to specific credit lines**

Some credit lines obtained by the company are linked to covenants which, if not met, could lead to the cancelation of those credit lines, respectively to the cancelation of the open loan in relation with those credit lines.

These covenants are:

- direct participation by the Swiss Confederation in the borrower's capital of a minimum of 51% and the preservation of the majority of the voting rights;
- minimum ratio of shareholders' equity (share capital, reserves, retained earnings) representing 30% of the total Skyguide statutory balance sheet.

#### **23. Other long-term liabilities**

This amount includes over-recoveries that will be repaid in the long-term totalling KCHF 2 015 (2021: KCHF 9967).

## 24. Share capital

The Swiss Confederation holds 99.94% of the company. The share capital is CHF 50 097 600 (2021: CHF 141 120 000), divided into 14 112 000 (2021: 14 112 000) registered fully paid-up shares, with a par value of CHF 3.55 each (2021 CHF 10).

The Federal Aviation Act specifies that the majority of the capital belongs to the Swiss Confederation. The company's articles of association stipulate that the Swiss Confederation holds the majority of the capital and votes.

In August 2021 the General Assembly voted to transfer CHF 98 000 000 from the legal reserve to the free reserve.

In May 2022, the General Meeting voted to transfer CHF 45 500 000 from the legal reserve to the free reserve and to reduce the share capital by CHF 91 022 400, transferred to the free reserve. The share capital will now be divided into CHF 14 112 000 registered shares of CHF 3.55 each. As a result, the nominal value of the shares was reduced from CHF 10 to CHF 3.55. No dividend was paid in 2022 and 2021.

## 25. Treasury shares

The Company owns 2 500 treasury shares. There were no transactions in 2022 and 2021.

## 26. Contingent liabilities

### a) Guarantee deposits

in KCHF	2022	2021
Swiss customs and excise authority: provisional customs duties	160	160
Zurich and Geneva Chamber of Commerce and Industry: ATA booklets	63	63
Geneva cantonal employment office	50	50
<b>Total</b>	<b>273</b>	<b>273</b>

The deposits have been made at the Cantonal Bank of Bern.

### b) Other guarantee deposits

in KCHF	2022	2021
Rent guarantees in favor of employees	127	127
Guarantees deposited on installments received	1	1
Pledged collateral	200	200
<b>Total</b>	<b>328</b>	<b>328</b>

The deposits have been made at the Cantonal Banks of Bern and Geneva, at the Credit Suisse in Geneva and at UBS in Geneva.

## 27. Other commitments not included in the balance sheet

### Leasing

Maturity patterns of future lease payments are as follows:

in KCHF	2022	2021
Within one year	7 079	6 783
In the second to the fifth year inclusive	16 426	18 147
After the fifth year	8 113	8 099
<b>Total</b>	<b>31 618</b>	<b>33 029</b>

This table summarises Skyguide's commitments in respect of lease agreements (rental of premises), building rights and operational leases (rental of photocopiers, servers and programs for business information systems). The commitments are calculated on the basis of the contracts in force, for the agreed contractual term, provided that they cannot be terminated within twelve months of the balance sheet date.



## 28. Pension fund

The patrimonial and financial position of Skycare, Skyguide's pension fund, is as follows according to its annual accounts (estimates for 2022):

in KCHF	2022 (estimated)	2021
Assets at fair value (net assets)	1 751 462	1 849 621 **
Pension obligations (liabilities)	1 649 108	1 604 988
Surplus cover	102 354	244 633
Degree of coverage in %	106.2%	115.2%

\*\* The employer contribution reserve (ECR) of CHF 53 million is deducted from this amount as at 31 December 2021.

The employer contribution reserve of 53 million CHF, established in 2017 to support Skycare, has been restituted to Skyguide in the amount of CHF 40 million. This restitution is in accordance with the agreement previously signed between Skyguide and Skycare; it is linked to the good performance of the pension fund in 2021. The agreement was terminated after being executed.

Furthermore, on 8 December 2022, the management signed a Letter of Understanding with HelvetiCA, the Air Traffic Controllers' Union, concerning the raising of the retirement age of air traffic controllers from 56 to 60 years. This letter includes a transition plan that will result in changes within Skycare to the various contingency plans for air traffic controllers. It also specifies how Skyguide will calculate the costs of and pay for this transition plan, which amounts to CHF 25 million. On 24 December 2021, a first Letter of Understanding (LoU) between Skyguide Management and HelvetiCA was signed. However, this was limited to the general principles of raising the retirement age and adapting the pension plans.

As at 31 December 2022, the costs of the transition plan corresponding to a constructive obligation amounted to CHF 20.5 million and resulted in the

recording of a provision under personnel expenses.

In fact, some of the benefits provided for in the agreement are already vested in the Skycare pension fund and will be paid in 2023 to finance the adaptation of the pension plans. The additional 4.5 million CHF represents a future increase in employer contributions and is therefore not recorded in 2022.

Professional pension care applies in principle to all staff subject to compulsory insurance as per the LPP (Law on occupational pension schemes) benefiting from an unlimited-term employment contract or a contract of over 3 months or a training or apprenticeship contract.

The aim of the Foundation is to provide professional pension care in the framework of the LPP and its implementing ordinances, and to protect the staff of Skyguide and, as appropriate, the staff of the companies linked to it economically or financially, as well as their families and surviving dependants, against the economic consequences of ageing, death, invalidity and early retirement linked to the profession.

The calculation of the pension obligations is made annually, based on the financial statements of Skycare, which are prepared in accordance with Swiss GAAP ARR 26. There are no free reserves. No economic benefits or commitments exist at year-end.

### Contributions due to the pension plan

There are no regulatory contributions due to the pension plan.

## 29. Audit and additional fees

PricewaterhouseCoopers SA invoiced Skyguide during the 2022 financial year KCHF 178 (2021: KCHF 181) for services related to the audit of the statutory accounts and the consolidated accounts.

# Report of the group auditors

## Report of the statutory auditor

to the General Meeting of SKYGUIDE, Swiss civil and military Air Navigation Services Limited

Meyrin

### Report on the audit of the consolidated financial statements

#### Opinion

We have audited the consolidated financial statements of SKYGUIDE, Swiss civil and military Air Navigation Services Limited and its subsidiaries (the Group), which comprise the consolidated balance sheet as at 31 December 2022, and the consolidated income statement, the consolidated statement of changes in shareholder's equity, the consolidated cash flow statement for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the consolidated financial statements (pages 42 to 69) give a true and fair view of the consolidated financial position of the Group as at 31 December 2022 and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with Swiss GAAP FER and comply with Swiss law.

#### Basis for opinion

We conducted our audit in accordance with Swiss law and Swiss Standards on Auditing (SA-CH). Our responsibilities under those provisions and standards are further described in the 'Auditor's responsibilities for the audit of the consolidated financial statements' section of our report. We are independent of the Group in accordance with the provisions of Swiss law and the requirements of the Swiss audit profession, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

#### Other information

The Board of Directors is responsible for the other information. The other information comprises the information included in the annual report, but does not include the financial statements, the consolidated financial statements and our auditor's reports thereon.

Our opinion on the consolidated financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

#### Board of Directors' responsibilities for the consolidated financial statements

The Board of Directors is responsible for the preparation of the consolidated financial statements, which give a true and fair view in accordance with Swiss GAAP FER and the provisions of Swiss law, and for such internal control as the Board of Directors determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

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PricewaterhouseCoopers SA is a member of the global PricewaterhouseCoopers network of firms, each of which is a separate and independent legal entity.

In preparing the consolidated financial statements, the Board of Directors is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Board of Directors either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

#### **Auditor's responsibilities for the audit of the consolidated financial statements**

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Swiss law and SA-CH will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

A further description of our responsibilities for the audit of the consolidated financial statements is located on EXPERTsuisse's website: <http://www.expertsuisse.ch/en/audit-report>. This description forms an integral part of our report.

#### **Report on other legal and regulatory requirements**

In accordance with article 728a paragraph 1 item 3 CO and PS-CH 890, we confirm that an internal control system exists which has been designed for the preparation of the consolidated financial statements according to the instructions of the Board of Directors.

We recommend that the consolidated financial statements submitted to you be approved.

PricewaterhouseCoopers SA

Yves Cerutti

Guillaume Antin

Licensed audit expert  
Auditor in charge

Lausanne, 24 February 2023



# Statutory accounts

## Income statement for the years ended 31 December 2022 and 2021.

in KCHF	2022	2021
Air navigation services revenue	421 579	319 748
Other operating revenue	11 528	17 697
Net revenue from disposal of assets	49	42
(Under)/over-recovery balance brought forward	39 785	19 256
Under/(over-)recovery balance carried forward	8 376	-9 975
<b>Total operating revenue</b>	<b>481 317</b>	<b>346 768</b>
<b>Total personnel expenses</b>	<b>299 523</b>	<b>299 536</b>
Eurocontrol contribution	12 148	10 901
Meteorological services contribution	14 168	13 706
Other external air navigation services	1 049	1 342
Leased communication lines	1 239	1 776
Material and supplies, maintenance	33 087	27 284
Property-related expenses	8 564	9 129
Energy	2 079	2 201
Administrative expenses	40 898	33 645
Allowance for bad debt	-165	-1 998
Unplanned depreciation	1 703	1 777
Depreciation	57 602	63 239
<b>Total other operating expenses</b>	<b>172 372</b>	<b>163 002</b>
<b>Total operating expenses</b>	<b>471 895</b>	<b>462 538</b>
<b>Operating result</b>	<b>9 422</b>	<b>-115 770</b>
Financial income	1 108	2 142
Financial expenses	2 464	8 623
<b>Financial result</b>	<b>-1 356</b>	<b>-6 481</b>
<b>Profit / (loss) for the period</b>	<b>8 066</b>	<b>-122 252</b>

## Balance sheet as at 31 December 2022 and 2021

in KCHF	31.12.2022	31.12.2021
<b>Assets</b>		
<b>Current assets</b>		
Cash and short-term cash deposit below 90 days	63 270	86 806
Intercompany receivables	0	51
Receivables and advances	72 267	46 691
Derivative assets	102	0
Prepaid expenses	28 082	28 882
<b>Total current assets</b>	<b>163 721</b>	<b>162 430</b>
<b>Non-current assets</b>		
Long-term advances and other long-term assets	15 443	3 097
Property, plant and equipment	205 869	263 286
Investments in affiliates	2 021	2 021
Securities and investment in associate	637	711
Intangible assets	150 513	119 096
<b>Total non-current assets</b>	<b>374 483</b>	<b>388 211</b>
<b>Total assets</b>	<b>538 204</b>	<b>550 641</b>
<b>Liabilities</b>		
<b>Current liabilities</b>		
Trade and other payables	7 359	7 616
Derivative liabilities	12	0
Intercompany payables	69	241
Advances and other short-term liabilities	6 323	5 405
Accrued liabilities	52 468	85 503
Short-term provisions	30 098	9 781
<b>Total current liabilities</b>	<b>96 329</b>	<b>108 545</b>
<b>Non-current liabilities</b>		
Subordinated long-term debt	250 000	250 000
Other long-term liabilities	2 078	10 365
<b>Total non-current liabilities</b>	<b>252 078</b>	<b>260 365</b>
<b>Total liabilities</b>	<b>348 407</b>	<b>368 910</b>
<b>Shareholders' equity</b>		
Share capital	50 098	141 120
Treasury shares	-25	-25
Legal reserves from retained earnings	19 689	19 689
Legal reserves from capital	5 380	50 880
Voluntary retained earnings	0	256 696
Retained earnings / (accumulated deficit) brought forward	106 589	-164 377
Profit / (loss) for the period	8 066	-122 252
<b>Total shareholders' equity</b>	<b>189 797</b>	<b>181 731</b>
<b>Total liabilities and shareholders' equity</b>	<b>538 204</b>	<b>550 641</b>

## Notes to the statutory accounts as at 31 December 2022

Skyguide, Swiss civil and military air navigation services Ltd (hereinafter "Skyguide"), operates under a mandate given by the Swiss Confederation. This mandate is governed by the Federal Aviation Act and the associated ordinances. The company is domiciled at 15-17 route de Pre-Bois, in Meyrin (Switzerland).

### Basis for the establishment of the accounts

These financial statements have been prepared in accordance with the provisions of commercial accounting as set out in the Swiss Code of Obligations (art. 957 to 963b CO). The accounting principles applied are in line with those described in the consolidated financial statements for the year ended 31 December 2022.

### Key facts

After two crisis years due to the Covid pandemic, civil air traffic rose again in 2022 and increased by 73% compared to 2021, for en-route and category 1 activities, which represent the majority of the revenues. This resulted in an increase in operating income of CHF 135 million, or + 39%, year-on-year.

Although the volume of air traffic is increasing, it is still lower than the pre-pandemic level (2019). In the first half of 2022, the impacts of the pandemic was still being felt, with traffic being 20 % lower compared to 2019. In the second half of the year, activity picked up more significantly without reaching the volumes recorded in 2019 (-9%). Indeed, the geopolitical context with the war in Ukraine and energy supply issues slowed the recovery. Thus, over the year as a whole, air traffic for en-route and category 1 activities remained 14% lower than in 2019.

Thanks to the significant increase in revenues and the cost controls that were put in place, the net result is positive and stands at CHF 8.1 million following two years of record losses.

In addition, the performance plan submitted by Switzerland for the reference period 3 (2020–2024) has been validated by the European Commission. As a result, Skyguide will start charging airlines for the revenues missing in 2020 and 2021 due to the decline in traffic. In accordance with the emergency plan of the European Commission issued during the Covid crisis, billing will be spread over a period of seven years from 2023 to 2029. The corresponding revenues will be recognised annually, once they have actually been invoiced, in accordance with the revenue recognition rule related to under-recoveries specified in note 15.

### Going concern

After two challenging years and heavy losses that required two refinancing cycles, the significant increase in revenues and the cost controls that were put in place allow Skyguide to post a positive result of CHF 8.1 million.

This positive development has enabled Skyguide, in agreement with its shareholder, to waive the additional financial injection of CHF 100 million, as voted by Parliament in autumn 2021.

For the coming years, Eurocontrol expects traffic to return to 2019 levels, starting in 2025, after three years of successive increases between 2022 and 2024, and despite the new uncertainties linked to the geopolitical context and its economic consequences in terms of energy supplies.

As a result, Skyguide anticipates a stabilisation of the financial situation.

In addition, as of 2023, Skyguide will begin to repay the 250 million CHF loan granted to it by the Confederation in 2021. Skyguide's ability to make repayments is directly linked to its invoicing airlines for the loss of profits for the years 2020 and 2021 by means of tariff increases from 2023 to 2029.

Competitiveness remains a challenge for Skyguide. In the short term, the sharp decline in the euro leads to an increase in tariffs for European customers. At the same time, the air navigation services revenues calculated in euros show a loss. Innovation continues to be Skyguide's strategy to address these challenges, particularly with regard to the Virtual Centre, which will ultimately make it possible to flex the production costs of services and to optimise the air navigation systems.

The scale and speed of the recovery of traffic after the Covid crisis and the prospects for the coming years confirm the sustainability of Skyguide's economic model. Management is confident in the company's ability to generate the necessary cash flows to finance its activities and future investments.

### Receivables and advances

in KCHF	2022	2021
Receivables from collecting organisations	31 770	23 620
Other receivable	2 009	5 260
Personnel related receivable	39 179	20 066
VAT receivable	2 469	1 988
Allowance for bad debt	-3 160	-4 243
<b>Total receivable and advances</b>	<b>72 267</b>	<b>46 691</b>

### Long-term advances and other long-term assets

This position comprises KCHF 15 443 (2021: KCHF 3 097) which mainly includes under-recoveries in the following years in the amount of KCHF 9 337 (2021: KCHF 0), multi-year prepaid expenses of KCHF 3 315 (2021: KCHF 0), guarantee deposits and a loan made in 2019 of KCHF 3 417 to a company in which we hold a direct 25% stake. As of 31 December 2022, the net loan amounts to KCHF 2 476 (2021: KCHF 2 782).

## Contingent liabilities

### a) Guarantee deposits

in KCHF	2022	2021
Swiss customs and excise authority: provisional customs duties	160	160
Zurich and Geneva Chamber of Commerce and Industry: ATA booklets	63	63
Geneva cantonal employment office	50	50
<b>Total</b>	<b>273</b>	<b>273</b>

The deposits have been made at the Cantonal Bank of Bern.

### b) Other guarantee deposits

in KCHF	2022	2021
Rent guarantees in favor of employees	127	127
Guarantees deposited on installments received	1	1
Pledged collateral	200	200
<b>Total</b>	<b>328</b>	<b>328</b>

The deposits have been made at the Cantonal Banks of Bern and Geneva, at the Credit Suisse in Geneva and at UBS in Geneva.

## Short and long-term loan

in CHF	2022	2021
<b>Short and long-term loan</b>		
Grant date	18.10.21	18.10.21
Date of reimbursement	18.10.31	18.10.31
Amount	250 000 000	250 000 000
Interest rate	0.27%	0.27%

### Covenants linked to the long-term loan

In case of the total loss of the mandate as defined in the Ordinance on the provision of air navigation services (OSNA) in article 2, paragraph 2, this could lead to an immediate cancelation of the ongoing loan.

### Covenants linked to specific credit lines

Confirmed credit lines require compliance with certain financial criteria (covenants). If these criteria are not met, the credit lines may be rescinded by the company.

These covenants are:

- direct participation by the Swiss Confederation in the borrower's capital of a minimum of 51% and the preservation of the majority of the voting rights
- minimum ratio of shareholders' equity (share capital, reserves, retained earnings) representing 30% of the total Skyguide statutory balance sheet

## Other commitments not included in the balance sheet

### Leasing

Maturity patterns of future lease payments are as follows:

in KCHF	2022	2021
Within one year	7 079	6 783
In the second to the fifth year inclusive	16 426	18 147
After the fifth year	8 113	8 099
<b>Total</b>	<b>31 618</b>	<b>33 029</b>

The table summarises the company's commitments concerning leases (leasing of premises), surface rights as well as operating leases (rental of photocopiers, servers and programs for business information systems). The commitments are calculated based on current contracts, for the agreed contractual term, provided that they cannot be cancelled within a year.

### Investment with co-financing

In order to streamline the balance sheet and present revenues and expenses in a way that is more in line with our service provider business model, management decided to change the accounting principle for co-financed projects by dividing them into 3 categories:

- **Deferred revenue:** For contracts containing an obligation for Skyguide to provide a service, the amount of co-financing is deferred and revenue is recognised periodically according to the service rendered.



## Skyguide subsidiaries

Name of subsidiary	Activity	Country	2022	2022	2021	2021
			% held % controlled	Paid in nominal capital by Skyguide (KCHF)	% held % controlled	Paid in nominal capital by Skyguide (KCHF)
SkySoft-ATM SA	Software development	Switzerland	100	95	100	95
Swisscontrol SA	Dormant	Switzerland	100	50	100	50

The total of KCHF 2021 (2021: KCHF 2021) in the balance sheet includes KCHF 50 of capital not paid up in favour of Swisscontrol SA.

- **Immediate revenue:** Contracts that do not contain an obligation for Skyguide to provide a service are recognised immediately as revenue.
- **Reduction of assets:** Contracts related to a government grant or partnership without a service obligation are treated as an asset reduction. The presentation of net assets requires switching from the gross book value method to the net book value method.

### Share capital

The Swiss Confederation holds 99.94% of the company. The share capital is CHF 50097 600 (2021: CHF 141 120 000), divided into 14 112 000 (2021: 14 112 000) registered fully paid-up shares, with a par value of CHF 3.55 each (2021: CHF 10).

The Federal Civil Aviation Act specifies that the majority of the capital belongs to the Swiss Confederation. The company's articles of association stipulate that the Swiss Confederation holds the majority of the capital and the voting rights.

In August 2021, the General Assembly voted to transfer CHF 98 000 000 from the legal reserve to the free reserve.

In May 2022, the General Meeting voted to transfer CHF 45 500 000 CHF from the legal reserve to the

free reserve and to reduce the share capital by 91 022 400 CHF, transferred to the free reserve. The share capital will now be divided into 14 112 000 registered shares of 3.55 CHF each.

As a result, the nominal value of the shares was reduced from 10 CHF to 3.55 CHF. No dividend was paid in 2022 and 2021.

### Treasury shares

The Company owns 2 500 treasury shares. There were no transactions in 2022 and 2021.

### Business model

The business model of Skyguide comprises two main categories: regulated and non-regulated services. The regulated services are financed primarily by charges that are billed to the users (en-route, approach category 1) or by contractually agreed charges (approach category 2, military), while the non-regulated services are financed by winning tenders on the open market.



## Route and approach category 1

### General

En-route and category 1 approach activities (Geneva and Zurich airports) are governed by the European Commission Implementing Regulation No. 2019/317, by Eurocontrol's "Principles for the establishment of the cost-base for en-route air navigation services and principles for the calculation of unit rates" and by the Ordinance on Air Navigation Services.

The modalities of this economic regulation system are fixed for a period called "reference period" (RP). For each reference period, a performance plan agreed at national and European level frames the route and category 1 approach charges. The current reference period covers the years 2020–2024.

The main modalities of the economic regulation system are the following:

A cost base (1) and a traffic forecast (2) are determined in advance and included in the performance plan for each year of the reference period:

1. The amount of costs foreseen annually to finance air navigation services is composed of the costs of Skyguide, the costs of MeteoSwiss, the costs of the Federal Office for Civil Aviation and the costs of Eurocontrol. All these costs are referred to as "determined costs". Any difference between the actual costs and the determined costs is entered in Skyguide's profit and loss account, thus generating a profit or loss. However, a number of cost adjustments are made for inflation and so-called uncontrollable costs (e.g. Eurocontrol costs). The inflation adjustment is carried forward to year  $n + 2$ . Depending on its nature, the adjustment for uncontrollable costs is carried forward either to year  $n + 2$ , or to one or more years of the following reference period, or to the two following reference periods.

2. The traffic forecast is made for each year of the performance plan on the basis of the information provided by Eurocontrol at the time the plan is drawn up. This forecast is the basis for calculating the unit rate charged to users of air navigation services. The difference between actual and forecast traffic generates a surplus or shortfall of revenue to cover the determined costs. To counterbalance the financial impact of traffic variations, a risk-sharing mechanism has been put in place which is applicable only to the costs determined by Skyguide.

The first 2% of the variation is entirely for Skyguide's account, as is 30% of the variation in traffic between (+/-) 2% and (+/-) 10%. The other 70%, as well as variations above (+/-) 10%, are passed on to the users in year  $n + 2$ . Thus, the maximum loss or profit that Skyguide can make from traffic fluctuations is 4.4%:  $2\% + 8\% * 30\%$ . Example: if the actual traffic is 6% lower than the performance plan, Skyguide would bear 3.2% (the first 2% and 30% of the variation between 2% and 6%) of the traffic reduction and the users 2.8% (70% of the variation between 2% and 6%).

The other components of the defined costs (MétéoSuisse, FOCA, Eurocontrol, carry forwards from previous years) are not subject to traffic risk sharing. This means that the over- or under-coverage due to traffic generated on these cost elements is fully offset through a carry forward to users in year  $n + 2$ .

Provisions for the carry forwards mentioned above relating to the costs or the variation in revenues are created in the year in which they occur (creating carry forwards).

- A positive carry forward represents an under-recovery of costs and results in an increase in the net result. The counterpart on the balance sheet is recognised in "Advances and other long-term assets".
- A negative carry forward represents an over-recovery of costs and results in a decrease in the net result. The counterpart on the balance sheet is recognised in "Other long-term liabilities".

The carry forwards will be integrated in the calculation of the rates for the year to which they are carried forward. Thus, they increase or decrease the annual revenues concerned through an increase or decrease in the unit rate. As the change in revenues is recognised in the year in which it is generated, its impact on the net result of the year in question is neutralised through the carry forwards line item.

In view of the exceptional circumstances related to the impact of the health crisis, the criteria for the recognition of under-recoveries in the income statement have been specified according to the description in the section on "Key facts".

#### **Approach category 1 (national airports)**

Category 1 includes the airports of Geneva and Zurich. Since 2015, the same economic regulation system and the same reference period as for the route have been in place.

#### **Approach category 2 (regional civil aerodromes)**

Category 2 comprises the aerodromes of Berne-Belp, Buochs, Grenchen, La Chaux-de-Fonds-Les Eplatures, Lugano-Agno, Sion and St Gall-Altenrhein.

Since 2017, the responsibility for financing the air navigation services has been transferred to the regional civil aerodromes. Each aerodrome constitutes a specific tariff zone and sets the charges relating to air navigation. Skyguide invoices them for its services.

#### **Military activities**

The services that Skyguide provides to the Swiss Air Force are governed by the full-cost recovery principle. A quarterly lump-sum compensation paid by the Swiss Air Force to Skyguide is fixed by a service agreement. A financial statement is prepared at year-end with regard to the military activities. In principle, a provision is created for the balance between the income and the cost of the activity in the year ended and reversed the following year in favour of the Air Force or in favour of Skyguide.

# Proposal of the Board of Directors

## Proposal of the Board of Directors for the appropriation of cumulated earnings

	Proposal of the Board of Directors	Resolution of the annual general meeting
in KCHF	<b>2022</b>	<b>2021</b>
Retained earnings / (accumulated deficit) brought forward	-286 629	-164 377
Equity restructuring	393 218	0
<b>Retained earnings / (accumulated deficit) to be carried forward after restructuring</b>	<b>106 589</b>	<b>-164 377</b>
Profit / (loss) for the period	8 066	-122 252
<b>Balance sheet gain / (loss)</b>	<b>114 655</b>	<b>-286 629</b>
in KCHF	<b>2022</b>	<b>2021</b>
Transferred from voluntary retained earnings	0	256 696
Retained earnings / (accumulated deficit) to be carried forward	114 655	-286 629
<b>Balance sheet gain / (loss)</b>	<b>114 655</b>	<b>-29 933</b>

# Report of the statutory auditors

## Report of the statutory auditor

to the General Meeting of SKYGUIDE, Swiss civil and military Air Navigation Services Limited

Meyrin

### Report on the audit of the financial statements

#### Opinion

We have audited the financial statements of SKYGUIDE, Swiss civil and military Air Navigation Services Limited (the Company), which comprise the balance sheet as at 31 December 2022, and the income statement for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the financial statements (pages 72 to 79) comply with Swiss law and the company's articles of incorporation.

#### Basis for opinion

We conducted our audit in accordance with Swiss law and Swiss Standards on Auditing (SA-CH). Our responsibilities under those provisions and standards are further described in the 'Auditor's responsibilities for the audit of the financial statements' section of our report. We are independent of the Company in accordance with the provisions of Swiss law and the requirements of the Swiss audit profession, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

#### Other information

The Board of Directors is responsible for the other information. The other information comprises the information included in the annual report, but does not include the financial statements, the consolidated financial statements and our auditor's reports thereon.

Our opinion on the financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

#### Board of Directors' responsibilities for the financial statements

The Board of Directors is responsible for the preparation of the financial statements in accordance with the provisions of Swiss law and the company's articles of incorporation, and for such internal control as the Board of Directors determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Board of Directors either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

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**Auditor's responsibilities for the audit of the financial statements**

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Swiss law and SA-CH will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

A further description of our responsibilities for the audit of the financial statements is located on EXPERTSuisse's website: <http://www.expertsuisse.ch/en/audit-report>. This description forms an integral part of our report.

**Report on other legal and regulatory requirements**

In accordance with article 728a paragraph 1 item 3 CO and PS-CH 890, we confirm that an internal control system exists which has been designed for the preparation of the financial statements according to the instructions of the Board of Directors.

We further confirm that the proposed appropriation of cumulated earnings complies with Swiss law and the company's articles of incorporation. We recommend that the financial statements submitted to you be approved.

PricewaterhouseCoopers SA

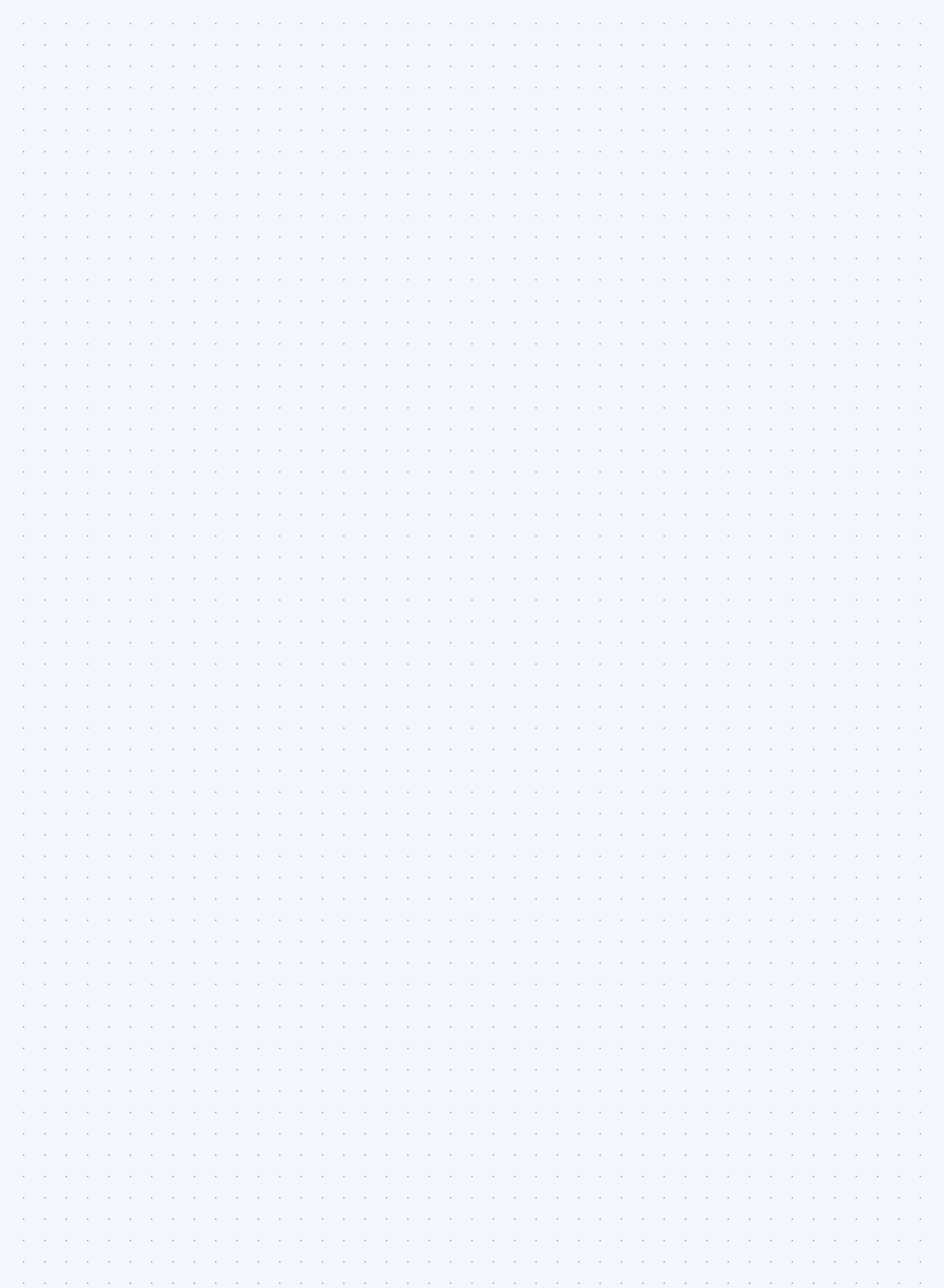
Yves Cerutti

Guillaume Antin

Licensed audit expert  
Auditor in charge

Lausanne, 24 February 2023





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The annual report consists of two parts:  
Business Report – The authoritative original report is published in German. Translations are available in French and English.  
Financial Report – The authoritative original report is published in French. Translations are available in German and English.

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