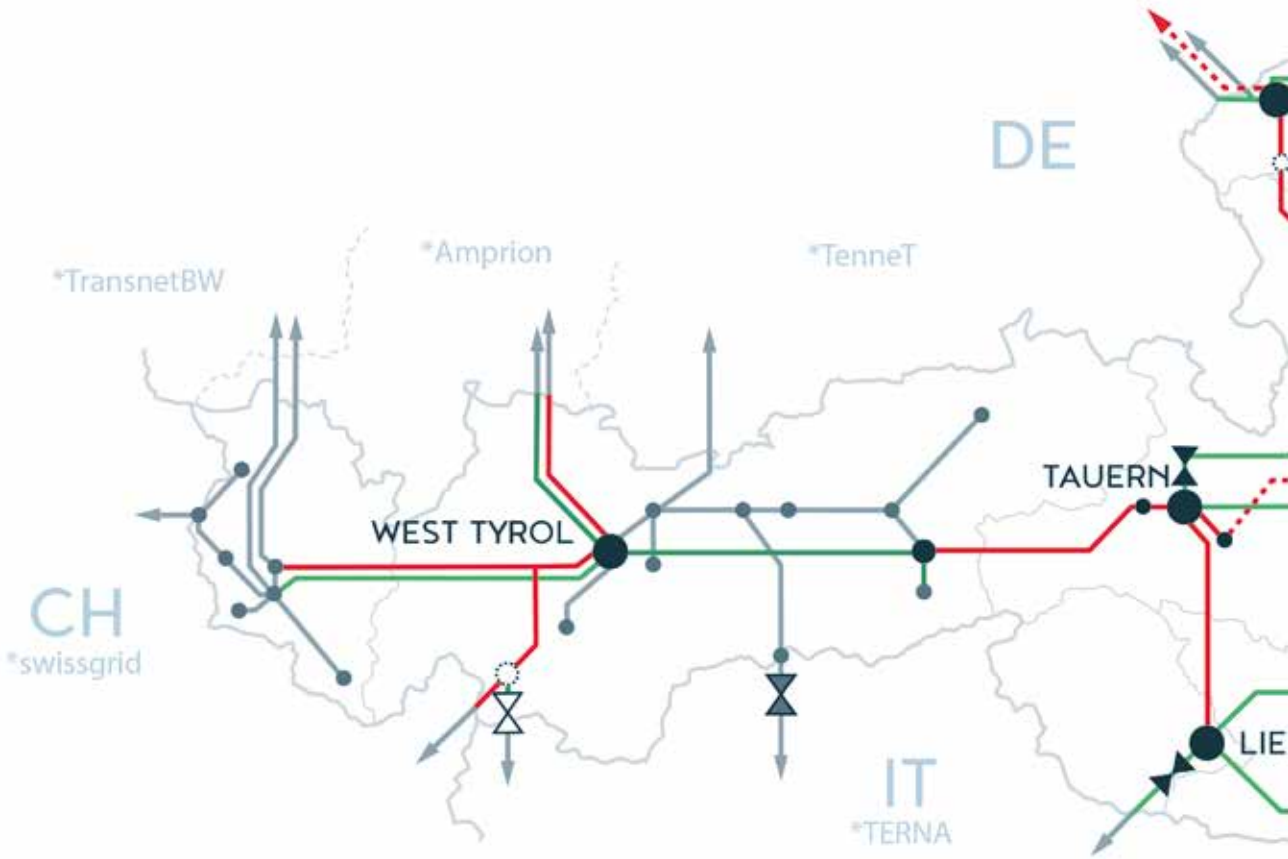
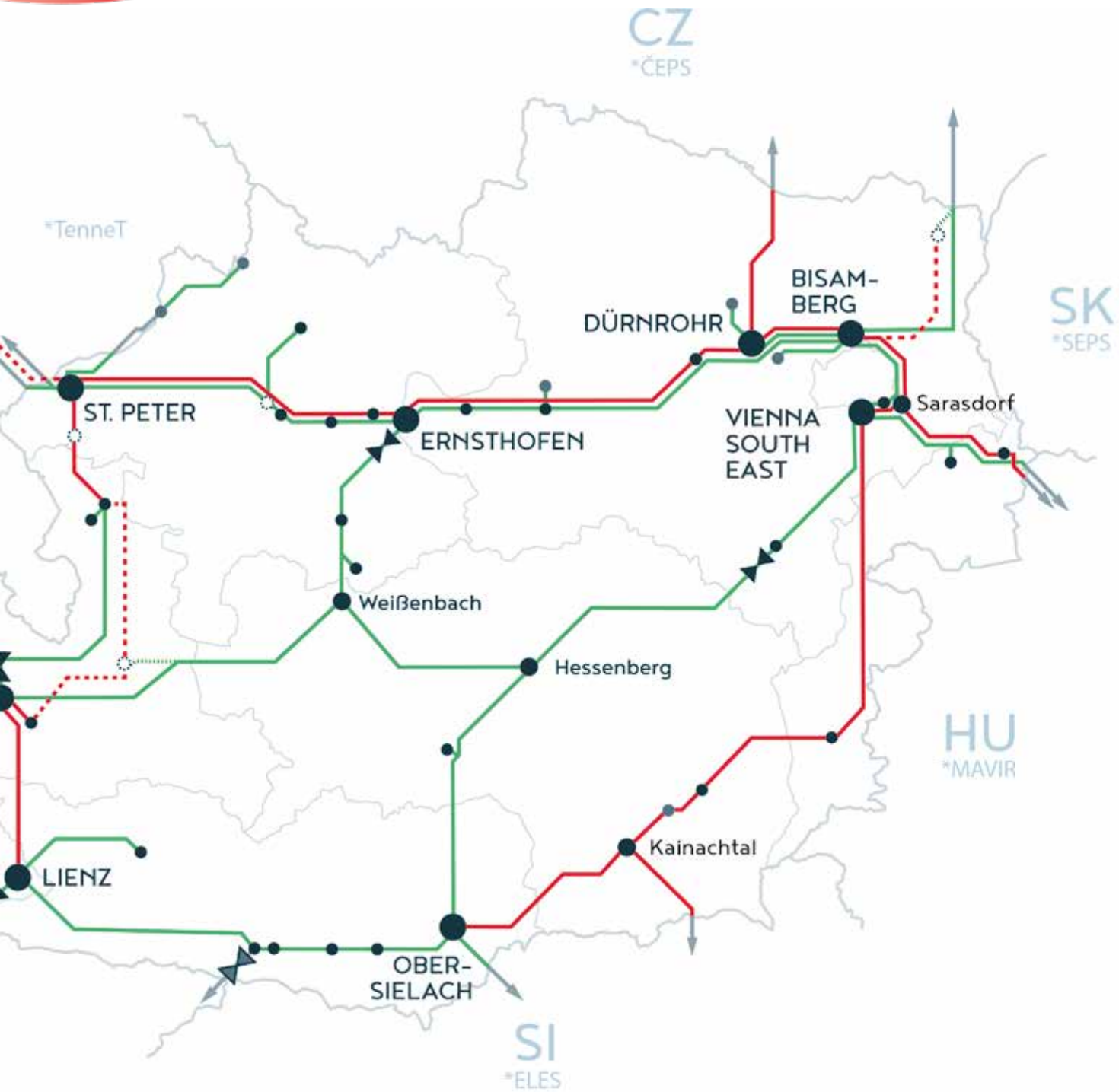
Austrian Power Grid
Annual Report 2021

Austria needs power infrastructure.

Austrian ultra-high voltage grid



2,577 km	380-kV line/under construction	
3,212 km	220-kV line/under construction	
9		APG network node
65		Substation/under construction
3		Phase-shifting transformer/ under construction



* Neighbouring countries' transmission system operator

Not owned by APG

Austrian Power Grid

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“APG is on a growth track.”

The two APG Executive Board members, Gerhard Christiner (Chief Technology Officer) and Thomas Karall (Chief Financial Officer), in conversation

2021 began with a brief but major upset, the near-blackout in early January. How impactful was this incident?

Gerhard Christiner: The start to the year was truly extraordinary, as the functionality of our protection systems was severely tested. Think of it like a roped party on the mountain. One member slips and the question is whether the others can catch him. It worked and the system was quickly restabilised. On the other hand, it was a warning that we all need to be very careful, especially when it comes to the further development of the overall system.

Blackouts have since been a very present topic in the media. Why is that?

Christiner: In my opinion, it has to do with the current pandemic, which before the outbreak was always a looming extreme event, but one that was far off and so, for all of us, not very likely. It hit us so hard for that very reason - we were unprepared for it. It would be much the same if there were a blackout: it is simply the case that nothing in our society works any more without power. The coronavirus pandemic has led to an increased need for protection, which is why a potential blackout is now more of an issue.

APG must be OK with that?

Thomas Karall: It is a good thing when there is a general awareness of the issue, but we are very keen to take a nuanced view of it and not bandy around with worst-case scenarios. We are also very concerned that the term blackout should not be used more and more widely. It would not be good if we got used to the term and in future defined a secure supply of electricity in such a way that the definition included a few hours of blackout a year. At 99.99%, our reliability of supply ranks among the highest in Europe – and we intend to maintain that too.

Sebastian Loudon interviews Thomas Karall and Gerhard Christiner.
Sebastian Loudon is a longtime business journalist and industry expert, the publisher of monthly magazine DATUM and, since 2015, has been the representative in Austria for Hamburg publishing house ZEIT VERLAG.

“We need to work to ensure that more people – including decision-makers – understand what the transformation of the energy system involves.”

Gerhard Christiner, CTO of APG

Presumably one milestone for APG last year was the Renewable Energy Development Act (Erneuerbaren-Ausbau-Gesetz, EAG). How does this Act now look from APG’s perspective?

Karall: The EAG does, of course, have far-reaching consequences for APG, even though it primarily addresses arrangements on the electricity producer side. In the run-up, it was very important to us that there be a clean and viable solution for the grid reserve ahead of the EAG so as to ensure security of supply. We can, of course, see from the EAG the extent of the infrastructure solutions that will be required of us in addition to grid expansion, such as vertical market integration or the newly created energy communities. For me, the EAG is pleasant proof that the energy transition – that is, the decarbonisation of the energy system – is an unalterable societal goal and now one of APG’s core tasks alongside security of supply and market integrity. This means that we need to realign the system’s foundations.

Christiner: The next necessary step is now the new Electricity Market Act (Strommarktgesetz) governing market conditions. The question here is how the electricity market is designed to meet the challenges in expanding renewable sources of energy and send the right investment signals to market participants. The EAG and the Electricity Market Act are very closely related and therefore need to be well dovetailed. The volatile generation structure of wind and solar energy requires a framework that can also create the necessary flexibility on the customer and grid operator side. But that aside, the EAG already presents a clear timetable for the expansion of renewable energy producers – and that clarity is very important for all further steps.

In other words, the aim of having a decarbonised energy system by 2030 is realistically achievable?

Christiner: One thing is for sure: it is very ambitious, but unavoidable. And from my point of view, it would even be a good thing if we set intermediate goals. Where do we need to be in 2025 or 2027, for example, in order to safely achieve the goals for 2030?

What does this goal mean for APG as a company?

Karall: It certainly means an enormous growth spurt for APG. In core operations, headcount has increased by 10.5% compared with last year; that is unparalleled in the Company's history. And our fixed assets are growing at a rapid rate due to our investments in grid infrastructure. We can say that APG is on a growth streak.

The burden of managing the energy transition falls to a large extent on APG's shoulders. What do you still need from policymakers?

Christiner: We simply need to become much faster. I have the feeling that there is still a prevailing belief in Austria that we will put up a few wind turbines and photovoltaic systems - and the energy transition will be finished. There are still quite a few people who are unaware of the scale of this task and its effects. We need to work to ensure that more people - including decision-makers - understand what it involves. Of course, we should not play climate protection and biodiversity off against each other, but the expansion of our line infrastructure is essential to fully decarbonising the power grid and reliably transforming the entire energy system. There will be large-scale intervention, and for that we need to build social and political consensus.

Karall: On the end customer side too, all stakeholders need to join forces to raise awareness. For in the course of the energy transition, end customers will also become active participants in the system. We therefore need to engage everyone concerned.

"At 99.99%, our reliability of supply ranks among the highest in Europe – and we intend to maintain that."

Thomas Karall, CFO of APG

Is the EAG already impacting on your infrastructure expansion?

Christiner: Yes, the EAG is having an effect. We have got 14 new substation projects submitted for construction in our Network Development Plan with a view to feeding wind plants or photovoltaic systems into the grid. Generally, we were very successful last year as far as grid expansion is concerned. Despite COVID-19, we were able to carry out all projects according to plan. A big thank you at this point to our employees!

Karall: There has never been so much investment activity at APG. According to the institute Economica, our infrastructure projects will create €2.1bn in value and jobs for 28,000 people over the next ten years. Besides the energy market effects, that really is a relevant contribution to our country as a business location.

What are the big items on your agenda for 2022?

Karall: They certainly include the negotiations with the regulator on the tariff system. We see the need for a certain amount of regulatory realignment as far as innovation is concerned. At the same time, in the next regulatory period, we have to invest more than €3.5bn by 2032 and more than €2.2bn by 2027. That means that we also need secure financial foundations. The scope that we have on the revenue side is, of course, a huge factor determining our working radius.

“Despite COVID-19, we were able to carry out all investment projects according to plan.”

Gerhard Christiner, CTO of APG

> “According to the institute Economica, our infrastructure projects will create €2.1bn in value over the next ten years.”
>
> Thomas Karall, CFO of APG

Christiner: That aside, we are devoting time and attention this year to modifying APG’s internal organisation – this reorganisation will allow us to integrate the transformation of the overall system into our Company and position ourselves so that we are fit for the future. Another task is to enable the Company to have a new working environment, for example combining working from home with office-based working. This is very important for the Company’s culture and its attractiveness as an employer – we are making very good headway here.

On the subject of corporate culture, APG does not have any direct competitors – what does that mean for you as Executive Board members when it comes to managing and motivating employees?

Karall: It is true that we are not in direct competition, but we are in competition for ideas and above all for the best talent. We want to rank among the leaders on this front too.

Christiner: We have already been successful in ensuring that APG is perceived as highly innovative. And what benefits us is that playing a role in the energy transition and electricity security of supply is extremely meaningful for young people. That generates unbelievable motivation and team spirit.

Foreword by the Chairman of the Supervisory Board

"Implementing the Renewable Energy Development Act (EAG) requires rapid grid expansion and end-to-end system planning. APG therefore has a fundamental role to play in the transformation of the energy market."

Peter F. Kollmann,
Chairman of the Supervisory Board

Dear ladies and gentlemen,

I would like to express my gratitude and appreciation to all Austrian Power Grid AG employees for their hard work during the past year. In an environment shaped by the coronavirus crisis, Austria was once again able to rely on APG and its employees. A secure supply of electricity as the foundation stone underpinning our modern digital society is not something that can be taken for granted and continually presents the Company with major challenges. In this context, one event last year in particular sticks in my mind, as it clearly underscores the importance of APG for Austrian security of supply: the successful handling of the frequency disturbance and the splitting of the system into two regions on 8 January 2021.

Thanks to the excellent collaboration between the transmission system operators and other important players in the electricity system, normal operations were restored within an hour. This incident shows that security of supply is a continual process in which all players must fulfil their responsibility. It also shows, however, how important teamwork and working relationships of trust are. I would like to sincerely thank all APG employees for working around the clock to ensure that Austria has a secure supply of electricity.

The event of 8 January 2021 has raised awareness of how important a reliable and resilient supply of electricity is for Austria. The grid loads in connection with the system's transformation into a renewable energy and electricity system will increase. The energy transition is therefore also a grid transition and urgently requires a high-performance grid infrastructure. The expansion of the transmission grid is the foundation stone for achieving carbon neutrality in Austria. Through the Renewable Energy Development Act (Erneuerbaren-Ausbau-Gesetz, EAG), the federal government is establishing an important framework for a sustainable, secure energy and electricity system. APG supports the EAG's goals. It is a necessary ingredient for a successful energy transition and above all creates an important framework for all players in the electricity system.

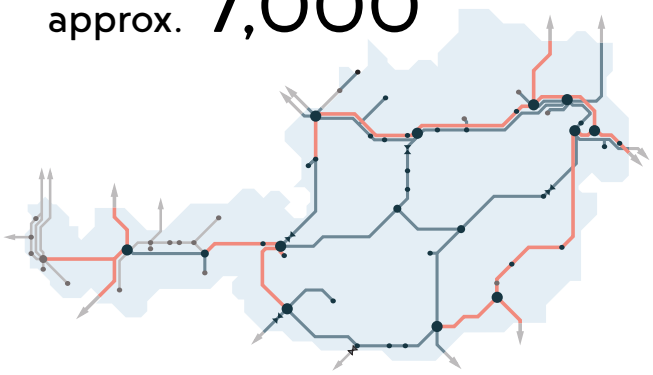
Besides the Company's encouraging business performance, APG carried out €360m of investment projects in 2021. On the one hand, this is an important source of impetus for Austria's economy; on the other, it lays the foundations for the secure and sustainable electricity supply of the future.

The Supervisory Board would like to thank the Executive Board and all employees for the professional working relationship of trust and for mastering the challenging tasks.

Peter F. Kollmann
Chairman of the Supervisory Board

APG in figures

Power grid in kilometres:
approx. 7,000

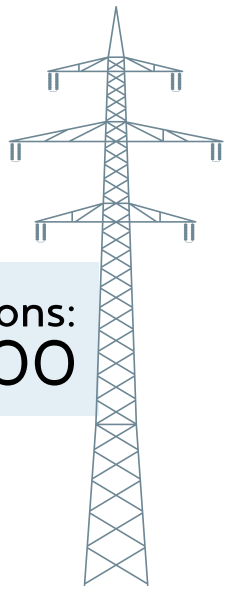


30
research projects

Volume of energy drawn in redispatching: 99.4 GWh
45,349 GWh transmitted via the APG grid

€3.5 bn
Investments by 2032:

Substations/ grid switching stations:
65



Pylons:
approx. 12,000

99.99 %
reliable electricity supply

Employees:
approx. 700

Revenue in 2021:
1,082.3m

About Austrian Power Grid (APG)

As an independent transmission system operator, APG is responsible for providing a secure supply of electricity for Austria, its economy and society. Our high-performance power infrastructure in combination with our use of the latest technologies allows us to integrate renewable energy, act as a platform for the electricity market, create access to low-cost electricity for Austria's consumers and thus form the basis of a reliably supplied and sustainable place to live and conduct business. In 2021, our team of around 700 specialists once again ensured that Austria's electricity supply was 99.99% reliable. Our investments of around €360m in 2021 and our current Network Development Plan amounting to some €3.5bn are an economic engine and an essential ingredient in achieving Austria's climate and energy targets and electrifying business, industry and society. Now and in the future, we are committed to major trends of the times: decarbonisation, digitalisation, democratisation and decentralisation. Through our use of state-of-the-art technologies, we contribute to those trends.

European collaboration safeguards electricity supply

Thanks to trans-regional collaboration, the drop in frequency on 8 January 2021 was rectified within an hour.

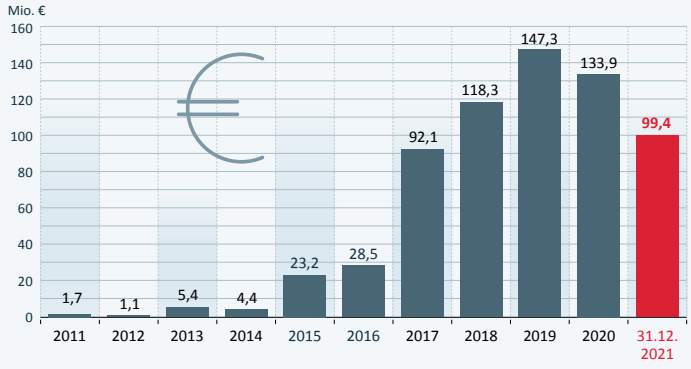
2021 began with a stress test for Europe's electricity supply: on 8 January, the continent narrowly avoided a blackout. Within seconds, there was a cascade of outages on 14 lines and other grid elements in several countries across Southeastern Europe. Europe split into two frequency zones. The disturbance was detected in real time at all European grid operators' control centres. Automatic protection mechanisms were activated. The system operators also took manual measures to prevent a trans-regional power failure. This demonstrated once again that a strong grid and national and international collaboration are essential to electricity security of supply.

Electricity security of supply as a societal value

Situations like this spotlight the value of a secure supply of electricity for our country as a business location and for prosperity. A blackout across the whole of Austria would cause losses amounting to some €1.3bn – a day!* To be able to guarantee security of supply during the transformation of the energy system as well, an appropriate balance must be struck between three goals: market, sustainability and electricity security of supply. This requires coordinated national and pan-European interaction between producers, grid operators and the myriad players in the energy system. A coordinated and systematic plan to transform the electricity system is key to future security of supply, as is action to increase capacity across grids, storage, reserves and renewable production and integrate all players in the electricity system by way of digital platform technologies. There is still a long way to go: on 241 days this year, capacity reserves (power plants) had to be used to prevent the grid from becoming overburdened, giving rise to costs of €98.8m in 2021.

APG's redispatch costs, year-on-year comparison 2011–2021

A strong grid with sufficient capacity would considerably reduce both the need for RD measures and the costs. All over Austria transmission lines that are lacking or still under construction, like e.g. in Salzburg (cf. APG grid development plan) have cost the Austrian customers approximately **11 million Euros** per month in 2020.



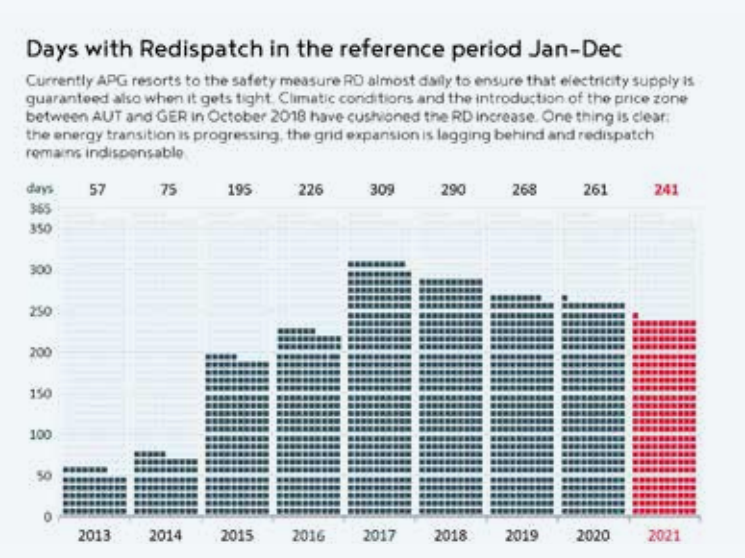
* Source: Blackout simulator of the Energy Institute at the Johannes Kepler University in Linz

Timeline: APG in 2021

- 8/1 Disturbance on the European power grid
- 12/1 Drop in frequency on the European power grid on 8 January 2021/initial analysis
- 15/1 European collaboration saves the power grid
- 18/1 Climate protection minister Gewessler after meeting with APG and E-Control: Austria's supply of electricity is assured

Cyber security as part of our responsibility for security

Security is a fundamental indicator of the quality of any infrastructure company. Only through the harmonious interaction of occupational safety, physical security, plant and equipment safety and management can the transmission security achieved in the grid meet the high standards of quality desired for electrical energy as a product. In recent years, cyber security in particular has also found a place at the top of the business policy agenda. APG, as part of the critical infrastructure and a member of Austrian Energy CERT (Computer Emergency Response Team), is in constant dialogue with the responsible authorities (Federal Ministry of the Interior, Federal Office for the Protection of the Constitution and Counterterrorism). In parallel, a health and safety system in the form of an integrated management system (IMS) for the environment, health, safety and quality has been in operation for all APG sites since 2008 – something which is borne out by our long-standing ISO 27001/27019 certification.



Year two of COVID-19

All areas of life, work and society remained firmly in the grip of the pandemic in 2021. The Company's ongoing ability to operate with an eye towards providing Austria with a secure supply of electricity and the health of all employees were once again the touchstones guiding its internal measures. In the middle of the year, the crisis management system was transformed into a task force, which at the beginning of 2022 was changed back to a crisis management structure due to epidemiological developments in Austria. Throughout the year, a raft of measures around working from home, splitting up teams, hygiene, physical distancing and the requirement to wear a mask were implemented according to the general and regional overall situation. One notable example is APG's participation in the Group-wide Verbund vaccination campaign, by means of which a very large proportion of the APG workforce was immunised. At the same time, clusters were prevented from developing internally. Encouragingly, despite COVID-19, all APG business operations, including all investment and research projects and construction site operations, were carried out without any delays.

Scan here for infographics on electricity.

21/1 Primary control power: Slovenia and West Denmark join collaboration

26/1 Drop in frequency on the European power grid on 8 January 2021/comprehensive overview, including measures to safeguard the supply of electricity

2/2 More flexibility for the power grid: APG joins European consortium EQUIGY

24/2 Winter temperatures cushion the effect of the coronavirus pandemic on electricity consumption

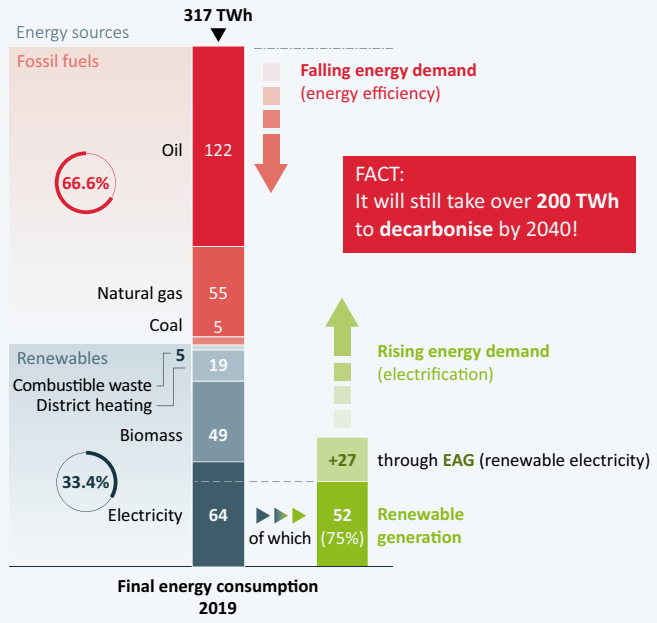
Strong power grids are the key to the energy transition

Sustainable electricity production will be increased by 27 TWh by 2030. It will only be possible to utilise the power if there are strong grids in place.

By passing the Renewable Energy Development Act (Erneuerbaren-Ausbau-Gesetz, EAG) on 7 July 2021, Austria took an important step towards a sustainable energy system. The aim by 2030 is to produce an additional 27 TWh of sustainable energy so that renewable sources meet Austria's total electricity demand in 2030. The installed renewable energy capacity will be distributed throughout Austria: mainly photovoltaics and wind power in the east of the country, run-of-river hydropower along the rivers and storage systems in the country's Alpine regions (see graphic). At the same time, there will be a sharp increase in the number of players (among others, energy communities) in the electricity system. By 2040, we expect as much as 200 TWh of clean electricity to be required to cover the end-to-end electrification of all areas of life and sectors of the economy – a mammoth task. Alongside the massive expansion of renewable energy, the power infrastructure therefore needs to be upgraded and expanded so that the electricity system as a whole remains secure and manageable.

Electricity – the energy source of the future!

Figures in TWh (terawatt hours)



A doubling of line capacity

Initial analyses expect line capacity to almost double by 2030. To reach full carbon neutrality, the system must be fully upgraded by 2040. Besides grid expansion, the success of the system's transformation into a reliable, climate-neutral energy system hinges on the capacity available across storage and reserves and the use of all flexibility options by way of digital platform technologies. In the current Network De-

26/2 Update on European frequency disturbance on 8 January 2021: final report expected in the first half of the year

10/3 APG: Supervisory Board extends tenure of Executive Board members

11/3 APG welcomes Renewable Energy Development Act

18/3 Construction work for the new Villach substation completed

24/3 Near-blackout on 8 January 2021: APG publishes video simulation

30/3 APG: temperature determines electricity consumption – production from renewables gains momentum

velopment Plan 2021, we put forward a €3.5bn investment programme for the period to 2032 that provides initial answers to the system-related questions of the future. Besides the expansion of the transmission grid, the digitalisation of all areas of the Company, the use of state-of-the-art technologies and pilot projects, for example addressing digital platform technologies and sector coupling, are also crucial to our ability to manage the electricity system of the future reliably. The timely implementation of all projects in the Network Development Plan (NDP) 2021 is essential to the success of an energy transition that delivers security of supply.

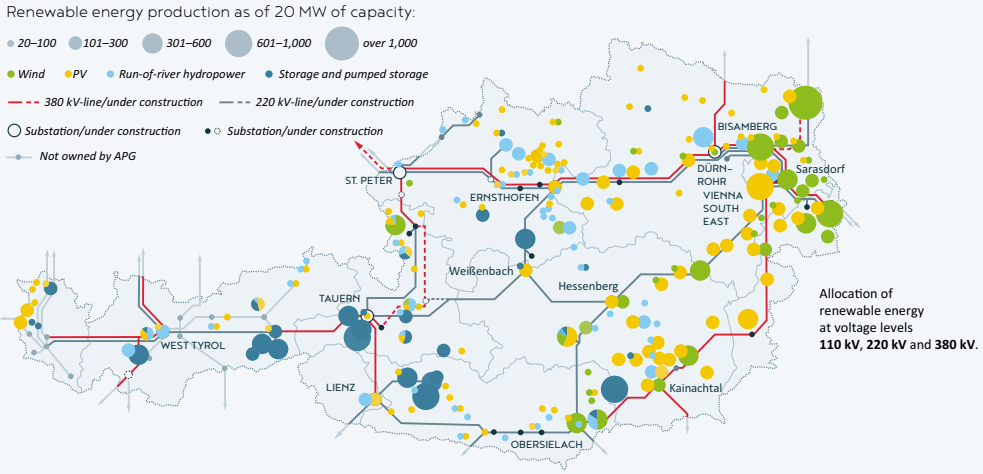
Additional framework conditions

However, this requires framework conditions that go beyond the EAG:

- Faster approval processes in combination with swifter processes for power line upgrades
- End-to-end system planning coordinated at national/European level (grid - storage - production - reserves - digital platform technologies)
- Protection of planned and existing routes
- Financing assured by a modern regulatory system
- Authorities provided with sufficient resources

If these five elements and all upcoming projects are implemented, a reliable energy transition will be an achievable goal. At the same time, low-cost electricity will remain available to Austria's electricity consumers. The tardy or asynchronous transformation of the overall system would not only reduce the positive effects; it would be the biggest risk factor for our future generations.

Regional distribution of renewables requires rapid and comprehensive upgrading of the grid



13/4 €33m for regional security of supply: construction work at the Ternitz substation completed

28/4 Switching between light and shade: APG presents MIA prize to an AIT research project addressing near-term PV production forecasting

30/4 APG: mild March keeps electricity consumption down

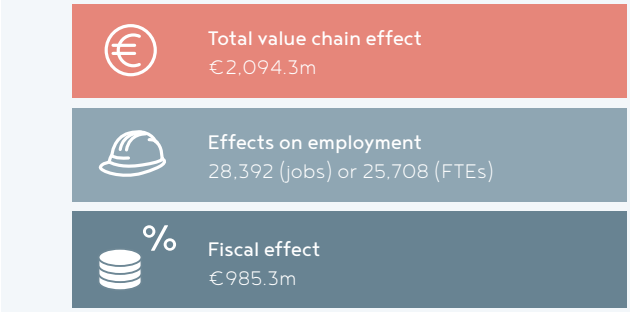
6/5 APG Weinviertel line on the home straight

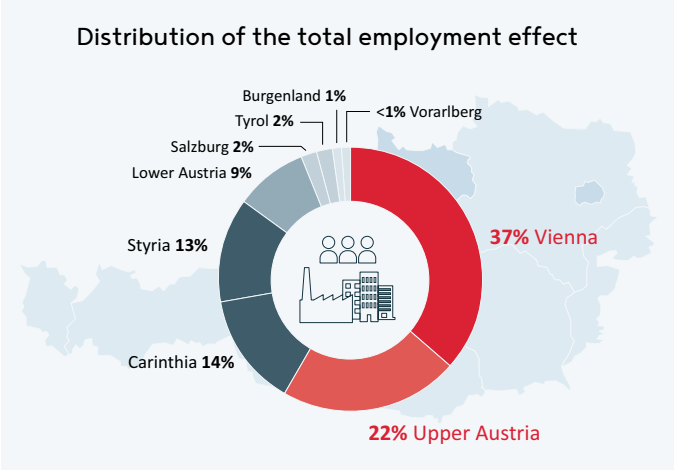
18/5 Renewables help drive exports to record level

27/5 "Four seasons" in April push up electricity consumption

€3.5bn for Austria
as a business location

An Economica study shows that APG safeguards more than 28,000 full-time jobs, thereby triggering the creation of around €2.1bn in gross value added over the next ten years.





€3.5bn for Austria

The €357m of investments implemented in 2021 and APG's existing investment programme of €3.5bn over the period to 2032 are not just essential ingredients for the success of the energy transition and the electrification of industry, business and society; they are also a boost to Austria's economy and public sector. For every euro invested by APG in domestic grid infrastructure, €0.67 in value is created in Austria.

Boost to economy and municipalities

According to an Economica study, APG's investments trigger a number of economic effects: over 28,000 jobs throughout Austria are directly and indirectly safeguarded – equivalent to employing everyone living in the city of Bregenz for a year.

10/6 APG: well prepared for the partial solar eclipse

11/6 APG: the transformation of the energy system must be a joint project

16/6 Official commissioning of the 220/110-kV grid support substation in Villach

22/6 Electricity market becomes more and more European

28/6 Temperature dictates electricity consumption

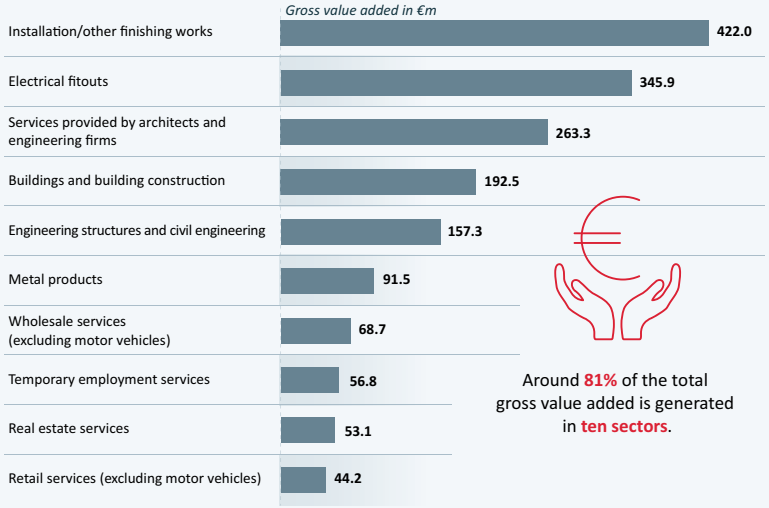
30/6 APG once again awarded gold in Sustainable Brand Rating Austria 2021

Nationwide effects

The roughly €2.1bn in gross value added extends across all federal states, with Vienna and the two industry-heavy states of Styria and Upper Austria benefiting disproportionately. The investments are spread across a wide range of sectors in terms of both contract value and employment effect. The top three sectors by gross value added are: installation and other finishing works, electrical fitouts and services provided by architects and engineering firms. Around 94% of the investments with an impact on value creation are made by domestic companies and almost 70% of the investment spending itself has a direct impact in Austria. Any economic activity also entails taxes and charges: the total fiscal effect of APG's investments – that is, the cumulative tax and charge effect of direct, indirect and induced effects – amounts to around €985m.
Another important point economically speaking is that, if there is appropriate line capacity, low-cost electricity will be available to Austrian business, industry and electricity consumers over the long term and spreads between Austria and neighbouring markets can be kept to a minimum.

Sector effects of NDP 2022-2031

Top ten sectors by value created (total effect)



5/7 "Carolo" to facilitate the energy transition

7/7 Renewable Energy Development Act is just the first step

12/7 Power line becomes more visible to birds

13/7 Eight leading European transmission system operators launch a joint initiative to support the energy supply system and achieve carbon neutrality

20/7 APG: climate change bares its "hot teeth"

29/7 Solar storm may pose a threat to the power grid

Using state-of-the-art technology and innovation to safely navigate the transformation

Innovation helps to reliably transform the energy system

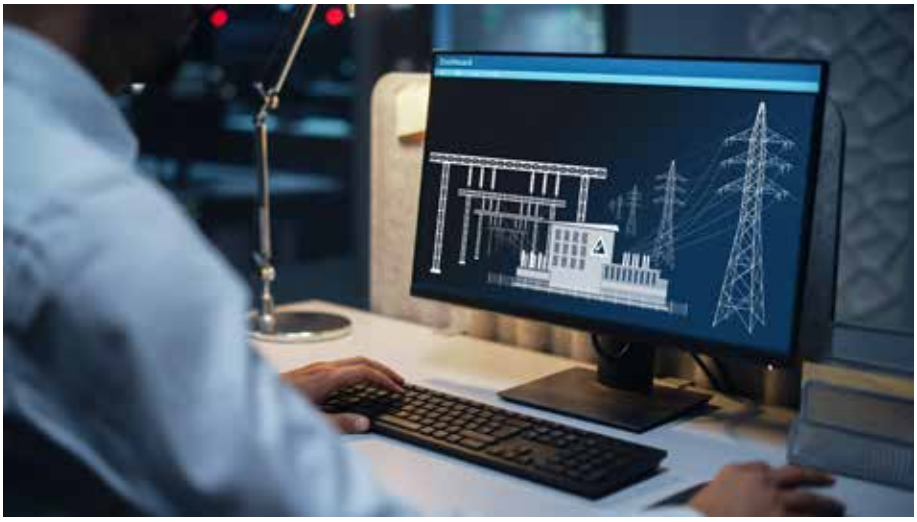
Digital substation

APG uses the term "digital substation" to refer to substations where the latest technology is used to monitor processes. These deploy sensors that ensure that operations management and component monitoring at the substation are optimised and electricity security of supply is thus assured. Substations are important nodes in electrical power grids. The operating status of the primary components (transformer, transducer, isolator, power switches) is of enormous importance. A digital image of the substation (digital twin) is created from data captured by performing measurements on individual components. Our intention here is to gain information on resource utilisation, carry out early fault detection and be able to estimate remaining lives by continually monitoring the actual status. APG therefore aims to gather as much information on these components as possible and use it intelligently to ensure that they remain highly reliable. A high level of automation and stringent operational technology (OT) security requirements will help to further stabilise security of supply during the energy transition too.

All of APG's 65 substations in total are already highly digitalised. On the industry side, there are still few offerings for digital primary components. Leveraging the future potential of those digital components will require forward-looking planning. This includes a strategy as to how APG can use smart sensors to best monitor existing resources at the substation.

QR codes for electricity pylons

In 2021, APG won the TÜV science award in the Company category for its idea to fit out APG electricity pylons with QR codes. As any inventor knows, there is some convincing to be done



Digital substations are equipped with the latest technology.

24/8 Multi-million giant transformer at the Lienz substation is connected to the grid

26/8 APG: changeable July causes an increase in electricity consumption

2/9 Summer roundtable discussions

13/9 Multi-million transformer trio at APG's Zaya substation completed. Last giant transformer has arrived

27/9 Federal Ministry of the Interior and APG sign cooperation agreement to prevent blackouts

28/9 APG: good news: almost all electricity sourced from renewables over the summer

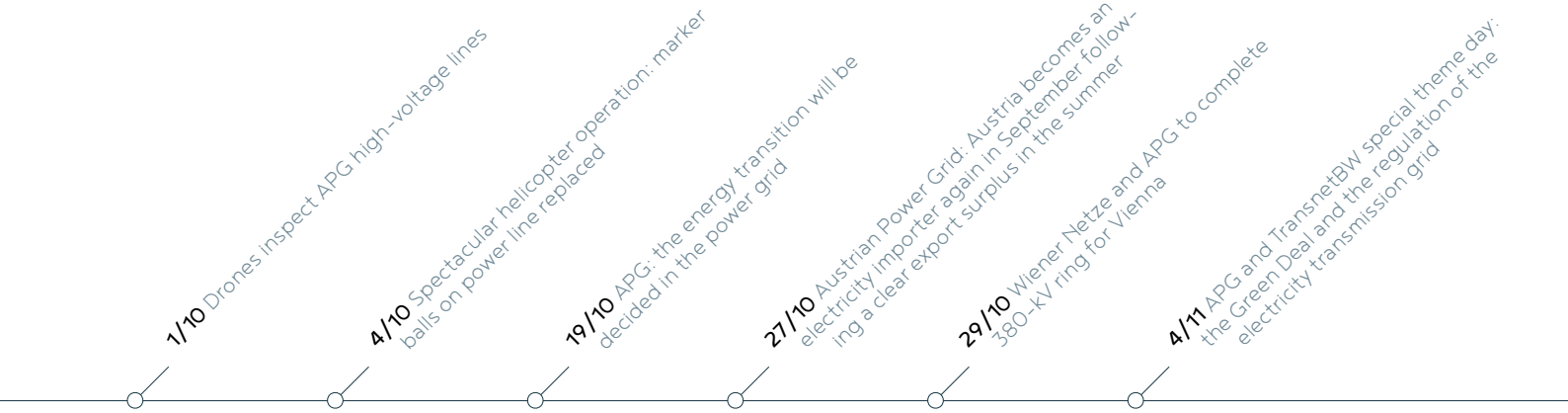
before an idea can be implemented. The greater the success if it works. Back in 2019, APG fitted out all 12,000 pylons in total with QR codes. This technology facilitates communication between citizens, the transmission system operator and first responders: if electricity pylons are damaged, by extreme weather events for example, it is important to act fast. If someone scans the QR code, a website opens where the person can report the emergency by clicking a button or retrieve information on existing lines. In the event of an emergency, a notification containing all the necessary information is sent to grid operator APG.

Drones patrol power lines

On 30 September 2021, Austrian Power Grid once again made aviation history together with SmartDigital by carrying out two further automated drone flights along 100 kilometres of a 380-kV high-voltage line, for the first time using a live view or live radar that can be followed from the operations centre. The second flight took place in the evening between 6:00 p.m. and 7:00 p.m. This marks the first time that a future night flight, an important use case, has been simulated in Europe. Why this is so important: about 70% of the faults on line 478, the line we flew over, happen at night. If a fault occurs, line employees have to be called out to check that everything is in order locally. Only then can the line be switched on again. This is not only very time-consuming, but also very expensive. In future, stationed drones could take over this job.

Vertical market integration brings flexibility to the power grid

A rooftop PV system, an electricity storage system in an electric vehicle and a heat pump that help to make a private home more sustainable – these are all examples that show why flexibility management is playing an ever more important role in the power grid. For as consumer-based devices spread, electricity demand is rising and peak electricity usage times are shifting. At the same time, Austria aims to generate all of its electricity from renewable energy sources by 2030 at the latest – with "prosumers" playing an ever greater role. Due not least of all to the many new players in the market and the high proportion of renewables, the energy system of the future will be volatile and subject to a high degree of fluctuation. Meeting these changes will require a high level of flexibility in the grid and the opportunity to leverage existing local flexibility resources such as storage systems, electric vehicles, battery storage systems or heat pumps with an eye towards security of supply. Through digital platform technology, APG wishes to engage the players in the energy system of the future in APG products and enable their flexibility to be utilised (e.g. balancing services, congestion management). One of the key ingredients here is intensive coordination between transmission and distribution system operators. A prototype is being implemented in the form of the already-established crowd balancing platform EQUIGY.



Power infrastructure projects for a successful energy transition

Construction work for new Villach substation completed and facility put into operation

Investment volume: around €80m
Time to completion: 2.5 years

The new Villach South substation belonging to Austrian Power Grid (APG) and KNG-Kärnten Netz GmbH (KNG) is now live. The new facility near Fürnitz is connected to both KNG's regional 110-kV grid and APG's pan-Austrian grid and was put into operation by the two partners at a ceremony on 16 June 2021. This project is essential to the economic area of Villach, Carinthia's security of supply and the success of the energy transition in Austria. Substations such as that in Villach are important components in a sustainable energy future. The two project partners together invested some €80m in expanding the power infrastructure in the Villach metropolitan area, of which €30m came from APG. Despite some delays in the interim as a result of the coronavirus pandemic, the construction project was completed to schedule in a record time of just 2.5 years: exemplary team work – thanks to KNG!

Salzburg line: Austria's central power infrastructure project is on track

Investment: approx. €890m
Total length: 128 km
New electricity pylons: 449
Completion: mid-2025

The construction of the Salzburg line – one of the most important energy infrastructure projects today – is central to ensuring that Salzburg and Austria continue to have a secure supply of electricity going forward. The Salzburg line is also crucial to achieving the Austrian climate and energy targets and to the availability of low-cost electricity. The work ran to schedule in 2021: in all six sections under construction, work on the energy transition and electrifying all sectors of the economy and areas of life moved full steam ahead over a total length of 128 km. Around half of the 449 pylons in total had been completed by the end of 2021; the Salzburg line is scheduled to be put into operation in 2025.

Watch the video on the construction of the Salzburg line.

12/11 Electricity security of supply and blackout: we answer frequently asked questions

17/11 Austrian Power Grid to invest €3.5bn over the next ten years to ensure the success of the energy transition

22/11 APG wins the TÜV science award in the Company category for its idea to fit out electricity pylons with QR codes

29/11 APG: Austria sees record imports in October

3/12 APG and project partners submit power infrastructure project for EIA

Weinviertel line: the power infrastructure of the energy transition

Investment: approx. €200m
Total length: 63 km
New electricity pylons: 202
Completion: summer 2022

The new Weinviertel line is Austria's "energy transition line" and one of APG's biggest projects. It is essential to electricity security of supply in the region and an important ingredient for the success of the energy transition and the electrification of business, industry and society. The commissioning of the Weinviertel line will be a milestone in the integration of renewables – especially wind power – in the east of the country. On this project, APG is investing around €200m in a secure and sustainable electricity future for Lower Austria and the whole of the country. This investment is not only creating necessary energy market capacity, but also bringing on stream a value chain worth €132m to Austria, of which Lower Austria will capture €31m. The project also safeguards 2,300 jobs, 600 of them in Lower Austria.

Scan here for a video on the construction of the Weinviertel line.

Central region of Upper Austria: power infrastructure for the electrification of industry

Project: construction of a 220-kV supply ring
Commissioning: phased from 2026 onwards

In the "Electricity security of supply Upper Austria central region" project, APG and its project partners Netz OÖ and LINZ NETZ are preparing the current electricity grid in their region for future challenges. For example, the project will guarantee electricity security of supply in the region over the long term and enable the energy transition and the electrification of society, business and industry. Electricity demand in Upper Austria's central region will increase sharply over the coming years due to the growth of the economic area and sustainable development region of Enns-Steyr, the ongoing electrification of industry and the resulting process changes (electric-based steel production) and the growing number of consumers. According to Upper Austria's 2019 population forecast, Linz, Wels and Steyr alone will grow by 11.5% to around 350,000 inhabitants by 2040. The project was submitted for environmental impact assessment (EIA) at the end of November 2021.

Scan here for further information on Upper Austria's central region.

6/12 €3.5bn for the energy transition and electrification of business, society and industry
13/12 Salzburg line project: key project for the energy transition in Austria
17/12 APG: run-of-river production below long-term average
21/12 Austrian Power Grid: five energy-related items for the Christmas wish list

Studies

Acceptance of power infrastructure, energy transition and reliable transformation

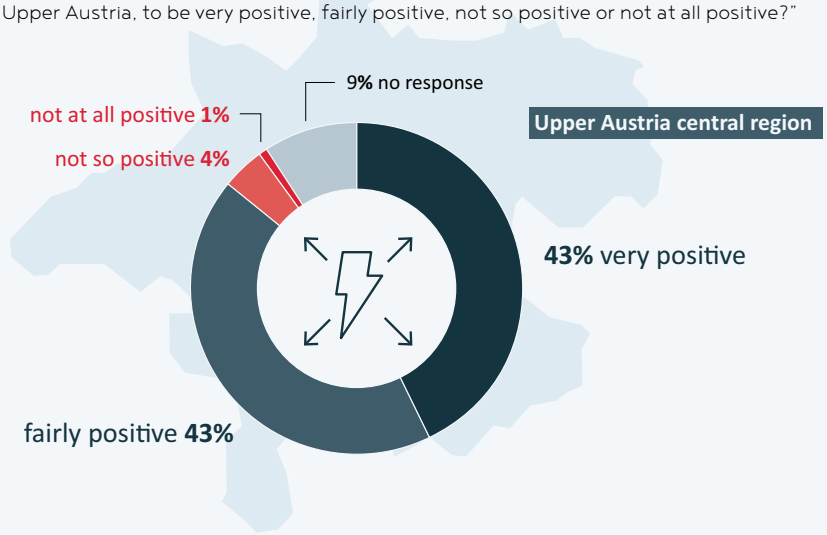
Target group-specific outreach is a key pillar of APG's overall communication strategy. Using 360-degree communication tools – from stakeholder newsletters through dedicated project websites to social media presence – we place the focus on absolute customer centricity in all communications and subject areas. In doing so, APG deals at length with the diverse expectations, opinions and needs of the stakeholders involved - true to the motto "the customer is always right". State-of-the-art qualitative and quantitative social research tools (see below) are also used in this context. Sentiments and opinions on the energy transition or electricity security of supply in the project region are thus evaluated and alliance partners and opinion leaders identified.
In 2021, direct dialogue – sometimes by video conference – with the stakeholders involved in the project regions (community representatives, landowners, opinion leaders, citizens' initiatives and other stakeholders) was once again central to creating acceptance and awareness of the need for the project in question. Through proactive, swift, target group-specific and transparent communication and respectful treatment of the myriad stakeholders locally, APG was able to create a constructive climate of cooperation.

Two regional studies: compass for the APG project team

For regional projects, knowledge of the region and its inhabitants is particularly

Upper Austria: hardly any opposition to modernisation of power infrastructure

Question: "Do you consider the modernisation of the electricity infrastructure, such as lines and substations in Upper Austria, to be very positive, fairly positive, not so positive or not at all positive?"



important. Society itself is changing and forms a critical public. At the time of the line replacement project in the Reitdorf-Weißenbach region and the line project in the central region of Upper Austria, regional public surveys were conducted with the SORA Institute for Social Research and Consulting.

The results in a nutshell:

- The environment/climate remains a topical and emotionally relevant issue

- Central region of Upper Austria:
  - 86% have a very/fairly positive view of power infrastructure modernisation
  - 74% believe that Upper Austria as an industrial location needs high-performance power grids
  - When it comes to grid expansion, 80% trust their own electricity provider the most

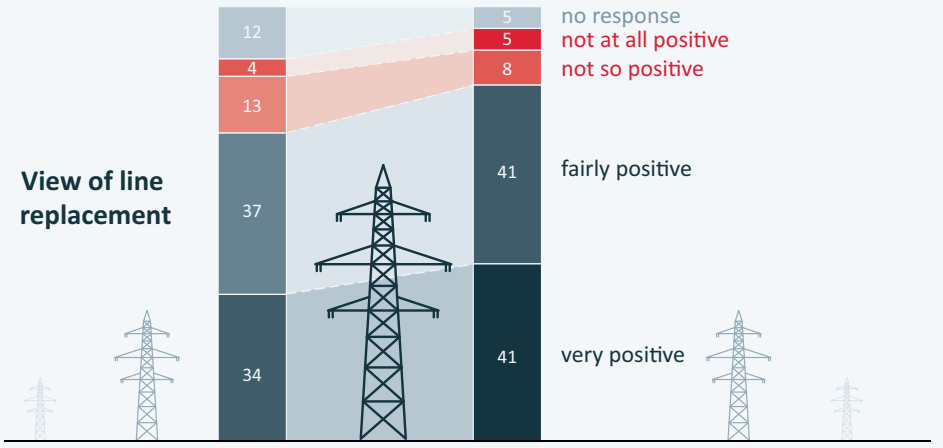
- Tauern-Weißenbach line replacement project
  - 82% of the population had a very/fairly positive view of the line replacement project
  - 43% believe that the energy transition will entail costs or constraints for them personally

For both project regions, a study was also conducted with FASresearch to identify the alliance partners in the region with whom it would be possible to drive awareness of the issues of infrastructure, electricity security of supply and the energy transition. Below, you will see the decision-makers and opinion leaders in the Reitdorf-Weißenbach project region and the alliance partners in the central region of Upper Austria.

Line replacement has increased trust

Wagrain-Weißenbach

Assessment of power infrastructure modernisation, figures in per cent



Media highlights

WIRTSCHAFT 15

Für den Umstieg auf CO_2-freie Stromerzeugung ist der Ausbau der Netze unabdingbar. BILD: SN/APG

Grüne Wende braucht Netze und viele Speicher

MONIKA GRAF

WIEN. Österreichs Übertragungs-netzbetreiber Austrian Power Grid … dazukommen. Geplantes Investitionsvolumen: 25 Mrd. Euro. Um den zusätzlichen Wind- und Sonnenstrom zu speichern oder …

Die letzten Arbeiten wurden abgeschlossen, der Riesentransformator ist am Netz KK/MARTIN LUGGER

LIENZ

Riesen-Transformator hängt nun am Netz

Der erste Teil der 30-Millionen-Euro-Sanierung des Umspannwerk Lienz ist damit abgeschlossen.

Nach rund einem Jahr Montage war es vergangene Woche soweit: Die Austrian Power Grid AG (APG) hat den neuen 380/220-kV-Transformator im Umspannwerk (UW) Lienz in Nußdorf-Debant in Betrieb genommen. Er erhöht die Ausfallsicherheit für ganz Österreich und erleichtert die bundesweite Nutzung klimafreundlicher Windenergie.

Mit 816 Tonnen Gewicht ist der hochmoderne Anlagenteil im UW Lienz einer der größten seiner Art. Eine Endspannung von 380.000 Volt wird … Millionen Euro sind nur ein Viertel des Investitionsprogramms, das APG derzeit am 60 Jahre alten Standort realisiert: Um 30 Millionen Euro verbessert der Netzbetreiber die Stromversorgung Osttirols. Der Abschluss des Gesamtprojekts ist für Ende 2022 geplant.

„Das Umspannwerk Lienz ist der einzige Strom-Anspeisepunkt für ganz Osttirol aus dem österreichweiten 380/220-kV-Hochspannungsnetz der APG und deshalb besonders wichtig für die Stromversorgung in der Region.“ sagt …

42 | STOLZ AUF ÖSTERREICH

Energiebranche setzt auf Wind, Sonne und Wasser

Frischer Wind Erneuerbare Energie wächst.

Strom-Ausbau: Verbund investiert 2,3 Milliarden Euro in Erzeugung und Netze, auch EVN baut Ökostrom aus

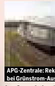
Österreich ist Wasser- und … branche auf erneuerbare …

Leitungsfirma Austrian Power Grid

Exportrekorde mit Strom aus Wind und Wasser

Der wachsende Grünstromanteil beschert Österreich ein Export-Plus.

Hoch. Österreich hat einen neuen Rekord beim Stromexport aufgestellt: … kraft und der Rest auf Photovoltaik u. a.



APG-Zentrale: Rekordstand bei Grünstrom-Ausfuhren.

Oft stoße das Übertragungsnetz bereits an seine Kapazitätsgrenzen, sagt die APG. So mussten bereits erneuerbare Produktionsanlagen wegen unzureichender Netzkapazitäten gedrosselt werden. „Die APG investiert alleine 2021 357 Millionen Euro in das Übertragungsnetz“, erklärt der kaufmännische Vorstand der APG, Thomas Karall. Bis 2030 will die APG insgesamt rund 3,1 Milliarden Euro in den Ausbau der Strominfrastruktur investieren.

Ein großflächiger Stromausfall ist zumindest nicht auszuschließen. Um das zu verhindern, müssen rasch die richtigen Leute das Richtige tun. Foto: APA / Roland Jäger

Vorbereiten für den Ernstfall

Innenministerium und Netzgesellschaft Austria Power Grid (APG) wollen enger zusammenarbeiten, um die Folgen eines möglichen Blackouts zu minimieren. Ein Tag Ausfall kostet mehr als eine Milliarde Euro.

Günther Strobl

Nicht auszudenken was passiert, wenn nichts mehr passiert, weil es zu einem totalen Stromausfall (Blackout) gekommen ist. Kein Strom heißt kein Benzin, weil die Pumpen dann auch nicht mehr funktionieren. Kein Strom heißt aber auch kein Licht, keine Ampeln, kein Geld aus Automaten, weder Handy noch Internet. Und es heißt vor allem auch: hohe Kosten.

Anhand der Cor… konnte man 2020 i… sehen, was es heißt, … schaft steht. Forsche… terreich Kosten von r… den Euro errechnet … Wirtschaft würde da… weise nicht nur ei… mehrere Tage stehen, … nen nicht gehen und … nicht zur Arbeit kön… Aufzüge und öffentl… mittel (U-Bahn) aus… Darauf haben am Mo… des Innenministeriu… Netzgesellschaft Au… Grid (APG) hingewie…

Es sei notwendig, alles zu tun, damit es zu dem Ernstfall gar nicht kommt. Da aber zumindest ein Restrisiko immer bestehe, wollen Innenministerium und APG präventiv tätig werden und alle möglichen Szenarien durchspielen, um im Anlassfall möglichst durchgehend handlungsfähig zu bleiben. Zu diesem Zweck haben Innenminister Karl Nehammer (ÖVP) und APG-Vor… niert, und auch um die Regelung des Verkehrs an neuralgischen Punkten, wenn Ampeln ausfallen sollten. Die „Chaosphase“, wie Generalmajor Peter Skorsch von der Projektgruppe „Blackout“ im Innenministerium sagte, müsse möglichst kurz gehalten werden.

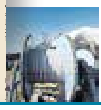
Knapp vorbei

Heuer ist Österreich zumindest … gab es im Juli im Südwesten Europas, von der Haushalte in Frankreich, Spanien und Portugal betroffen waren.

Weil der Ausbau des Stromnetzes mit dem Ausbau der erneuerbaren Energien aus unterschiedlichsten Gründen nicht Schritt gehalten hat, sei die Lage viel instabiler geworden als zu Beginn der Liberalisierung des Strommarktes 2001, sagte APG-Vor…

Ennstal und das Ausseerland — Kleine Zeitung, Samstag, 27. März 2021

…ter Sven … ist mit … Mannen …st) je… …etter im …z DB



Von den riesigen Rollen aus werden die Seile in schwindelnde Höhen gezogen APG/STEINER

Augenscheinlich nichts für schwache Nerven

Das Video vom Hochseilakt Kleine-Zeitung-App kleinezeitung.at

Helm ist Pflicht, egal ob am Boden oder auf den Masten. Sicherheit geht immer vor APG/HUBER(3)

Ein spannender Job in bis zu 50 Metern Höhe

AM SCHAUPLATZ. 140 Mann tauschen die Seile der 70 Jahre alten Hochspannungsleitung durchs Ennstal. In schwindelerregenden Höhen und bei so ziemlich jedem Wetter.

Von Dorit Burgsteiner

…seinschränkungen bei der …omübertragung verzeichnet. … eit eineinhalb Wochen sind … die Monteure mit diesen … Arbeiten beschäftigt – und …en dabei beileibe nicht im… …r so feine Wetterverhältnisse …gefunden wie gestern. In der …gangenen Woche etwa werk… sie bei widrigen Bedingun… – Kälte, Schnee und schnei… …em Wind – an ihrem bis zu 50 …ter hohen Arbeitsplatz. „Die …nner sind extrem wetterfest. …gibt eigentlich nur eine Si…tion, in der man nicht auf die …sten geht. Und das ist bei Ne… und minus einem Grad der …, denn dann bildet sich um … Eisenteile eine Eishülle“, …t Bauleiter Sven Aberle von der Austrian Power Grid (APG).

Zwischen Reitdorf im benachbarten Pongau und Weißenbach bei Liezen wird derzeit gearbeitet, und dabei an fünf Stellen gleichzeitig gezogen. Insgesamt sind 140 Mann mit dem Ziehen der neuen Seile beschäftigt, in Untergrimming gewährte man gestern einen Einblick in die Arbeit.

Und wie geht das Ganze vonstatten? „An den Masten werden die Klemmen, die das Seil halten, gegen Rollen getauscht. Das neue Seil kuppelt man an das alte, indem man einen sogenannten Ziehstrumpf drüberzieht. Und dann kann unter Zuhilfenahme von Winden gezogen werden“, sagt Bauleiter Aberle. Das Prinzip ist also einfach, die Arbeit aber „aufwendig und nicht ganz ungefährlich“.

Derzeit wird auf der linken Seite der Masten gearbeitet, während der Vorbereitungsarbeiten – etwa der Rollenmontage – fließt auf der rechten Seite der Strom. „Wenn die Seilzugarbeiten laufen, wird der Strom auch hier abgeschaltet, und zwar auf der ganzen Leitungslänge von Weißenbach bis Kaprun. Würde ein gezogenes Seil reißen und auf die Gegenseite schlagen, könnte das einen Kurzschluss verursachen und natürlich auch die Arbeiter gefährden“, erklärt Aberle.

Und die Sicherheit steht immerhin stets an erster Stelle. So natürlich auch dort, wo die Leitung über Straßen oder Bahnlinien führt. Wie berichtet, werden Gerüste aufgestellt, um zu verhindern, dass ein Seil im Ernstfall auf der Straße landet. Ebenso werden zur Sicherung des zu ziehenden Seils Rollenleinen verwendet. An einem „sehr starken Stahlseil sind im Abstand von fünf bis zehn Meter Rollen montiert, in denen das zu ziehende Seil läuft und in der Höhe gehalten wird“, erklärt Aberle.

Damit die Ennstaler zu Zeiten des Seilzuges nicht stromlos ihr Dasein fristen müssen, springen die Energienetze Steiermark ein, die im Ennstal ebenfalls Leitungen führen.

„Und sollte doch eine prekäre Stromsituation entstehen, bekommen wir eine Meldung, dass wir die Leitung betriebsbereit machen sollen. Nach dem Arbeitsstopp und der Sicherung der Seile kann das innerhalb einer Viertelstunde passieren“, so Aberle.

Österreichs Stromnetz wird um 3,5 Milliarden klimafit gemacht

In den nächsten zehn Jahren muss Austrian Power Grid (die Firma APG betreibt Übertragungsnetz, Umspannwerke & Co.) das Stromnetz massiv ausbauen. In …

Gerhard Christiner, Thomas Karall (v.l.)

Summe sollen laut den Vorständen Gerhard Christiner und Thomas Karall 3,5 Milliarden fließen. Das sichert 2.800 Jobs pro Jahr, heimische Unternehmen profitieren zudem davon mit einer Bruttowertschöpfung von 2,1 Milliarden.

Warum das nötig ist: Durch die Abkehr von fossilen Brennstoffen braucht's viel mehr Strom. Zudem mu… lage… Kur…

So knapp entgingen wir Blackout

Netzbetreiber stellt cooles Erklärvideo online

Blitzartig ist der Strom weg, das Handynetz fällt nach wenigen Stunden Notbetrieb aus. Diesem Fiasko ist Europa am 8. Jänner knapp entronnen. Was passierte, hat Netzbetreiber Austrian Power Grid nun in einem genialen Erklärvideo verständlich erläutert.

■ Grundzustand: Europas Stromnetze sind verbunden, werden mit 50 Hertz betrieben – eine Miniabweichung und der Blackout droht.

■ Um 14.04 Uhr reißt der Ausfall eines kroatischen Umspannwerks 14 Netze in Südosteuropa mit.

■ Europa zerfällt in zwei Teile: Dem Norden fehlt nun Strom (unter 50 Hertz), der Südosten hat viel zu viel (deutlich über 50 Hertz).

■ Auto-Notsysteme fahren im Norden Kraftwerke hoch, schalten im Süden welche aus. Zudem kauft der Norden Strom zu, nimmt Großverbraucher vom Netz.

■ Um 15.08 Uhr ist der Spuk vorbei. Zu sehen auf *heute.at*

APG-Experten erklären das Fast-Fiasko. Foto: YouTube/APG

Überzieher zahlen bis zu 14 % Zinsen

Laut Arbeiterkammer muss man als Normalnutzer (bis 280 Buchungen pro Jahr) im Schnitt 125 € jährlich fürs Girokonto einplanen. Die Habenzinsen bewegen sich zwischen nix und 0,125 % (*WSK Bank*) – während Überziehen ins Geld geht. Abhängig vom Institut werden laut AK 5,375 % (*Schelhammer & Schattera*) und 14 % (*Sparkasse Herzogenburg-Neulengbach*) fällig. Auch erhoben: die besten Angebote zum Nulltarif, zu haben bei *Dadat, Easybank, Hello bank!* – *www.bankenrechner.at*

W HEUTE

Wien heute (15:00) - Vorkehrungen für europaweiten …

Krankenhäuser AKH Wien / Energieversorg…

Sa./So., 10./11. Juli 2021 — WIRTSCHAFT — Wiener Zeitung 11

Mit dem Ausbau von erneuerbaren Energien alleine ist es nicht getan. Foto: getty images / Moment RF / Zhihao

Zu Lasten der Netze

Bis 2030 soll der gesamte heimische Strom grün sein. Ob bis dahin auch die Leitungen stark genug sind, ist jedoch unklar.

Von Bernd Vasari

Mehr als 280 Tage vergingen. Vom Gesetzesentwurf bis zum tatsächlichen Gesetz. Vergangenen Mittwoch war es dann soweit, das Erneuerbaren-Ausbau-Gesetz (EAG) wurde im Nationalrat beschlossen. Eine rekordverdächtig lange Zeit, die sich die Verantwortlichen bei der Umsetzung aber nicht mehr leisten können. Denn das Ziel, den heimischen Strom bis 2030 ausschließlich aus Sonne, Wind und Wasser zu erzeugen, ist ambitioniert.

Der Stromversorger Austrian Power Grid (APG) steuert und verantwortet das überregionale Stromtransportnetz. Das EAG sei nur der eine Teil, um die Stromversorgung umzustellen, sagt APG-Vorstand Gerhard Christiner. Um das Ziel zu erreichen, müssen gleichzeitig auch Netz- und Speicherkapazitäten erhöht werden. „Nur dann sehen wir die Sicherheit im Stromsystem im Sinne des Wirtschaftsstandorts Österreich nachhaltig gewährleistet“, sagt er. Christiner betont daher: „Der notwendige Umbau des Stromsystems ist eine Mammutaufgabe.“

Die Energie, die produziert wird, muss auch erfolgreich gemanagt werden. Dafür fehlt es jedoch in der Grundausstattung. Mehr Umspannwerke, stärke Stromnetze und das Vertrauen der Bevölkerung sind notwendig.

21 Jahre für den Bau der Salzburger Freileitung

Christiner verweist auf den Ausbau der Freileitung in Salzburg, wo Einsprüche der Anrainer den Bau verzögerten. Sie forderten unterirdische Verkabelungen, um das Landschaftsbild zu schützen. Die Planungen begannen 2005, 2026 werden sie in Betrieb gehen. 21 Jahre sind dann vergangen. „Das Entscheidende ist die Beschleunigung von Genehmigungs-…

… die Ziele bis 2030 erreicht werden.“ Doch das wird nicht einfach. Die Akzeptanz der Bevölkerung, wenn etwa ein Windrad gebaut wird, sei nicht mehr so hoch, wie noch vor ein paar Jahren. Auch die Ladesäulen für E-Autos werden deutlich steigen, um den Bedarf zu decken. Das werde nicht immer zur Freude der Anrainer sein. Zuständig ist dann nicht der Bund, sondern lokale Ebenen.

Nicht zu unterschätzen sind auch die Kosten der Stromwende. „Die aktuelle Netzinvestitionsplanung der APG in Höhe von 3,1 Milliarden Euro ist nicht die finale Antwort auf das EAG.“ Es werden ein paar dutzend …

In Österreich wird die Energiewende 50 bis 100 Milliarden Euro kosten.

Umstellung der mit Diesel betriebenen Nebenbahnen, Wärmedämmung in Gebäuden, Umstellung der Unternehmen von Öl und Gas auf erneuerbare Energien, um ein paar Beispiele zu nennen. Die gesamte Energiewende in Österreich werde 50 bis 100 Milliarden Euro kosten.

Und dann wäre da noch die Gefahr eines Blackouts, eines Stromausfalls. Dazu kam es beinahe im Jänner. Der kroatische Netzknoten fiel aus, das führte zu unterschiedlichen Frequenzen in Nord-, als in Südeuropa. Sie konnten im letzten Moment wieder angeglichen werden.

Mit erneuerbaren Energien steht …

Lienz: Umspannwerk und Leitungen werden saniert

In sechs Jahren investiert die Austrian Power Grid AG, Österreichs unabhängiger Stromnetzbetreiber, in Osttirol 30 Millionen Euro.

Nußdorf-Debant – Es ist inzwischen schon ein Jahr vergangen, seit im Umspannwerk in Nußdorf-Debant ein neuer 380/220-Kilovolt-Transformator in drei riesigen Blöcken angeliefert und aufgestellt worden ist. Erst vor wenigen Tagen ist dieser Spannungswandler, mit einem Gewicht von 816 Tonnen einer der größten seiner Art in Österreich, in Betrieb genommen worden. Der Transformator alleine kostete 7,5 Millionen Euro. Insgesamt investiert die Austrian Power Grid AG (APG), Österreichs unabhängiger Stromnetzbetreiber, der das überregiona… … Betriebsdauer waren Teile der Anlage sanierungsbedürftig. „Seit Herbst 2016 erneuern wir schrittweise die 220-Kilovolt-Schaltanlage, über welche die regionalen Leitungen der Tinetz-Tiroler Netze GmbH aus dem überregionalen APG-Netz versorgt werden – damit der Strom auch in den nächsten Jahr…

…nsgesamt investiert die Austrian Power Grid AG 30 Millionen Euro in die Strominfrastruktur Osttirols. Der neue …reiteilige 380/220-kV-Transformator (im Vordergrund) ist das Herzstück im Umspannwerk Lienz. Foto: APG/Josef Inhöger

…zehnten bei allen Haushalten …und Unternehmen aus der …Steckdose kommt.“

Die Inbetriebnahme eines …solchen Spannungswandlers …st kein einfaches Unterfan…gen: Innerhalb von zwei Ta…gen wurde der Trafo mithilfe …der Kraftwerksgruppe Mal…a (Kärnten) etappenweise hochgefahren, von zunächst sehr geringer Spannung bis hin zur Endspannung von 380.000 Volt. „Mit dem neuen Transformator erhöht APG die Ausfallsicherheit für ganz Österreich und erleichtert gleichzeitig die bundesweite Verteilung klimafreundlicher Windenergie: Der Trafo verstärkt nämlich die Verbindung zwischen den Speicherkraftwerken Malta und Reißeck (Kärnten) sowie Kaprun (Salzburg) im Westen des Landes mit den Windkraftanlagen im Osten.“ Überschüssiger Windstrom, der nicht vor Ort verbraucht wird, könne so über weite Strecken abtransportiert und gespeichert werden. Bei Bedarf kann der Strom dann wieder von den Speicherkraftwerken abgerufen und österreichweit genutzt werden. Auch für den internationalen Stromtransport ist der Standort in Osttirol von Bedeutung, fungiert er doch als 220-Kilovolt-Schnittstelle nach Soverzene in Italien.

APG-Unternehmenssprecher Christoph Schuh betont die Dringlichkeit von Investitionen: „Alle APG-Projekte in den Bereichen Netzausbau, Sanierung und Instandhaltung sind unverzichtbare Grundpfeiler für die sichere Stromversorgung der Republik. Sie sind Voraussetzung für die zunehmende Elektrifizierung von Gesellschaft, Wirtschaft und Industrie und damit wesentlicher Baustein für die Erreichung der österreichischen Klimaziele.“ Verzögerungen würden die Dekarbonisierung von Wirtschaft und Industrie sowie deren positive ökonomische Effekte gefährden. *(TT, bcp)*

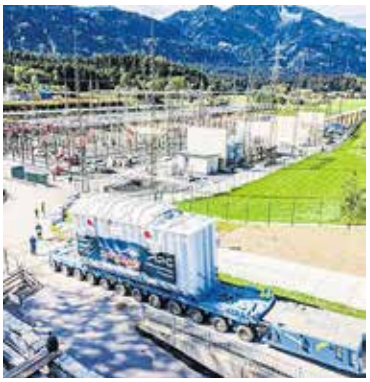
Netzbetreiber APG will 3,5 Mrd. Euro ins Stromnetz investieren

Der Stromnetzbetreiber Austrian Power Grid (APG) will in den kommenden elf Jahren, bis 2032, rund 3,5 Mrd. Euro in den Aus- und Umbau der Netzinfrastruktur investieren. Dies entspricht etwa 17 Prozent jener 18 Mrd. Euro, die die E-Wirtschaft binnen eines Jahrzehnts in die Netze stecken will. Den Netzentwicklungsplan 2021 der APG mit insgesamt 46 Projekten, davon 14 neuen, hat die Regulierungsbehörde E-Control genehmigt, so der Netzbetreiber am Montag.

noe ORF.at

WIRTSCHAFT

Drohnen kontrollieren Stromleitungen



2005 starteten die Planungen, erst 2018 konnte nach Bürgerprotesten mit dem Bau begonnen werden. Nun sind Arbeiten an Werk und Leitung finalisiert KNG (4)

Umspannwerk vollständig unter Strom

Arbeiten für umstrittenes UW Villach Süd abgeschlossen, Investition: 80 Millionen Euro.

Von Eva Maria Scharf

Das Projekt schreibt Geschichte und zählt zu den umstrittensten in der Region Villach. Seit gestern steht das neue Umspannwerk (UW) Villach Süd vollständig unter Spannung. Die Arbeiten wurden [illegible] Stromnetz [illegible] lach investiert [illegible] für ei[illegible] Stromve[illegible] aus Sich[illegible] verzicht[illegible] nem Un[illegible] sowie einer zwölf Kilometer langen Trasse von Landskron bis Fürnitz. Die Verlegung einer 110-kV-Leitung zog massive und jahrelange Bürgerproteste nach sich. 2005 starteten die Planungen, 2017 gab der VwGH grünes Licht. Ab 2018 wurde gebaut, im Großraum Villach und damit auch im gesamten Bundesland Kärnten", sagen die Projektleiter Gernot Kowatsch (Kärnten Netz GmbH KNG) und Wolfgang Ranninger (Austrian Power Grid APG). Die Bauzeit betrug ab Spatenstich im [illegible] spannungsstrom[illegible] den. Vom neue[illegible] führt eine neu[illegible] kV-Doppelleitu[illegible] zum Umspannw[illegible] Auch die best[illegible] Leitung von V[illegible] wurde i[illegible] erk eing[illegible] wurde[illegible] neratio[illegible] ftwerk[illegible] PG inv[illegible] die KNG [illegible] as Projekt gilt in Anbe[illegible] er Infineon-Expansion ral.

»Investitionen in die sichere Stromversorgung«
Thomas Karall, kaufmännischer Vorstand APG

Im Jahr 2021 wird das Thema Corona weiterhin Auswirkungen auf alle wirtschaftliche Branchen und Lebensbereiche haben. Für die Stromwirtschaft bedeutet dies, dass die sichere Stromversorgung als Basisinfrastruktur weiterhin eine ganz hohe Bedeutung für den Wirtschaftsstandort Österreichs haben wird. Dies wird auch dadurch verstärkt, dass die Investitionen in die Strominfrastruktur und somit auch in das Gelingen der Energiewende nachhaltig wirken. Die APG investiert alleine 2021 rund 357 Millionen Euro und in den kommenden zehn Jahren 3,1 Milliarden Euro in die sichere Stromversorgung Österreichs. Durch die anhaltende Notwendigkeit, dezentral zu arbeiten, werden digitale Technologien bzw. Plattformanwendungen einen weiteren Zuwachs bekommen. Diese Gesamtentwicklung wird das Leben und die Wirtschaft auch nachhaltig verändern. Es gilt mit

10 WIENER ZEITUNG WIRTSCHAFT

EU will mehr Transparenz im Börsenhandel

Börsen in der Europäischen Union (EU) sollen nach einem EU-Entwurf künftig Daten zu Handelstransaktionen für ein europaweites Vergleichsregister bereitstellen. Ein solches „Consolidated Tape" genanntes System soll unter anderem Investoren in die Lage versetzen, die für sie günstigsten Deals zu erkennen und zu mehr Transparenz im Börsenhandel führen, wie aus einem Entwurfspapier hervorgeht.

Auf diesem System sollen europaweit Handelsdaten erfasst werden. Der Vorschlag ist Teil einer kommende Woche erwarteten Reformpakets der EU-Kommission, mit dem die Kapitalmärkte in der EU nach dem Brexit gestärkt werden sollen.

Keine Vergleichsmöglichkeiten

Banken, Vermögensverwalter und andere Investoren haben bisher keine klaren Vergleichsmöglichkeiten, wenn ein und dasselbe Wertpapier auf den verschiedenen Handelsplätzen in der Länder gemeinschaft gehandelt wird.

Laut dem Dokument sollen Börsen dazu verpflichtet werden, zu einem EU-weiten Register für Aktien und Anleihen gegen eine angemessene Vergütung beizutragen. Alle Quellen von Marktdaten müssen standardisierte Kennzeichen für Sammelstellen verfügbar machen, hieß es in dem Doku

Geldstrom

Studie: 2,1 Milliarden Euro Bruttowertschöpfung in den nächsten zehn Jahren durch den APG-Ausbau des Stromnetzes.

In den kommenden zehn Jahren investiert der Stromnetzbetreiber Austrian Power Grid (APG) 3,5 Milliarden Euro in das Gelingen der Energiewende. Allein [illegible] und die Steiermark. Sowohl im Auftragswert als auch bei der Beschäftigungswirkung verteilen sich die Investitionen auf eine breite Branchenpalette. Vor allem [illegible] satz der kommenden Projekte entstehen in den nächsten zehn Jahren auch große fiskalische Effekte im knapp einer Milliarde Euro. Sie verteilen sich auf allen ge

Kurz

Einbruc[illegible] Pkw-Ne[illegible] bisher e[illegible] um 30,3 ten, wie hervorha[illegible] mitteilte Einbruc[illegible] das Min[illegible] lich übe[illegible] ist in Ka[illegible] engsten Chips k[illegible] terreich[illegible] schen A[illegible] über 80[illegible] als 900 l[illegible] quate b[illegible] der Aut[illegible] rie an d[illegible] terreich[illegible] gung lie[illegible]

Gurkerl[illegible] sche Ga[illegible] lik star[illegible] Sorten[illegible] Anbaure[illegible] kommen[illegible] Gruppe[illegible] - Inche[illegible] Deutsch[illegible] Ruminia[illegible] Liefert[illegible] im Dez[illegible] Supern[illegible] und Un[illegible] fert der[illegible] anderen[illegible] terwurfs[illegible] und Bad[illegible]

»Investitionen in die sichere Stromversorgung«
Thomas Karall, kaufmännischer Vorstand APG

Im Jahr 2021 wird das Thema Corona weiterhin Auswirkungen auf alle wirtschaftliche Branchen und Lebensbereiche haben. Für die Stromwirtschaft bedeutet dies, dass die sichere Stromversorgung als Basisinfrastruktur weiterhin eine ganz hohe Bedeutung für den Wirtschaftsstandort Österreichs haben wird. Dies wird auch dadurch verstärkt, dass die Investitionen in die Strominfrastruktur und somit auch in das Gelingen der Energiewende nachhaltig wirken. Die APG investiert alleine 2021 rund 357 Millionen Euro und in den kommenden zehn Jahren 3,1 Milliarden Euro in die sichere Stromversorgung Österreichs. Durch die anhaltende Notwendigkeit, dezentral zu arbeiten, werden digitale Technologien bzw. Plattformanwendungen einen weiteren Zuwachs bekommen. Diese Gesamtentwicklung wird das Leben und die Wirtschaft auch nachhaltig verändern. Es gilt mit

Eine Frage der Balance

Austausch alter Fliegerwarnkugeln auf einer Hochspannungsleitung der Austrian Power Grid. (foto_christian@mac.com)

war ein spektakulärer [illegible]ubschrauber-Einsatz, der [illegible]n Pilot, Bodenkoordina[illegible]ghelfer und Leitungsmon[illegible] des Helikopterunternehmens Heli Austria Anfang Oktober erledigt wurde. Der Auftrag: Austausch von in die Jahre gekommenen Fliegerwarnkugeln auf einer bis zu 60 Meter hoch liegenden Starkstromleitung der Austrian Power Grid (APG). Die knallorangen Kunststoffkugeln machen Leitungen sichtbar, die von Flugrouten von Helikoptern, Sportfliegern oder Paragleitern gekreuzt werden. „Alle 20 Jahre müssen die Warnballons ersetzt werden, weil ihre Signalfarbe verblasst", erklärt Philipp Bader die Notwendigkeit der Instandhaltungsmaßnahme. In seiner Funktion als Techniker am APG-Standort Ernsthofen hat Bader mit seinem Team die Arbeiten im Vorfeld vier Monate lang geplant und mit Partnern wie der Polizei, der Asfinag oder den ÖBB koordiniert.

Hoher Investitionsbedarf

Die präzise Planung war unter anderem deshalb notwendig, weil für den Kugeltausch eine wichtige Versorgungsleitung temporär abgeschaltet werden musste. Der Leitungsabschnitt zwischen den Umspannwerken in Dürnrohr und Kronstorf ist Teil einer bedeutsamen Ost-West-Verbindung im APG-Netz. Er dient dazu, Windenergie aus dem Weinviertel oder von der Pannonischen Platte im Burgenland bei Bedarf in ganz Österreich zu verteilen. Überschüssiger Windstrom kann über diese Leitung außerdem an den Speicherkraftwerken in den Alpen transportiert werden.

„APG investiert in den kommenden zehn Jahren rund 3,5 Milliarden Euro in die Netzinfrastruktur, um den Herausforderungen einer sicheren Stromversorgung und der Energiewende gerecht zu werden", sagt APG-Unternehmenssprecher Christoph Schu[illegible] eine gun[illegible] Dur[illegible] sum[illegible] Son[illegible] sch[illegible] Net[illegible] Her[illegible] Ene[illegible] sch[illegible] auf[illegible] kam[illegible] müs[illegible] glei[illegible] hab[illegible]

ständige Regelung der Frequenz zu sorgen. Gelingt das nicht, droht in Österreich das Licht auszugehen.

Blackout-Vorkehrungen

Die Gefahr eines flächendeckenden Strom-, Infrastruktur- und Versorgungsausfalls mit dramatischen Konsequenzen halten Sicherheitsexperten wie Generalmajor Johann Frank, Leiter des Instituts für Friedenssicherung und Konfliktmanagement an der Landesverteidigungsakademie in Wien, für durchaus realistisch. „Österreich ist bereits mehrfach, zuletzt am 9. Jänner 2021, an einem Blackout knapp vorbeigestrophensimulationen geübt", erzählt Johannes Zimmerberger, Geschäftsführer des Strom- und Gasnetzbetreibers Linz Netz. Um ein sich anbahnendes Blackout möglichst rasch zu erkennen, wurde zudem ein österreichweites Warnsystem installiert, das Austrian Awareness System (AAS), das die Netzbetreiber über den Netzzustand in den Nachbarregionen informiert.

Prämisse Netzausbau

„Bricht das Stromnetz trotz aller Vorkehrungen zusammen, muss versucht werden, es so schnell wie möglich wiederaufzubauen. Für einen sogenannten Schwarzstart ist ein leistungsfähiges Kraftwerk erforderlich, das ohne fremde Hilfe in Betrieb genommen werden kann", erläutert Zimmerberger. Ein Windpark eignet sich dafür nicht. Was es braucht, ist entweder ein Wasserkraftwerk oder eine Gasturbine. Bei Linz Netz kann das Fernheiz-Kraftwerk Linz Süd diese Rolle übernehmen. Auf den Schwarzstart würde im nächsten Schritt der Aufbau einer Netzinsel durch Weiterschalten der Spannung zu weiteren Umspannwerken erfolgen.

Einig sind sich die Fachleute, dass die Herausforderungen nur mit leistungsfähigen Übertragungs- und Verteilernetzen gemeistert werden können. „Der letzte Störfall hat gezeigt, dass die [illegible] schnell [illegible]ken, aber [illegible]ngssicher[illegible] gibt", sagt [illegible]ent der In[illegible]Oesterreichs [illegible]liche Inves[illegible]en und eu[illegible], in Spei[illegible]sche Kraft[illegible] zusätzliche [illegible]ir den Kri[illegible]unverzicht[illegible]

Ein APG-Transformator mit dem Namen „Carlo"

Neusiedl an der Zaya. Wer kann schon von sich behaupten, Namensgeber für einen 300 Tonnen schweren Transformator zu sein? Seit einigen Tagen Landtagspräsident Karl Wilfing (ÖVP). Nach ihm wurde der 380/110-kV-Trafo im Umspannwerk Neusiedl an der Zaya „Carlo" benannt.

Stefan Szyskowitz, Karl Wilfing, Thomas Karall und Franz Mittermayer

Der Trafo ist die direkte Verbindung zwischen dem regionalen Netz der EVN-Tochter Netz NÖ und dem überregionalen Netz der APG (Austrian Power Grid). Zur Taufe hatten die APG-Vorstände Gerhard Christiner und Thomas Karall gemeinsam mit den EVN-Vorständen Stefan Szyskowitz und Franz Mittermayer geladen. Das neue Umspannwerk soll dann im Sommer 2022 gemeinsam mit der neuen APG-Weinviertelleitung in Betrieb gehen.

300 Tonnen auf Reisen

Dreizehn Meter lang und zehn Meter hoch sowie jede Menge Metall im Inneren – ergibt knapp 300 Tonnen Gewicht: Der Transport eines Großtransformators vom Bahnhof Hohenau zum Umspannwerk in Neusiedl an der Zaya erregte viel Aufsehen. Die Überstellung des Stahl-Kolosses, für den „Austrian Power Grid" vier Millionen Euro ausgegeben hatte, brauchte dank penibler Vorplanung „nur" einen halben Tag. Bis zur Inbetriebnahme wird es allerdings noch mehrere Monate dauern.

APG-Projekt biegt auf die Zielgerade

Weinviertelleitung sorgt ab 2022 für mehr ›Power‹

Das Mega-Bauprojekt im Weinviertel kostete rund 200 Millionen Euro.

NÖ. Vor rund zwei Jahren fand der Spatenstich für das Projekt „Weinviertelleitung" statt. In die etwa 380-Kilovolt-Leitung durch das Weinviertel investierte die Austrian Power Grid (APG) 200 Millionen Euro. Nun wurde bekannt gegeben, dass sich das Mega-Projekt auf der Zielgeraden befindet, denn bereits Mitte 2022 soll die neue Leitung in Betrieb genommen werden.

Sicherheit. Christoph Schuh, Unternehmenssprecher der APG, erklärt: „Mit der Modernisierung der Leitung sorgt APG für die sichere Stromversorgung in NÖ für die nächsten Jahrzehnte."

APG/Rajbu Dujmic

Die Arbeiten an der neuen Leitung schreiten gut voran.

Stromnetze noch nicht bereit für Energiewende

Netzbetreiber APG investiert 3,5 Milliarden Euro.

Wien. 2030 soll in Österreich nur noch grüner Strom produziert werden. Es genügt aber nicht, lediglich neue Windräder aufzustellen und Solarmodule zu installieren. Der Strom muss auch zu den Verbrauchern transportiert werden. Und hier hakt es. Derzeit sind die Stromnetze für die Energiewende noch nicht bereit. „Würden wir das Netz nicht weiter ausbauen, hätten wir signifikante Überlastungen", sagt Gerhard Christiner, technischer Vorstand des Stromnetzbetreiber Austrian Power Grid (APG).

Für die 2030er-Ziele muss die gesamte Stromindustrie ausgebaut werden. 46 Projekte sollen in den kommenden zehn Jahren fertiggestellt werden. Die APG investiert 3,5 Milliarden Euro – um 400 Millionen Euro mehr als im Vorjahr geplant. Primär sollen Umspannwerke gebaut werden, um die erneuerbare Energie ins Stromnetz einzuspeisen. Sie muss aber auch transportiert werden. Stärkere Leitungen brauchen etwa auch die beiden Voestalpine-Standorte in Linz und Donawitz. Denn der Stahlkonzern benötigt für die klimaneutrale Produktion große Mengen an Strom.

Strombedarf wird steigen

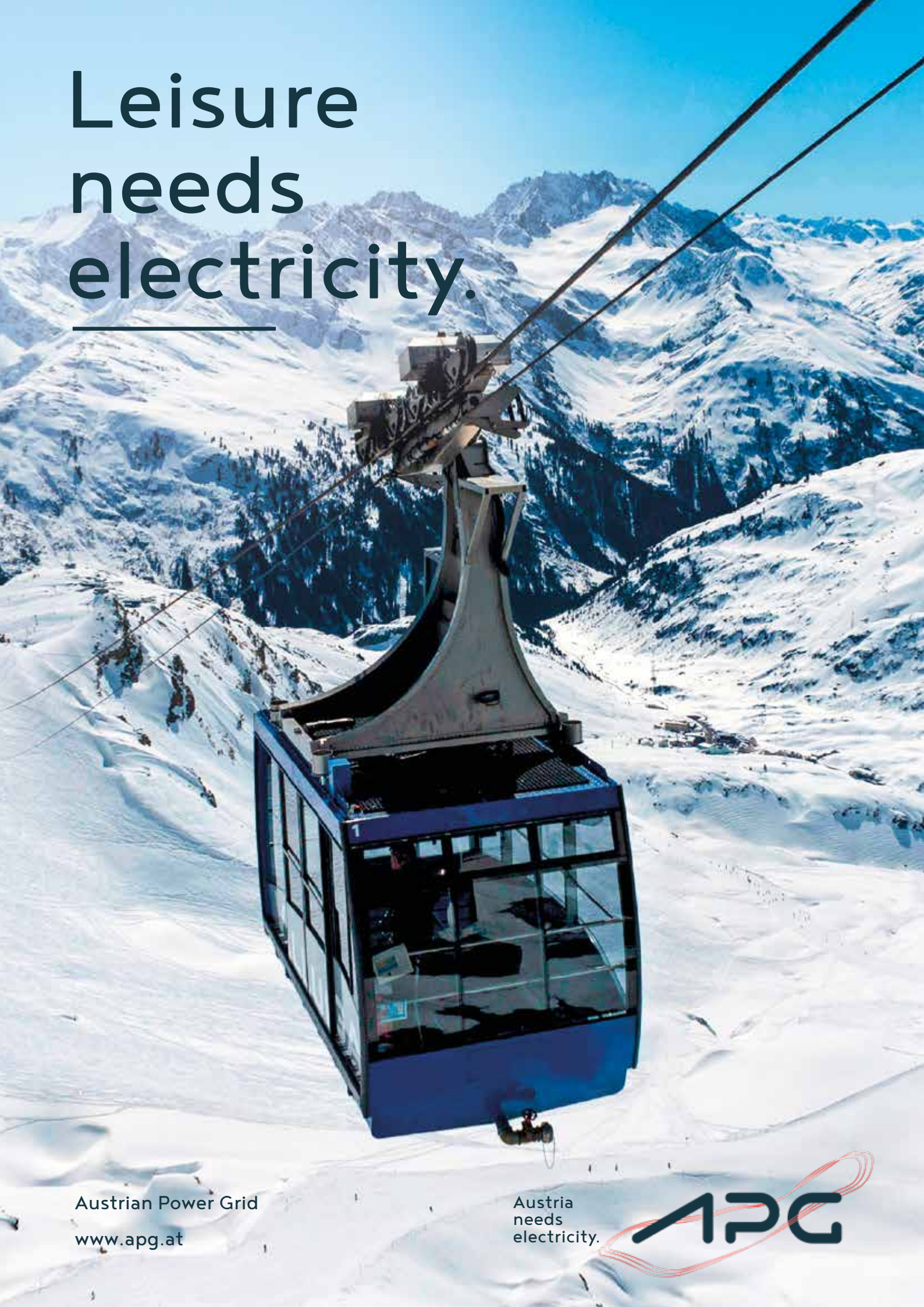
Generell wird der Strombedarf steigen, wenn Wärme-, Mobilitäts- und Industriesektor auf elektrische Energie umgestellt werden. Die APG hat deshalb schon das Jahr 2040 im Blick. Dann soll Österreich bekanntlich klimaneutral sein, mit Strom als Hauptenergieträger. „Bis 2040 müssen wir 200 Terawattstunden dekarbonisieren und mit Energie wesentlich effizienter umgehen", sagt Christiner. Doch der Ausbau geht zu langsam, Genehmigungsverfahren werden zum Hemmschuh.

Seite 9

ZAHL DES TAGES

3,5

Milliarden Euro will der Netzbetreiber Austrian Power Grid bis 2032 in den Ausbau des Hochspannungsnetzes in Österreich investieren.


Leisure
needs
electricity.
Austrian Power Grid
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APG

Financial report

Three-year comparison

€m	2019	2020	2021
Revenue	729.9	695.8	1,082.3
Earnings before interest and taxes (EBIT)	48.8	71.8	124.2
Result from ordinary activities	24.1	47.0	98.0
Net income/loss for the financial year	18.8	35.5	73.9
Net retained profits	9.7	18.2	37.3
Average capital employed	841,404.2	799,584.0	796,051.9
Total assets	1,855.0	2,130.1	2,552.9
Fixed assets	1,628.0	1,913.8	2,186.9
Capital expenditure on tangible fixed assets	244.5	372.9	367.7
Depreciation of fixed assets	86.3	87.8	93.9
Equity	459.3	485.1	540.8
Return on sales (ROS)	6.7%	10.3%	11.5%
Return on equity (ROE)	5.5%	10.7%	20.6%
Return on investment (ROI)	2.8%	3.9%	5.8%
Equity as percentage of assets	24.8%	22.8%	21.2%
Notional debt repayment period	11.9	11.5	11.1
Net cash flow from operating activities	195.2	191.0	254.0
Net gearing	157.7%	185.5%	185.5%
Number of employees	520	557	611
(of which apprentices)	23	23	22
Transport volume (GWh)	**46,731**	**44,863**	**45,349**

Governing bodies of the company

Supervisory Board

Dr. Peter F. Kollmann
Chairman

Ing. Mag. Peter Koren
1st Vice Chairman

Mag. Dr. Michael Strugl, MBA

Mag. Dr. Erich Entstrasser

Dr. Christof Germann

Mag. Leopold Rohrer

Mag. Dr. Georg W. Westphal

Mag. Andreas Wollein

Employee Representatives

Ing. Wolfgang Liebscher
Chairman of the Central Works Council, 2nd Vice Chairman

Andreas Gross
Central Works Council

Johannes Naber
Central Works Council

Rüdiger Schimek
Central Works Council

Working and Audit Committee

Dr Peter F. Kollmann
Chairman

Ing. Mag. Peter Koren
1st Vice Chairman

Ing. Wolfgang Liebscher
2nd Vice Chairman

Executive Board

DI Mag. (FH) Gerhard Christiner

Mag. Thomas Karall

Management Report

About us

Austrian Power Grid (APG) is responsible for safeguarding the supply of electricity so that everyone has power when they need it. As control area manager, APG operates the Austrian transmission grid, which is part of the trans-European transmission grid operated by the ENTSO-E (European Network of Transmission System Operators for Electricity) Regional Group Continental Europe.

In the course of transposing the requirements of the European Union's Third Energy Package into Austrian law through the 2010 Electricity Industry and Organisation Act (Elektrizitätswirtschafts- und -organisationsgesetz 2010, ElWOG), VERBUND chose the Independent Transmission Operator (ITO) format to be the model for APG. APG received ITO certification in a notice issued by E-Control Austria (ECA) dated 12 March 2012.

With a route length of 3,428 km, 6,966 km of connected lines and 65 substations and switching stations, APG's grid is the backbone of Austria's power supply. APG's power grid ensures the trans-regional exchange of electricity between energy providers and consumers both within Austria and internationally, thereby guaranteeing a stable supply to distribution grids.

APG's infrastructure ensures Austria's supply of electricity. It is essential to the integration of renewables and also functions as a market platform. APG's power grid is the lifeblood of Austria's economy and society.

Highlights of 2021

2021 was a financial year marked by numerous challenges and the successful accomplishment of key milestones:

- **Massive capital expenditure** as a key booster in meeting the ambitious targets for the energy transition and climate protection
- **Securing sufficient redispatch capacity for congestion prevention** (grid reserve as a market-based system) to ensure security of supply
- **Successful organisational and communication adjustments** in response to the ever-changing circumstances around COVID-19
- Innovative measures to ensure that customers remain the focal point of developments **(vertical market integration)**
- Preparations to implement the **Clean Energy Package for all Europeans (CEP)**, which requires 70% of transmission capacity to be made available for cross-border trade
- Measures to address **APG's future business focus and management** in connection with SAP S/4HANA technology
- Project to **adapt the existing regulatory regime** to the changes in APG's business model

All measures are taken with an eye towards efficiency and ensuring adequate profitability.

An integrated annual report was prepared for financial year 2021 that encompasses the subject of sustainability. The topic's inclusion in the integrated report enables it to reach a wider audience and underscores its importance for APG. The annual report also provides several examples illustrating APG's rigorous work on research and innovation.

Finally, the financial performance indicators and risk and opportunity management are presented and an outlook for 2022 is provided. For further details, please refer to the notes to the financial statements.

The electronic version of the Annual Report 2021 can be downloaded at http://www.apg.at/en/about-us.

Management Report

Developments in grid operation

Congestion management in 2021

APG is Austria's independent power grid operator, controlling and taking responsibility for the trans-regional electricity transmission network. The dynamic pace of change in Europe's energy market and the policy goal of achieving decarbonisation – especially in connection with expanding generation capacity from wind and photovoltaic sources – are giving rise to volatile and in some cases higher load flows. Since the necessary expansion of the grid infrastructure often cannot keep pace with these developments due to long administrative processes, congestion is commonplace both within Austria and across the European power grid.

In 2021, APG transmitted 45,349 GWh via the 220/380-kV grid. A multitude of measures had to be taken in order to manage congestion in coordinated grid operations, including extensive congestion management measures at power plants (redispatch). The volume of energy drawn from power plants in the APG control area in 2021 as part of this management activity totalled 1,800 GWh and was predominantly sourced from gas power plants in the eastern regions.

The congestion in the APG grid was caused by strong, largely wide-ranging north-south and west-east flows of electricity. These occasionally stemmed from the need to shut down lines for maintenance or grid expansion work. Fewer wide-ranging transmissions and a very good water supply during the grid-critical months significantly reduced redispatch interventions at this time compared with previous years. Large-scale requests from neighbouring transmission system operators to Austrian power plants also benefited the situation in the grid. These requests accounted for most of the energy drawn, and accordingly, foreign grid operators also bore the costs.

The total expense for the congestion management measures implemented by APG in the APG control area in 2021, including costs to secure redispatch capacity, amounted to around €441.1m, approximately €98.8m of which had to be borne by APG. The remainder was passed on to other grid operators.

Securing sufficient redispatch capacity through congestion prevention

Under Section 23(2)(5) of EIWOG 2010, APG is required to identify any congestion in the transmission grid and take appropriate measures to prevent, eliminate and overcome it. This requires sufficient redispatch capacity, which can be drawn upon where necessary as a congestion management measure at power plants.

In the past year, some of this capacity was again secured through the congestion prevention agreements entered into in 2018. These contracts expired on 30 September 2021 and resumed as of 1 October 2021 in the new grid reserve regime under Section 23a ff. of EIWOG 2010. Based on the steps provided for by law,

- system analysis to determine the grid reserve requirements,
- mandatory decommissioning notifications for generation plants with a capacity of more than 20 MW,
- a call for expression of interest phase to assess technical suitability, and
- the tendering phase,

in summer 2021 a grid reserve of up to 3,235 MW was contracted for the period from the fourth quarter of 2021 up to and including the third quarter of 2022. In 2021, this contracted reserve capacity or grid reserve capacity was used on a regular basis to prevent congestion. It was primarily this proactive approach to securing capacity from flexible power plants that enabled APG to ensure grid security and thus security of supply.

Management Report

Impact of COVID-19 on APG

APG's crisis management

The completion of the Company's vaccination programme on 8 July 2021 heralded a new phase in managing the challenges posed by COVID-19. The guideline on APG precautions as an integral part of a new labour-management agreement was updated to reflect the current environment, with applicable measures still geared towards the federal government's traffic light system for Austrian states. APG's crisis management therefore came to an end on 9 July 2021. A COVID-19 task force is now responsible for following up the suitability of internal precautions.

The established contact tracing structure remains in place to monitor positive, potential and suspected cases. All chains of contact to people who test positive or those at risk are traced as far as possible. Where there is any doubt, employees are informed immediately and work exclusively from home.

APG employees mostly working from home or under special precautionary protocols

As soon as the first lockdown began in 2020, APG enabled its employees to work from home and also provided the necessary resources and delivered them to doorsteps. For roles where home working was impracticable, we applied as many safety regulations as possible, including the necessary supplies (masks, sanitisation and Plexiglas partitions).

Health management and employee safety

By way of a guideline, a labour-management agreement on employee safety and accompanying organisational measures around COVID-19 provides clarity and legal certainty over all the relevant measures. In addition, regular virtual presentations on handling the current situation are initiated by the health management team.

No short-time working

As APG was working at full capacity, there was no need for short-time working. However, annual leave was greatly reduced with a view to making a contribution to society as a whole.

Organisational and communication adjustments

The cross-functional COVID-19 task force meets regularly and ensures that the prevention plan for pandemic-related conditions and the responsibilities incumbent on APG as a critical infrastructure operator are adapted accordingly and employees are kept informed.

We have maintained employee development by switching to online training formats.

New labour-management agreement on working from home

Based on the "COVID-19 lessons learned" produced by a working group in 2020, we signed a new labour-management agreement on working from home. The new agreement is designed to guarantee greater flexibility in the way it is applied and to integrate home working as a permanent option at APG, including post-COVID-19 to a large extent.

In parallel with all these measures, we are running a project on physical layouts, tools and culture.

Impact of COVID-19 on APG's construction activities

As many of APG's construction projects are mainly on open-air building sites, it was possible to effectively manage the impact of COVID-19 following an initial temporary suspension of construction work during the first wave of the pandemic. The likely impact on investment costs is minimal. The practical guidelines specified by the employer and employee representatives served as an important source of guidance on the building sites. In addition, APG's occupational health and safety plans were amended in line with the new situation. Contractors drew up appropriate action and hygiene plans in consultation with the occupational physicians responsible. These measures helped us keep construction site operations more or less on schedule and running appropriately despite COVID-19. This was especially important in progressing and forging ahead with the necessary APG transmission grid expansion along with its associated expansion and operating investments (see NDP 2021).

However, the impact of COVID-19 was wide-ranging, above all in terms of disruption to supply

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chains, tendering and market conditions, raw materials, and so on. Material procurement and third-party services were not unduly affected, but the fluctuations caused by the pandemic led to a massive increase in indices and price escalations (e.g. for raw materials, various construction market indices, etc.). This development affects services, project costs and other APG projects already assigned. APG analysts are monitoring the situation ongoing, and we will pay close attention to the issue when updating the medium-term plan in 2022. We definitely expect investment costs to rise. There were no delivery bottlenecks in 2021, but given the existing strain on some supply chains, we cannot exclude the possibility going forward.

Impact of COVID-19 on the situation in the APG grid

In 2021, COVID-19 had no material impact on the situation in the APG grid.

Economic impact of COVID-19 on APG

COVID-19's minimal negative impact on APG's finances can be summarised as follows:

- Capital expenditure fully utilised again
- Minor impact on personnel expenses (e.g. delays in recruitment processes) and other operating expenses
- Operational activities unchanged

Market trends

Energy market developments characterised by soaring prices

2021 was marked by exceptionally high prices. In the electricity futures market, front-year contracts for Cal-22 baseload power in the Austrian market area saw a sharp rise from €53.22/MWh at the beginning of the year to €276.99/MWh as at 23 December 2021. The spot market trend has been similar. The average spot price in Austria was €100.02/MWh in the third quarter and even reached €208.70/MWh in the fourth. A year-on-year comparison underlines the enormity of the increase: 2020 spot prices for the third and fourth quarters were €37.85/MWh and €42.29/MWh, respectively. Taking the annual average for the last two years (2020: €33.14/MWh, 2021: €106.85/MWh), the relative price rise was 222%.

This trend was fuelled by increased demand but primarily by trends in raw materials markets. The moderate price rises of the first quarter accelerated sharply across the board as the year progressed. After a brief respite during a few stable weeks in autumn, prices continued to rise steeply until the end of the year. The spot price for gas for the Central European Gas Hub (CEGH) leapt from €17.04/MWh at the start of the year to a peak of €177.40/MWh. Likewise, the price for coal started out at $69.60/t and peaked at $260/t in the third quarter. Yet another contributing factor was a higher carbon price of €88.88/t.

APG's market activities

Optimising the procurement of balancing reserves

The balancing services market also felt the impact of high electricity prices in 2021. After the steady levels of the last few years, balancing services costs stood at €117.4m (2020: €43.2m). APG's efforts to increase liquidity in the balancing services market and stabilise costs remain focused on international cooperation with other TSOs and optimisation of its market design. APG is therefore a member and/or founder of several balancing services projects, such as the International Grid Control Cooperation (IGCC), designed for grid operators to help each other net their positive and

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negative requirements for automatic Frequency Restoration Reserves (aFRR). APG also works in cooperation with German transmission system operators to optimise the cost of activating automatic and manual Frequency Restoration Reserves (aFRR and mFRR). This helps improve liquidity in the balancing services market by promoting best-value in cross-border contract awards as well. In addition, APG is helping small-scale plants gain easier access to control-power calls for tenders (see Vertical market integration).

Auctioning of cross-border capacity

As market participants usually demand border transmission capacity over and above what is available, APG auctions off cross-border capacity in the form of annual and monthly products for both the day-ahead and the intraday market under transparent, non-discriminatory European processes. High electricity prices have also had an impact on APG's allocation revenue, which was approximately €143.5m in 2021 - a year-on year increase of around €43.3m. Soaring prices generated allocation revenue of €75.0m in the fourth quarter alone.

Central responsibility for grid loss procurement

As the central purchaser, APG procures around 97% of the energy needed to cover system losses of €177.7m (2020: €159.2m) for the majority of Austrian grid operators; this equates to approximately 3 TWh per year. In doing so, APG ensures the market-based procurement activities necessary to cover system losses. Equally, the higher prices of the past few months have significantly increased the cost of grid loss procurement on the futures market. Despite this, we were able to procure enough of the required volumes on the futures market. However, APG is currently evaluating alternative long-term strategies with a view to further optimisation of grid loss energy purchases. APG already uses spot market transactions to cover temporary shortfalls. The participating grid operators are supplied daily with the necessary energy volumes to cover their system losses.

Inter TSO compensation (ITC)

ITC is a multilateral, contractually governed compensation mechanism for the grid usage costs associated with the cross-border supply of electrical energy. All TSOs are required to bear the compensation payments according to the costs-by-cause principle. Austria continues to be a transit country due to its location in Central Europe. Accordingly, the forecast for 2021 ITC revenue is around €7.1m (2020: €12.7m).

Wind marketing

On behalf of Abwicklungsstelle für Ökostrom AG (Green Electricity Settlement Austria, OeMAG), APG markets volumes arising from deviations in forecasts for green energy on the European intraday market. This reduces balancing errors for the eco-balancing group as well as for the entire control area. Due to the generally better prices on the exchange and because balancing energy is avoided, this reduces costs for the OeMAG balancing group and improves control quality for APG. The cost savings amounted to approximately €18.2m by November 2021, testifying to the added value of efficient, market-based solutions.

Impact of these market activities in a highly volatile environment

Earnings volatility under the Austrian Commercial Code (Unternehmensgesetzbuch, UGB) is smoothed by recognising regulatory accounts. Nevertheless, the prevailing volatility on the electricity market has a major impact on system costs and therefore on the future tariff landscape as well as on VERBUND's Group result under IFRS.

New model for balancing energy management

The new pricing model for balancing energy was successfully launched on 1 July 2021. Along with a requirement to meet the necessary European legal provisions on cost allocation, it provides a stronger incentive for market participants to support the system. The new model was designed with the help of an external expert in consultation with the market, and approved accordingly by the ECA.

Vertical market integration

The integration of small-scale producers and consumers such as industry, commerce, households and small producers in the electricity system is one of the key success factors for the energy transition. Consequently, APG is taking innovative steps to integrate small-scale,

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decentralised power producers and consumers in APG products (balancing services, congestion management and grid reserve) in an easy, transparent and non-discriminatory way. In 2021, in close coordination with distribution system operators, market participants and selected industry partners, we developed a prototype for participating in the balancing services market. The prototype will be implemented using the EQUIGY crowd balancing platform, already proven in similar projects by other TSOs (TenneT NL/DE, Terna, Swissgrid). APG also became an EQUIGY partner under corporate law in early 2021.

European market integration forges ahead

The integration of the European electricity market made further strides in 2021. The objective is to create a cross-border, pan-European electricity trading marketplace based on harmonised regulations and processes. On the wholesale market, 2021 saw the implementation of day-ahead market coupling at the borders with Hungary and the Czech Republic. In addition, continuous intraday trade at the border with Italy was expanded. Figures show a considerable increase in trading activities since the transition. This means that as of 2021, on both the day-ahead and intraday market, efficient implicit allocation of cross-border capacity via the electricity exchanges is now in place at all APG's borders with the exception of Switzerland. This coupling in the electricity markets is helping to optimise trading opportunities for Austrian market participants and ensure the best possible liquidity for the Austrian market.

Increase and improvement in transparency

APG is fully compliant with transparency requirements and ensures it meets all its publication and reporting obligations.

In addition to the prohibition of insider trading and market manipulation, Regulation (EU) 1227/2011 requires all market participants to publish inside information. The Regulation on Wholesale Energy Market Integrity and Transparency (REMIT) also requires Persons Professionally Arranging Transactions (PPATs) to monitor the market in light of the prohibition on insider trading and market manipulation and to notify the regulator if there are grounds to suspect a breach. In its role as a PPAT with regard to the organisation of the balancing energy market in Austria, APG once again fulfilled its monitoring and reporting obligations in 2021.

Economic trends

Earnings performance in 2021

Operating profit - APG's most important earnings ratio - rose significantly on the prior-year level of €70.2m to €121.8m.

This result was positively impacted above all by the high level of investing activities and a resulting increase in the regulatory asset base (RAB). 2021 was also marked by positive non-recurring effects attributable to social capital and interest rate adjustments. In addition, the high investment volume resulted in an increase in headcount and cost-reimbursement projects combined with a rise in operating costs, although these were strictly managed.

Investing activities/RAB

An adequate regulatory capital return was posted as a result of capital expenditure (net investment) of €338.6m, which represents the basis for the standard capital cost reimbursements. Massive annual investment led to an increase in the RAB from €1,691.5m to €1,920.2m, full utilisation of capacity across the Company and an increase in own work capitalised.

Social capital

The line items "Expenses for termination benefits" and "Cost of old age pensions" in the income statement show income of €8.0m. This figure is primarily attributable to actuarial gains of €10.9m. These gains can be explained by the adjustment in the interest rates for termination benefits from 0.50% to 0.75%, pensions, burial benefits and anniversary bonuses from 0.75% to 1.00% and for supplementary health insurance from 0.75% to 1.25%, plus the positive trend in the performance (10.80%) of pension plan assets (up €2.6m).

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Liability for investment reserves (presented under the balance sheet item "Other liabilities")

The investment reserves represent regulatory liabilities from the past. These are reserves for past auction proceeds and were recognised once only in this form in order to bolster equity. The regulator recoups a tranche of this earmarked reserve each year. The provision recognised (including the interest component) serves to compensate the annual repayment obligation. As the interest rate for long-term obligations of 0.5% in 2020 increased to 1.00% in 2021, the remeasurement of the liability for investment reserves resulted in a positive effect of €3.7m on net income.

EPEX investment income

Since 2015, APG has been a shareholder in the holding company for Gestionnaires de Réseau de Transport d'Électricité (HGRT), which consolidates all of the shares (49%) held by the TSOs (Elia, RTE, Swissgrid, Amprion, TenneT, APG) in the EPEX SPOT exchange. APG's equity investment was an important milestone in Austria's further integration into the Central and Western Europe electricity trading area. In 2021, it also generated investment income of €550.0k.

"Systems, Processes, Integrated and Digitalised" (SPIDi) project

In 2021, APG devoted considerable time and attention to activities around SAP S/4HANA and digitalisation. To ensure that this project is implemented efficiently and effectively, it is following the SAP Activate four-phase approach. The SAP Explore phase is now complete and the outcomes are as follows:

- SAP-planned implementation of conceptual business model (APG's future business focus and management) based on the existing value-driver structure and additional SAP accounting assignment objects such as profit centre hierarchy and functional areas.
- Decision criteria and recommended actions developed for the future migration scenario (brownfield versus greenfield). In the course of the project, APG opted for a greenfield approach.
- All relevant information (scope of performance, costs, etc.) compiled and recommended actions stated (Private Cloud - SAP On-Premise). In the course of the project, APG opted for an on-premise approach.
- Solution scenarios developed to address pains and potential based on the S/4HANA release and illustrated in the solutions portfolio (as quick wins, among other things).
- New SAP products evaluated and integrated into the target system architecture.
- Roadmap (time schedule) and costing created for the S/4HANA transition.
- Initiation of call for tenders for electronic invoice processing (software and services), and consulting services for the S/4HANA implementation phase.

Because the scope of the project embraces all major business processes, close consultation is required with the VERBUND Group to ensure that, first and foremost, the processes for producing financial statements as well as consolidation and planning procedures are uniform and compliant with the ITO. The project will continue to support the business side as well as APG as a whole in 2022 and the years ahead.

"Energy Trading and Risk Management" (ETRM) project

In line with APG's trading company approach, ETRM will be the central trading platform for standardised logging and processing of all energy products. The project reached several key milestones in 2021:

- Full integration of all grid loss and control power
- Implementation of a new risk management reporting system

Further key milestones for successful completion of the project will follow in 2022.

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Legal developments

Securing the electricity supply in Upper Austria (Central Region)

On 29 November 2021, in partnership with Netz Oberösterreich GmbH (Netz OÖ) and LINZ NETZ GmbH (LINZ NETZ), APG submitted the "Securing the electricity supply in Upper Austria (Central Region)" project for an environmental impact assessment (EIA). The responsible environmental authorities are the Upper Austrian and Lower Austrian state governments. After submission, the EIA authorities verify that the documentation is complete and auditable. Once this completeness check is finished (probably in the first quarter of 2022), the EIA authorities will arrange for public participation and public disclosure of the documents to local municipalities and EIA authorities. The rest of the process will be carried out in line with the provisions of the Environmental Impact Assessment Act 2000 (Umweltverträglichkeitsprüfungsgesetz 2000, UVP-G 2000).

Renewable Energy Development Act (EAG)

The EAG legislation package was adopted by the National Council on 7 July 2021 after approval by the Federal Council, and announced in the Federal Law Gazette (BGBl. I No. 150/2021) on 27 July 2021.

The EAG is the legal framework for achieving European climate and energy targets, and is intended in particular to establish the Austrian federal government's target of a 100% renewable electricity supply by 2030. It focuses on adapting the national subsidy system for renewable energy, with provisions aimed at maximising market integration of renewables and preventing any unnecessary distortion of competition.

Along with amendments to the Renewable Energy Development Act, the EAG package amends nine additional Austrian laws including the Green Electricity Act (Ökostromgesetz, ÖSG), the Electricity Industry and Organisation Act (Elektrizitätswirtschafts- und -organisationsgesetz, ElWOG), the Gas Industry Act (Gaswirtschaftsgesetz, GWG), the Energy Management Act (Energielenkungsgesetz, EnLG) and the Energy Regulatory Authorities Act (Energie-Control-Gesetz, E-ControlG).

An initial amendment to the EAG was previously announced in the Federal Law Gazette BGBl. I No. 181/2021, mainly concerning the application of subsidies.

Recognition of provisions for pending proceedings in the annual financial statements

Supplementary billing of APG by TenneT for congestion management and redispatch

In 2016, there was a legal amendment in Germany regarding power plant remuneration (Section 13a(2) of the German Energy Industry Act (Energiewirtschaftsgesetz, EnWG) in conjunction with Section 5), based on which opportunity costs can be billed retrospectively back to 2013. TenneT was therefore required by the Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway (Bundesnetzagentur, BNetzA) to enter into an agreement with APG on a waiver of the statute of limitations for any resulting claims back to 2013.

Owing to a difference of legal opinion between the parties concerning the start of the limitation period, an agreement was ultimately reached on 17 September 2021. The agreement clarifies that claims for redispatch measures before 1 July 2017 definitely fall under the statute of limitations. APG waived the statute for later claims up to the end of 2022.

The agreement was coordinated with the ECA and BNetzA and the requirements expressed by the ECA were taken into account.

Actions seeking compensation for economic disadvantages resulting from a reduction in wind power feed-in

As claimants invoking Section 23(9) of ElWOG 2010, several wind farm operators are seeking appropriate compensation from APG for the economic disadvantages resulting from a reduction in wind power feed-in.

APG believes that there is no contractual claim, nor can such a claim be derived from the law, as the

instruction from APG as control area manager was not issued directly to the producer, but to the distribution system operator, which in turn ordered the wind farm operators feeding into the grid to reduce feed-in.

The claim brought by several wind farm operators was dismissed in the court of first instance, which found in favour of APG's legal opinion. The claimants lodged an appeal. In parallel proceedings a conflicting decision was given by the court of second instance; APG lodged an appeal against this.

The outcome of the proceedings is still pending.

Further court proceedings

Aside from the above, there were no significant court proceedings in 2021.

Regulatory developments

The regulatory method used by APG is a combination of the cost-plus and revenue cap models. Based on the most recently available annual financial statements and the investment planning, reasonable costs are established as part of the annual cost-finding process. Furthermore, differences between budgeted and actual revenues are rolled up based on statutory provisions. The RAB represents the basis for the standard capital cost reimbursements and records a risk-adjusted regulatory capital return.

Tariff review 2021

In this year's process, the weighted average cost of capital (WACC) was again set with reference to establishing a multi-year rate of 4.88% before tax and confirmed until the end of the WACC/regulatory period on 31 December 2022. In addition, a mark-up of 0.32% was offered as an incentive for new investments (excluding operating and office equipment).

The tariff basis for APG's gross and net tariffs at levels 1 and 2 increased by 11% year-on-year to €335.6m. The overall tariff basis, including level 3 costs, grid loss and system services, rose by 17% compared with the previous year to around €413.9m.

The increase in costs is mainly attributable to a higher level of investing activities and a significant revision for earlier revenue losses in the regulatory account. Cost increases were also fuelled by higher prices on the energy markets in the second half of the year. This trend is stark in the basis for the system loss charge at all three levels, which rose from the previous year's low level by 47% to around €42.9m.

"New Regulatory System" project

Historically, the key factors in the energy system were expansion and grid infrastructure provision. Consequently, the emphasis of the current regulatory system for APG lies purely on incentivising capital expenditure through the WACC. APG believes a paradigm shift is required. The energy transition, ongoing market integration and the increasing challenges in system stability demand a regulatory system that also incentivises and promotes new, innovative, smart solutions. This is the only way for the regulatory framework to achieve an optimum overall economic outcome.

In 2020, in collaboration with consultancy firm NERA, APG initiated a proposal for a new regulatory model emphasising APG's role as market facilitator and enabler in achieving the energy transition. In 2021, we gradually moved closer to implementing the solutions and held initial discussions with energy market stakeholders and players.

We also commissioned a WACC expert opinion covering recommendations and new approaches for extrapolating regulatory capital costs based on general financial theory, practice-oriented finance literature, and assessment-specific information and decisions from other international regulatory authorities. At European level, ENTSO-E published a discussion paper[1)] with considerable support from APG, emphasising the need to adapt tariff regulation so that it safeguards financing for transmission system operators. In November 2021, in cooperation with German transmission system operator TransnetBW, we hosted a one-day conference to discuss forthcoming challenges for transmission grids and potential regulatory solutions. Experts from APG and TransnetBW were joined by the Austrian regulator ECA and the

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German regulator Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway (Bundesnetzagentur, BNetzA). In autumn, APG took part in the European "Total Cost Benchmarking 21" (TCB21) initiative along with 15 other TSOs. APG takes account of these benchmarking results - which are expected in the second half of 2022 - when setting individual efficiency values.

In 2022, the ECA will finalise the specifics of the new WACC/regulatory period starting on 1 January 2023. In the run-up to this, we anticipate intensive discussions on the individual regulatory parameters with the regulator and other APG stakeholders.

[1] https://eepublicdownloads.entsoe.eu/clean-documents/mc-documents/210414_Financeability.pdf

International activities

APG as an initiator and key contributor in the coordinated operation of European electricity supply systems

In 2021, APG was re-elected as Chair of the ENTSO-E System Operations Committee, affirming its leading role in the coordinated operation of European systems. Through this high-level office, plus active involvement at all levels and on all relevant European (ENTSO-E) and regional (Regional Security Coordinator TSCNET and CorNet) committees, APG is playing a key part in the implementation of CEP operational requirements, the progress of the energy transition and system resilience.

One of the most important milestones in the history of interconnected European operation was the go-live of the Common Grid Model (CGM) for all European TSOs on 8 December 2021. For the first time in history, the CGM now provides a common platform for data and information exchange via ultra-secure, high-speed data cables throughout continental Europe, regardless of political borders. This is the basis for implementing additional services from regional coordination centres to TSOs over the coming years, including regionally coordinated grid security analysis and the calculation of cross-border line capacities as well as load coverage forecasts and regional shutdown planning coordination. The CGM is therefore pivotal not just to better and more reliable operational planning but to operational security and more effective support for the energy transition.

A further step towards grid-operator coordination at all voltages and network levels is the progress of the Network Code on Cyber Security - a new European legal standard defining IT security standards and the protection of critical IT infrastructure against cyberattacks in cooperation with ENTSO-E and the newly established association for all European distribution system operators, the EU DSO Entity. Following public consultations, this new legal standard is expected to enter into force in mid-2022.

CEP - new energy legislation comes into force

The Internal Electricity Market Regulation and Directive entered into force on 4 July 2019.

70 per cent rule

Of particular importance is the provision that became effective on 1 January 2020 requiring 70% of transmission capacity (taking account of operational security and contingencies) to be made available for cross-border trading. Like most European countries, Austria requested another temporary exemption in this case, which was approved by the ECA for the duration of 2021.

In the course of implementing this 70 per cent rule, or implementing the measures associated with the exemption, the new capacity calculation and validation models developed in 2021 were tested, integrated into the process flow and put into operation. Consequently, as of summer 2021, the minimum capacity requirement is factored into operational and security-critical processes for capacity calculation. Also, in April 2021 we signed a cross-border redispatch agreement with the Hungarian transmission system operator.

To enable APG to address other factors beyond its control, such as loop flows from other countries, we requested a corresponding exemption in the core capacity calculation region again for 2022. The ECA

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granted the exemption in December 2021 after consultation with the relevant European CCR Core regulators and a subsequent review. Exemptions are also required in numerous other European countries in 2022.

The action plan released in December 2020 by the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK) includes the grid expansion and upgrade projects that are especially important for the increase in grid capacity required over the long term, and numerous other measures to improve or enhance national and international congestion management with a view to achieving the minimum capacity of 70% required by the Internal Electricity Market Regulation for cross-border electricity trading by the end of 2025. We have already implemented most of the grid expansion and upgrade projects listed for 2021 - such as upgrading the Tauern-Weißenbach line, implementing dynamic line rating on the Tauern-Weißenbach and West Tyrol-Zell/Ziller lines and at the border with St. Peter, Germany, and putting into operation a new, third 380/220-kV transformer in Lienz. Individual measures are still in the process of implementation.

CEP, Green Deal and Fit for 55

The implementation of the CEP legal requirements made additional important headway in 2021. The first European Resource Adequacy Assessment (ERAA) report was issued, assessing the pan-European adequacy of resources in the internal market for electricity. ERAA aims to help promote reliable, sustainable, interconnected development of the European electricity system and to counter misgivings about adequacy over the long term. There was also further progress in drawing up the tasks of the Regional Security Coordinators (RSCs).

However, by publishing the Green Deal in 2019 and its resulting extensive legislative package, Fit for 55, the European Commission had already paved the way for extensive legal changes in the energy sector. Thirteen legislative measures were proposed in all - five new laws and eight amendments to existing acts - to step up the fight against climate change. Another gas and decarbonisation package was also put forward in December as the basis for an affordable zero-carbon gas supply by 2050. Hydrogen is set to see far-reaching changes. The legislation establishes the foundation for a pan-European hydrogen market.

In 2021, European institutions held intensive negotiations on revising the TEN-E infrastructure regulation, and reached a consensus at the end of the year. The new regulations include plans for a revised governance framework aimed at improving the infrastructure planning process, thus moving a step closer to meeting climate targets and integrating the energy system.

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Asset management

Our energy system in a state of upheaval

The electricity system is undergoing massive changes due to the common consensus in Europe – and thus in Austria too – to take action to protect the climate. The expansion of renewable energy sources (RES) is being accelerated to comply with climate change legislation and to help make the energy transition a reality. The increasing electrification of the mobility and heating sectors in combination with the massive expansion of RES represents an important step towards achieving CO_2 reduction targets. There have also been some developments in this regard in the industrial and commercial sectors.

The need for appropriate efforts to protect the world's climate is also reflected in the Austrian Government Programme 2020-2024 and the new Renewable Energy Development Act (EAG, Federal Law Gazette BGBl., 27 July 2021). The EAG sets extensive requirements for RES expansion in Austria by 2030, with the integration of an additional 19 GW of RES generation capacity and a 100% renewable electricity supply, plus climate neutrality in Austria by 2040. APG has a key role to play in achieving these climate policy targets, as a secure and efficient power system is essential to the success of the energy transition and to the electricity market.

The rapid expansion of RES has had a transformative effect on the way the system behaves: generation from RES exhibits a relatively high degree of volatility and is dependent on primary energy sources, i.e. water, wind and sunshine, whereas production at conventional (mainly thermal) power plants was previously guided by electricity consumption. Moreover, energy flows are now determined by market activity, supply and demand and pricing on the electricity market and electricity exchanges in combination with import and export.

Over the course of 2021, we saw an unpredictable rise in raw material and fuel prices (e.g. gas) which led to a significant increase in energy prices and therefore electricity prices. The political will to reduce or eliminate raw materials dependencies in the energy sector also underlines the need for more expansion in domestic RES generation (as well as climate protection). Consequently, and primarily through the EAG, there was another strong push for RES expansion in 2021, which means even higher grid volatility to come, and above all, the need for additional grid capacity. However, thermal power plants (mainly gas power plants for load coverage and congestion management purposes) are still needed to cover periods of insufficient RES supply and to ensure back-up options are on hand to safeguard grid operations (cf. congestion prevention).

Alongside enhancements and the urgent expansion of the power grid, new flexibility options (e.g. sector coupling, power-to-gas, etc.) are required in order to meet the ambitious 2030 targets set out in Austria's climate and energy strategy – including the gradual decarbonisation of industry and, above all, the intention to cover 100% of total national electricity consumption (net energy balance) with RES. APG believes that electricity and energy storage systems and the use of new, innovative technologies will also be of major importance in future.

Network Development Plan: a sustainable and optimised grid concept

APG prepares and publishes a Network Development Plan (current version: NDP 2021) that includes input from market participants and distribution system operators. This is based on the long-term forecasts contained in the European Union's Ten-Year Network Development Plan (TYNDP) prepared by ENTSO-E with the assistance of APG (see http://tyndp.entsoe.eu). The TYNDP paints a detailed picture of the grid infrastructure projects that will be necessary over the next ten years along with their needs and benefits.

Preparation of a Network Development Plan (NDP) is a legal requirement under ElWOG 2010. It must be based on sound scenario assumptions and detailed grid analyses as well as the grid access and customer projects requested by APG. The NDP ensures that grid expansion requirements and the necessary grid investments are set out, consulted on and published in a transparent manner. The NDP 2021 covers 46 projects in the planning period

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from 2022 to 2031 and was approved in an official notice issued by the ECA. It is published online by APG (www.apg.at/en/Stromnetz/Netz-entwicklung) and is also available on the ECA website. The expansion provided for in the NDP 2021 can be broken down as follows:

- Around 240 km of new transmission lines, 110 km of line conversions to higher voltage levels and 290 km of general overhauls/upgrades to existing power lines
- An additional 20 substations by 2030 to improve the connections between distribution grids, and the expansion of existing substations plus around 50 transformers with a total capacity of 18,000 MVA
- Extensive projects in addition to age-related switching station overhauls and upgrades

The NDP 2021 envisages a structured, targeted expansion of APG's transmission grid in Austria. The projects and measures in the plan are geared in particular towards serving energy market trends (primarily the integration of RES and new power plants in the grid, grid access for distribution system operators, EAG and climate change targets, market integration, and so on). It includes plans for 20 new substations as well as the expansion of existing switching stations, the general overhaul of 220-kV lines, and further expansion of the 380-kV grid (e.g. the 380-kV ring). This aims to ensure RES integration in Austria and to improve the connection between the south and west of the country with pumped storage power plants, along with high-performance connections to load centres in Austria and neighbouring countries.

In order to create an efficient, high-capacity grid infrastructure, APG is following the principle of putting the optimisation of the existing grid before enhancements and expansion (the NOVA principle). Accordingly, opportunities to optimise the grid, especially on existing routes, are exploited before new power line routes are planned and developed.

Overall investment volumes

The projects in the Network Development Plan represent an investment volume of over €3.5bn by 2031. Since studies conducted at the Graz University of Technology and the Austrian Institute for Industrial Research (IWI) show that APG's projects will add up to 70% in value for the Austrian economy, their implementation will not only provide significant economic stimulus, but also permanently safeguard Austria as a business location. According to these studies, every billion euros invested in the APG grid will create around 10,000 jobs in Austria. This economic stimulus is of major importance in overcoming the COVID-19 crisis in particular.

The following sections describe APG's principal line projects.

Salzburg line project (St. Peter-Tauern)

The commissioning of the 114 km-long 380-kV Salzburg line between the Salzburg and Tauern substations/network nodes will represent a significant step in establishing high-capacity connections from Austria's major (pumped storage) power plant sites to the country's load centres and metropolitan areas. The Salzburg line will enable power plants in eastern Austria feeding in renewable energy (especially wind and solar) to interact with the pumped storage power plants and thus facilitate the storage of surplus RES or the provision of balancing services in the event of deviations in forecasts. Without the Salzburg line, Austria's climate change targets (cf. EAG) for the electricity sector are unachievable.

The project has been in the implementation phase since October 2019 and construction is progressing on schedule. The Supreme Administrative Court (VwGH) ultimately granted the final approval for the project in October 2020. The Salzburg line is due to go into operation in the second quarter of 2025. Due to the massive delays in the approval process and in order to offset the negative effects of the delay in commissioning the line, APG has had to introduce additional contingency measures aimed at increasing grid security and reducing congestion management. In addition to other completed measures, conductors on the 220-kV line from Tauern to Weißenbach

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were replaced in 2021, as the delays on the Salzburg line have also pushed back the general overhaul planned on this now 70-year-old line.

Germany line project (St. Peter-national border)

The 380-kV Germany line from St. Peter to the national border will be a highly efficient interconnecting line on an optimised route. The removal of the two existing 220-kV lines permanently eases the burden on local residential areas. The project facilitates the optimised interaction of RES in north-western Europe and Germany with Austria's load centres and pumped storage power plants. The Germany line therefore plays a key role in the European energy transition. APG has already started work on the construction of the nearly 3 km-long 380-kV line to the German border. Due to ongoing delays in the German approval process, commissioning for this project has been pushed back again and is now planned for 2026/2027.

Weinviertel line project

The integration of renewable energy sources - especially wind and solar - in the Weinviertel region requires the replacement of the 220-kV line dating from the 1950s. The new Weinviertel line is an important project for the expansion of wind power in eastern Lower Austria. To this end, as of 2019, APG has been building a highly efficient, 380-kV line along an optimised route from the Seyring junction to the new Zaya 380/220-kV substation and a new 220-kV connection to the national border. Construction of the line and the substation are on schedule and the 380-kV line will be put into operation in summer 2022. The old 220-kV line, which was in need of renovation, will subsequently be dismantled, easing the burden on residential areas and on important nature reserves and bird sanctuaries over the long term.

Central Upper Austria project

Electricity in Central Upper Austria is currently supplied by a 110-kV line that is not designed to meet the future requirements of the region and the Linz metropolitan area. Electricity consumption in Central Upper Austria is set to rise in the coming years due to the dynamic pace of development and economic growth in the region. Progressive electrification, industrial process changes with a view to decarbonisation (especially electricity-based steel production) and an increasing number of consumers testify to these trends. RES expansion under the EAG and the necessary transport for green electricity are also driving the need to expand the regional electricity infrastructure.

The plan is to construct a 220-kV supply ring to replace the 110-kV grid supply. This local 220-kV ring will link the Ernsthofen, Pichling, Hütte Süd, Wegscheid and Kronstorf substations. Example measures in the plan agreed between the grid operators include replacing existing lines and converting voltages from 110 kV to 220 kV on sections of lines already designed for the latter, and expanding and converting eight substations. Changing to the 220-kV voltage level will enable more electrical power and energy to be transmitted, creating a secure, efficient and powerful electricity supply for Central Upper Austria. The project was submitted for an environmental impact assessment at the end of November 2021. Pending successful approval, implementation is planned from 2024 to 2030/2031, with certain construction phases (e.g. the 220/110-kV Hütte Süd substation) scheduled to be put into operation as of 2026.

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Reschen Pass project

APG's existing connecting line between Austria (Lienz/East Tyrol) and Italy (Soverzene) dates back to 1953 and is no longer able to handle the requirements of today's European electricity market. The increasing generation of hydropower in Austria's western Alpine region (primarily pumped storage power plants), the ongoing expansion of wind power and developments in Italy's energy market (including massive RES expansion), require higher capacity between Austria and Italy. A new 220-kV connection from Nauders/Reschen Pass to Premadio (in the Lombardy region) will enable an additional connection with higher capacity between APG and TERNA transmission grids. Construction is on schedule and the project should be put into operation in late autumn 2023. A general overhaul of the 220-kV line from Lienz to Italy is also planned for completion by the end of the decade.

Other projects and maintenance capital expenditures

APG is also planning extensive maintenance capex to modernise and improve substations and lines at the 220-kV and 110-kV grid levels (see also APG Network Development Plan 2021). When improvements and enhancements are considered to existing switching stations, the end result can be extensive renovation, particularly in the case of older systems, or, often, replacement for the purpose of optimising switching stations from a technical and economic viewpoint. In addition, old 220-kV lines require extensive renovation and general overhauls. Besides the investments in grid expansion projects, significant APG resources will also be needed in the coming years for maintenance capex and grid modernisation measures on existing switching stations and lines.

Use of innovative technologies in system conversions

Replacing existing switching stations on site poses significant challenges, as the new switching stations must be built in the same spot while systems are in operation. APG uses new, innovative technologies to reduce downtime and to restrict grid operations as little as possible, thus ensuring reliable operation and security of supply during the conversion phase. Mobile 110-kV switching station containers employing GIS technology and temporary cables are being used for the 110-kV replacements in the Ernsthofen and Bisamberg switching stations. This allows existing open-air sections to be connected in very small spaces to create larger, cohesive open construction spaces and thus reduce construction time. APG is working with industry partners to enhance this for the 220-kV voltage level and will be putting it into practice for the first time when replacing the 220-kV system in Ernsthofen. Substation projects are also making increasing use of new technologies such as laser scanning in order to maintain digital images, plans and system documentation.

In addition, APG has launched the "Digital substation" project, which, among other things, uses intelligent sensors to identify new options for monitoring existing equipment at substations. Together with new communication protocols, this aims to improve the evaluation of equipment and optimisation options for maintenance work and replacement intervals.

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Digitalisation arrives on APG's large construction sites

How do you maintain an overview on line construction sites that extend over large distances, where a number of different companies are working alongside one another, hundreds of people are employed in different roles and several hundred requirements and measures need to be observed? The solution lies in cutting-edge data management and the answer to the question of how, in a digital world, the necessary information can be transmitted as quickly as possible and with little effort to the people who need it. This opens up further opportunities to produce detailed and complete construction and system documentation.

Large linear infrastructure construction projects go on generating vast quantities of data for years. It is therefore essential to prepare, structure and store those data correctly. Conversely, errors in data storage and retention can cause significant costs. On its two large Weinviertel line and Salzburg line projects, APG therefore worked with partners to develop a comprehensive construction documentation system called ProlisBau. This tool is an agile piece of software that is continuously developed in the course of the project in close consultation with all project members. Installed on the smartphones and PCs of employees, this software ensures that the project is implemented as decided and according to schedule and its implementation is documented. Analogue forms have been replaced with standardised digital processes. The data and information captured "in the field" on the construction sites using mobile devices and smartphones are transferred to the central systems and can be retrieved from the central data archives at any location.

Project environment management

In all projects, APG deals at length with the diverse demands and needs of the stakeholders involved. In 2021, as far as COVID-19 restrictions would allow, project environment management focused once again on direct dialogue with community representatives, landowners and stakeholders. Besides our policy of transparent information on the status of current projects, activities included managing measures planned in connection with projects. APG aims to wind up future approval processes for large projects quickly and efficiently by working as constructively as possible with stakeholders, based on rigorous and proactive management of the various stakeholders locally. This requires sensitivity, transparency and an awareness of social responsibility. In line with the responsibility we bear for the reliability of Austria's electricity system, APG will continue to apply these guiding principles on future projects.

Corporate social responsibility

APG commits to the principles of sustainable action in its Code of Conduct. The foundation is a corporate policy that respects economic requirements as well as ecological limits and strives for social equilibrium.

Similar to prior years, an integrated annual report is prepared for calendar year 2021 that includes the topic of sustainability. As a wholly owned subsidiary of VERBUND, APG also makes a contribution to its integrated annual report. This corresponds to the latest requirements under the Austrian Sustainability and Diversity Improvement Act (NaDiVeG) and the GRI Standards of the Global Reporting Initiative. APG takes environmental protection measures in the areas of route management, species protection and biodiversity. The main key performance indicators (KPIs) for 2021 are presented below:

Purchases of electricity from the grid for internal consumption for office buildings with guarantees of origin from 100% hydropower (not from the billing of operating costs; calculation period 1 May 2020 to 30 April 2021)	142.796 MWh
APG own use	28.586 GWh
System losses, grid level 1	674 GWh
Water consumption	6,680 m³

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Scope 3 emissions are those arising from activities not directly controlled by the Company (such as business trips and waste management).

In terms of harmful emissions due to business trips, APG's Scope 3 emissions were low again in 2021 due to COVID-19 and the ongoing extensive use of videoconferencing. The table below shows APG's year-on-year Scope 3 emissions in relation to business trips:

	2020	2021
Business trips by train	1 t CO_2	0.5 t CO_2
Business trips by plane	135 t CO_2	126 t CO_2
Business trips by car	156 t CO_2	179 t CO_2

New environmental laws and regulations are among the subjects presented in quarterly newsletters and at annual legal workshops and the effects on APG are discussed by a panel of experts. If it is necessary to take action, appropriate steps are taken to implement the requirements.

Success factor personnel

Development measures

Expectations, goals and training needs are coordinated in annual performance reviews to ensure a common direction and goal-oriented, consistent professional and personal development. This helps employees to carry out their work in the best way possible, aligned with the Company's strategy and in the Company's best interests.

Additional joint development programmes are offered to those with management responsibilities and in the context of Company-wide training measures, such as the Meister training programme for master tradespersons in existence since 2017, the management development programme launched in 2018, the next-level leadership programme initiated in 2021, the kick-off for the talent management programme and the training sessions in preparation for 2021 performance reviews, focused on "Management in the COVID-19 and home working era".

Following its launch, the "SK 1920 - Safety culture at APG" project introduced training and continuing education workshops for managers and appraisers and was maintained in 2021.

In autumn 2021, we conducted a Great Place to Work (GPtW) employee survey to identify new development needs and action requirements. This will be followed up in 2022 once the results are available.

Creating a positive setting

To bring about a more positive environment, e.g. with home working and flexible hours as well as support for paternity leave and granting fathers a month of "family time" after the birth of a baby, efforts are also made to help employees maintain a balance between work and family and to support them with respect to working hours that match their personal biorhythms. 2019 saw successful re-certification and praise for the Company in terms of work-life balance from the Federal Ministry. The assessment process also instigated the creation of new improvement targets. The possibility for marginal employment during parental leave was additionally introduced in this context.

To safeguard succession planning, the number of young skilled workers was increased and career paths were adjusted where deemed necessary to meet the needs of the labour market.

In addition, the structure of team leader and expert career paths were revised in order to show the various paths clearly.

In order to ensure compliance with the stringent security requirements for operators of critical infrastructure, extended security checks were also introduced for new entrants in relevant functions as part of a Company-wide security project. Under a multiannual digitalisation roadmap, personnel administration processes are gradually being converted to digital workflows, thus also expanding self-service options ongoing.

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Cross-functional understanding

Cross-functional understanding is promoted by holding joint events, such as our two highly effective internal workshops "Our network - from design concept to reliable operation" and "From the basic idea of deregulation to current market design", and by providing for targeted job rotations of limited duration between departments and manager meetings and closed-door sessions, so as to facilitate better inter-departmental collaboration. Non-HR topics, such as strategy or lessons learned from the coronavirus, were also developed in cross-departmental working groups.

Promotion of young talent and personnel development

The continuous promotion of young talent in the sense of proactive personnel planning is important to us. For example, to effectively counter the long-term shortage of skilled workers in the labour market, several years ago APG made an important contribution towards ensuring highly trained young skilled workers with the roll-out of its apprentice programme. APG thus succeeded in placing the right number of young skilled workers at the right time. To support the implementation of APG's strategy as effectively as possible, we ran a comprehensive employer branding project alongside the necessary recruitment activities.

Co-determination

Integration of the employee representatives above and beyond the legal requirements results in an extremely cooperative working environment and leads to decisions and measures being supported by the employees with understanding.

Regular dissemination of current information to employees guarantees cooperation and innovation.

Focus on occupational safety

Safety is of primary importance in all of APG's activities and at all of its construction sites. Accordingly, safety and health plans are drawn up for all projects, contracting firms receive a comprehensive briefing in all areas and the working premises are regularly inspected by the construction site coordinator. Documentation of these tasks is reproduced in APG's document management system. The high level of safety and health of our employees as well as external contractors is ensured by way of intensive training sessions, seminars and an active exchange of experience. Close collaboration with the labour inspectorates and the Austrian General Accident Insurance Institution (AUVA) is also an important part of these measures.

With a total of five reportable accidents in 2021 (one commuting accident, four workplace accidents), APG maintained the previous year's level. The accident rate (number of accidents per 1,000 employees) is slightly lower than for 2020 due to an increase in headcount. However, we saw an increase in days lost on account of reportable accidents. Thus, although there were no serious accidents, the severity of the injuries was higher in 2021.

Since 2018, the Lost Time Injury Frequency (LTIF) ratio has been included in the accident statistics. The LTIF ratio reflects the percentage of workplace accidents involving time away from work per one million work hours. The calculation includes all workplace accidents resulting in absences of one day or more (excluding accidents on the way to or from work), and includes accidents suffered by contractors. When the ratio is being computed, the hours clocked by external companies working on behalf of APG at APG workplaces and their accident events are taken into account. The LTIF for 2021 was 7.41.

In order to permanently improve the accident trend, job instructions will once again place special emphasis on the risk of slipping, stumbling and falling accidents as part of the 2021 safety priority programme. The SK1920 safety culture project, launched in 2018, is also designed to have a positive effect on the accident rate by promoting

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awareness of occupational safety. Increasing emphasis is placed on potential hazards when instructions are being issued to agency staff and external personnel. APG's health and fitness programme is also intended to play a role in further reducing the severity of accidents.

Following on from its evaluation of work-related psychological stress produced in summer of 2016, APG continues to publish information concerning all aspects of this topic on a regular basis via the intranet.

SK 1920 safety culture programme

APG has set itself the goal of intensively fostering a culture of safety in order to become one of the leading companies with regard to safety - both nationally and internationally. To achieve this, the SK1920 safety culture programme was launched as a dedicated project scheduled to run for approximately three years, followed by continued integration into everyday business practices. Along with employee protection, the project aims to increase understanding of property protection, fire prevention and IT security as important corporate objectives.

The project's focus in 2021 was on continuing to train safety coaches and holding special workshops for managers and team leaders. Here, the safety coaches were trained to ensure that safety regulations are ever-present in daily work, while the focus of the manager training was on integrating safety into work assignments, awareness-raising/sensitisation and control through presence. To build on this initial progress, further measures under the slogan "safe and healthy together" will be put in place that will eventually lead to a safety-first mentality taking permanent root at APG.

Integrated management system (IMS)

All of APG's sites and lines are certified under the current ISO 14001 (international environmental management systems), ISO 9001 (international quality management systems), ISO 45001 (safety and health management systems) and ISO 27001 (information security management) standards. Annual internal and external audits of the IMS contribute to a continuous process of improvement in all areas and provide valuable guidance on optimising processes. The certified management system also increases organisational stability and legal certainty in the Company and raises awareness.

In 2021, the re-certification of the IMS and the successful transition from OHSAS 18001 to ISO 45001 was validated by SystemZert auditors. The information security management system (ISMS) was examined by Certification & Information Security Services GmbH (CIS) and APG's overarching management system was audited for compliance with prevailing standards.

The audits found high levels of acceptance and engagement at APG with respect to the specifications of the IMS. Employees are exceedingly conscious of risk and opportunity, and the specified internal control mechanisms are very well established.

All certificates in the areas of environment, quality, safety, health and information security remain in effect.

Sustainable habitat management

Responsibility for nature

In addition to focusing on the technical and economic criteria, APG is increasingly called on to respond to the growing importance of environmental protection in the planning, implementation and maintenance of overhead lines. This involves taking into consideration the varied expectations and requirements of the relevant authorities, the landowners, the community, different stakeholders (e.g. agriculture and forestry, environmental protection, hunting, tourism) as well as APG itself so that flexible and integrated approaches can be found for needs-based and optimised solutions.

Back in 1997, APG had initiated a research project for ecological and economical line maintenance. In this project, which ran from 1997 until 1999, four model routes were analysed by different disciplines to determine their environmental and socio-economic value as well as their ecological integration into the landscape. With the

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"Sustainable route management" project, the content of this work was continued, expanded to APG's entire transmission grid and integrated into route management. Consequently, APG already has 20 years of experience in sustainable habitat management and makes a significant contribution to the use of line routes and substations as habitats for (endangered) native species of plants and animals.

APG and its partners also support numerous species protection projects with the aim of improving the habitat of avifauna and making line systems suitable as habitats for birds such as the saker falcon, the Ural owl or the red kite; this project is briefly outlined below:

LIFE EUROKITE nature project (red kite)

This extensive international/national project to develop the population of the red kite was set up in response to an inexplicable fall in numbers in Austria and Germany at the same time as the species' population in France and Switzerland is growing. To obtain a precise overview of the distribution of the birds of prey, the examination also considers the Red List species eastern imperial eagle, saker falcon, peregrine falcon and white-tailed eagle. The red kite is generally exposed to the following threats: direct/indirect poisoning, habitat loss, intensive land use, low breeding success, electrocution, wind turbines, traffic and illegal shooting.

The project therefore aims to:

- analyse the impact of human-caused mortality in the red kite and four other birds of prey;
- plan and implement countermeasures that directly target the causes of mortality;
- collect data on habitat use in Central Europe, with a focus on Austria and Germany.

To obtain reliable data, some 500 red kites and around 100 other birds of prey are fitted with transmitters so that their activity can be monitored continuously. Should a bird die, it can be found very quickly in order for the cause of mortality to be scientifically determined. The findings will be used to develop and possibly implement counter-strategies.

The project is primarily an Austro-German initiative. The large number of other participating countries is due to the birds' considerable mobility (mortalities can be expected all over Europe). The main partner is Germany's Nature and Biodiversity Conservation Union (NABU) because the biggest red kite population (50%) is in Germany. Why the populations in Central Europe (AT/CZ/SK/HU) are not growing faster is unclear; given the increase in Switzerland, this can only be explained by human-caused problems. It is precisely in this respect that the project will provide explanations and initiate countermeasures.

Benefits for APG:

- APG can implement and co-finance measures for which commitments have already been made as part of other projects.
- Voluntary implementation of measures on overhead lines makes related legal regulations (as is the case in DE and ES) unnecessary. By taking voluntary action, APG can co-determine/direct the process and is itself not dictated by legal regulations.
- In the (future) discussion about striking a balance between nature conservation and energy supply, APG will have high-quality data and facts at its disposal and be able to counter emotionally driven and flawed arguments much more effectively.
- As part of an overall sustainability strategy, the project can be used to position APG positively with regard to nature conservation and species protection. Especially in regions where APG is active in construction and possible impacts on society, the environment and the economy are challenged by the public, the project is making a significant contribution. By participating in the project, APG actively engages in counteracting dwindling populations of endangered (bird) species and raising public awareness of issues such as habitat loss of endangered species. In line with APG's core business, the project contributes strategically to ensuring sustainable business and a positive public perception.

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The LIFE EUROKITE nature project was given the green light by the European Commission in 2020 and will run until the end of 2028. The project has a total budget of €10m over its entire term, 60% of which will be co-financed by the EU.

Research and innovation

The energy system is in a state of upheaval. By 2030, 100% of Austria's electricity demand is to be met by domestically sourced renewable energy. At the same time, the electricity sector is increasingly converging with the gas, mobility and heating industries; this will play a key role in making Austria's energy system climate-neutral by 2040. Transmission system operators are facing yet more major challenges due to new energy sources, sector coupling and the increasingly integrated European electricity market. Research and innovation (R&I) will play a crucial part in meeting them. Three example initiatives from APG's extensive F&I portfolio are outlined below.

Substation innovation

To maintain the customary high security of supply in the transmission grid, we need to prevent the unplanned failure of substation components such as transformers. Early identification of deviations from required operating states is therefore essential. The use of sensors combined with intelligent data analysis is paving the way for predictive maintenance in these critical infrastructural components.

Consequently, our "X-Aminor" project aims to develop an autonomous monitoring system for transformers. Audio, visual and thermal sensors are installed on a carrier vehicle. This mobile multi-sensor platform can then carry out measurements, tests and diagnostics for improved transformer monitoring and as a basis for predictive maintenance. This will prevent failures and thus save money.

Conductor cable innovation

In harsh winter conditions, ice can set on overhead lines. Though all of Austria's overhead lines are designed to withstand a certain ice load, the possibility of it exceeding permissible limits cannot be ruled out, especially in highly exposed locations. This in turn could lead to critical situations under the line as well as operational constraints.

In the future, sensors directly attached to the conductors will be intricately networked with weather data to ensure these ice-load risks are identified early so that they can be counteracted. This will also provide a more detailed understanding of how APG overhead lines behave in icy conditions in different regions. We are developing and testing sensor and cloud-based data-analytics solutions in our "Ice Monitoring+" project.

Redispatch innovation

Redispatching is a last-minute measure used by grid operators to prevent transmission grid congestion by altering the utilisation planning for supply and demand. The increasing integration of the European electricity market and the growing proportion of renewable, volatile energy sources have multiplied redispatch costs over the past few years. Currently, the key factor in redispatching is the flexibility of conventional thermal power plants. To date, it has not been possible to tap into additional potential for flexibility – such as that offered by industrial facilities – to the extent required for congestion management.

In response to this problem, in 2021 we joined forces with the Austrian Institute of Technology (AIT), distribution system operators and industrial businesses to launch the "Industry 4 Redispatch" (I4RD) project, which is funded by the Austrian Research Promotion Agency (FFG). The aim of the project is to allow industrial facilities to provide flexibility for redispatch. Together we are analysing the necessary technical, regulatory and economic requirements for redispatch provision and defining the optimum set-up between relevant players. On completion, the project will deliver a proof of concept demonstrating how industrial facilities can be used for the purpose of redispatching.

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Research spending and outlook

Expenditure for research amounted to approximately €1.7m in 2021.

Working with its national and international partners, APG will continue focusing on research and innovation in order to maintain its high standards in security of supply while identifying and exploring new tasks in the changing energy system.

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Financial performance indicators

All key figures are calculated based on reports by the Expert Committee for Business Administration and Organisation of the Austrian Chamber of Public Accountants and Tax Advisors (Fachsenat für Betriebswirtschaft und Organisation der Kammer der Wirtschaftstreuhänder, KFS-BW 3), with the exception of figures determined in accordance with the Austrian Business Reorganisation Act (URG). The method for calculating key figures is also cited in the glossary.

Results of operations

€K	2020	2021
Revenue	695,803.2	1,082,279.8
Earnings before interest and taxes (EBIT)	71,831.0	124,202.3
Result from ordinary activities	46,959.7	97,950.8
Average capital employed	799,584.0	796,051.9
Return on equity (ROE)	10.7%	20.6%
Return on investment (ROI)	3.9%	5.8%
APG return on capital employed (APG-ROCE)	4.2%	6.3%
Return on sales (ROS)	10.3%	11.5%

Standard capital cost reimbursements

APG's investing activities form the basis for the standard capital cost reimbursements. The increase in the regulatory asset base from €1,691.5m to €1,920.2m is due mainly to annual capital expenditure being at a very high level of €338.6m.

Revenue and electricity purchases

APG's revenue increased by €386.5m year-on-year to €1,082.3m.

Expenses for electricity purchases were also up on 2020, rising from €417.9m to €756.7m.

Both effects are attributable mainly to congestion management. In 2021, congestion management expenses showed an overall increase on the previous year, although a large proportion of the expenses can be passed on to other grid operators. The fourth quarter in particular saw a number of activation requests and at very high prices, which it was possible to charge on to foreign grid operators. This pushed up revenue and also electricity purchases.

Prices and therefore expenses for electricity purchases rose sharply in the control power segment too. This also increased revenue due to the charging mechanism for control power and the components that can be charged on.

Personnel expenses

Personnel expenses declined by €5.4m year-on-year to €65.3m. In spite of staff increases stemming from the high level of investing activities, personnel expenses fell in 2021 due to the one-off effects in connection with the measurement of social capital.

Depreciation and amortisation

As a result of the continuous growth in investment volumes, depreciation and amortisation also increased year-on-year, rising by €7.0m to €99.6m.

Other operating expenses and other revenue

At €75.5m in 2021, other operating expenses were almost in line with the prior-year figure (2020: €75.9m), although this is due mainly to an interest rate adjustment for the "liability for investment reserves" item. The increase in other operating expenses excluding one-off effects compared with 2020 was kept at a moderate level thanks to strict cost management.

Earnings

Earnings before interest and taxes (EBIT) stood at €124.2m, up €52.4m year-on-year. This is due primarily to a high level of negative one-off effects in 2020 and, conversely, a high level of positive one-off effects in 2021 from social capital and interest rate adjustments.

The standard capital cost reimbursements from the higher regulatory asset base also had a positive impact in 2021.

The result from ordinary activities rose by €51.0m to stand at €98.0m.

Profit after tax amounted to €73.9m and was thus €38.4m higher than the prior-year figure.

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The net retained profits to be paid out in 2022 came to €37.3m.

Net assets

€K	2020	2021
Fixed assets	1,913,797.5	2,186,891.2
Current assets	212,190.1	365,633.6
Working capital	195,729.0	307,051.4
Current liabilities	513,601.8	650,384.0
Equity	485,067.5	540,826.7
Regulatory equity as percentage of assets without time lag	44.1%	51.3%

*) Calculation for the applicable year based on the official cost notice

Fixed assets

Fixed assets showed a net increase of €273.1m, as additions to intangible and tangible fixed assets and long-term financial assets considerably exceeded the depreciation and amortisation charges.

Current liabilities

Current liabilities were up by €136.8m year-on-year, mainly as a result of the increase in current tariff provisions.

Regulatory capital-to-assets ratio

The regulatory capital-to-assets ratio rose from 44.1% to 51.3% due to the increase in the interest-earning basis (mostly tangible fixed assets) and the weaker-than-average rise in interest-bearing debt.

Financial position

€K	2020	2021
Net gearing	185.5%	185.5%
Net debt	899,696.0	1,003,256.4
Net working capital	317,872.8	343,332.6
Notional debt repayment period	11.5 years	11.1 years
Equity ratio	22.8%	21.2%

The notional debt repayment period was 11.1 years in 2021. The equity ratio was kept at a high level of 21.2% despite the enormous investment volumes.

Cash flows for the financial year are presented separately in the following table.

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Cash Flow Statement

€K	Note	2020	2021
Profit before tax		46,959.7	97,950.8
Amortisation of intangible assets and depreciation of fixed assets		92,602.1	99,608.3
Amortisation of financial assets		264.1	-403.9
Result from disposal of fixed assets		279.7	-312.7
Change in long-term provisions		-1,093.4	-13,983.4
Change in long-term liabilities		-17,258.4	19,259.2
Change in long-term other receivables and assets		-3,045.1	-42,465.5
Income from the reversal of building cost contributions and investment grants		-7,798.2	-8,409.5
Investment income, income from other securities classified as long-term financial assets and other interest and similar income/interest and similar expenses		22,475.0	23,705.6
Other non-cash expenses		-24.9	-29.0
Change in inventories		-18.2	-2.1
Change in trade receivables and other receivables		16,795.9	-77,608.9
Change in trade payables, other liabilities and deferred income		26,266.5	18,529.1
Change in current provisions		20,679.7	144,986.7
Taxes paid		-6,092.8	-6,845.4
Net cash flow from operating activities	**(1)**	**190,991.7**	**253,979.3**
Investments in intangible and tangible fixed assets		-349,560.2	-386,270.2
Disposals of intangible and tangible fixed assets		750.8	1,644.0
Investments in long-term financial assets		-3.0	-10.0
Disposals of long-term financial assets		0.0	477.0
Cash inflow from investment, interest and securities income		1,616.4	1,898.0
Net cash flow from investing activities	**(2)**	**-347,196.0**	**-382,261.2**
Building cost contributions and grants received		19,364.6	35,474.3
Proceeds/disbursements from increases/decreases in Group financing		179,097.2	182,875.0
Proceeds/disbursements from increases/decreases in Group clearing balances		-11,418.7	-46,375.8
Dividends paid		-9,733.9	-18,163.5
Cash outflow for interest and similar expenses		-24,091.3	-25,603.6
Net cash flow from financing activities	**(3)**	**153,217.9**	**128,206.4**
Change in cash and cash equivalents		-2,986.5	-75.5
Cash and cash equivalents as at 1/1		4,004.6	1,018.1
Cash and cash equivalents as at 31/12		**1,018.1**	**942.7**

Management Report

[1] Net cash flows from operating activities

Net cash flows from operating activities are calculated using the indirect method and increased by €63.0m year-on-year to €254.0m. Compared with the regulatory earnings potential, these remain at a very high level.

Summary of the main drivers of operating cash flows in 2021 compared with 2020

- A reduction in APG's own requirements for congestion management due to load flows and environmental influences, combined with a high level of charging on to foreign transmission system operators, resulted in lower cash outflows.
- An increase in international auction revenue resulted in higher cash inflows.
- The extreme price situation and price volatility in the procurement of control power and energy to cover grid losses resulted in higher cash outflows.

Changes in liabilities, receivables and provisions

Regulatory liabilities are presented as current provisions for liabilities in the year of recognition. In the following year, the provisions for liabilities are reclassified to regulatory liabilities and their maturity is determined once the extent of the regulatory liability has been ascertained in the tariff notice. Changes in maturity (current or non-current) from year to year also result from changes in assumptions about future use. Some individual items of operating cash flow are significantly impacted by this method.

[2] Net cash flows from investing activities

The outflow of funds from investing activities for intangible and tangible fixed assets amounted to €386.3m. The primary capital expenditures related to the 380-kV Salzburg line and the Weinviertel line replacement as well as other expansion and operating investments. Taking into account the disposal of intangible fixed assets, tangible fixed assets and long-term financial assets as well as cash inflows from investment, interest and securities income, investing activities required €382.3m in cash funds.

[3] Net cash flows from financing activities

Contributions to building costs and grants

The €35.5m received in contributions to construction costs and investment grants related primarily to the Neusiedl/Zaya substation, the Villach South substation and the fourth transformer in the Zurndorf substation.

Group financing and clearing balances

Proceeds/disbursements from increases/decreases in Group financing result from new long-term borrowings of €200m to finance grid expansion.

The annual repayment of a further tranche of €17.1m also took place in 2021, giving a net cash inflow of €182.9m.

For this, APG used a tranche from the EU taxonomy-aligned green and sustainability-linked bond issued by VERBUND in 2021. The bond combines green use of proceeds with an interest step-up feature linked to Company-wide sustainability targets (sustainability-linked). As an expression of its ambitious efforts to integrate renewable sources of energy with a view to achieving the climate targets, APG provides the metric for the sustainability target "additional installed transformer capacity". Transformers are central to the power grid. They connect all grid elements at lower voltages to the transmission grid and the voltage levels in the transmission grid to one another, thereby enabling green electricity to be fed into the grid. Based on the baseline of 30,810 MVA as at 31 December 2020, APG undertakes to install a further 12,000 MVA of additional transformer capacity by 31 December 2032. The additional installed transformer capacity in financial year 2021 was 1,150 MVA.

Management Report

Furthermore, Group clearing balances changed by €46.4m. Current receivables from the Group arising from Group clearing balances therefore increased to €118.3m as at 31 December 2021.

Dividends

In financial year 2020, net retained profits amounted to €18.2m, all of which was distributed to the owners in 2021.

Risk and opportunity management

APG's operational risk management aims to ensure Company-wide identification and analysis of the risks to which the Company is exposed as well as adequate action management and documentation. The task is to identify risks at an early stage and thus ensure the smallest possible deviation from the corporate goals and targets (result, security of supply and image).

Strategic risk management

Building on its revised corporate strategy, APG has implemented a strategic risk management system to capture and manage strategic risks and opportunities.

Overall assessment of risk

No risks were identified in financial year 2021 that individually or in their entirety could jeopardise the Company's ability to continue as a going concern or have a significant negative effect on its financial position and financial performance. As things stand today, there are no foreseeable risks to the Company as a going concern.

Significant risks and opportunities

Financial risks

Financial risk mainly involves planning risks arising from deviations in volumes or prices. This primarily includes risks arising from the electricity business such as those related to congestion management, control power and energy to cover system losses, or from cross-border electricity trading. Such risks are sometimes subject to considerable volume and price volatility due to market, weather or seasonal factors. This volatility will be mitigated through international alliances, the development of national markets, forecasting models and safeguarding of grid reserves. New IT systems such as energy trading and risk management software will also be implemented.

Risk arising from systems and operations

The main risks associated with systems and operations are the risk of operational disruptions and the risk of damage from natural hazards such as flooding, mudslides, avalanches and storms. A catalogue of measures to reduce such risk includes early observation of critical factors in planning and the preservation of susceptible towers in addition to regular maintenance measures such as flyovers, thermal imaging and cable checks. We pursue alliances both within Austria and internationally in order to rectify any potential damage events as quickly as possible.

Risks relating to the environment and health

The environment and the health of employees must be protected. APG implements extensive measures to minimise risks in these areas, including safety briefings, technical safety inspections, training and continuing education, work instructions and corporate policies.

IT and cybersecurity

Information technology underlies most of our business processes. Protecting our systems and data is vital for ensuring a stable supply of energy. APG has long set itself high standards for information security that are regularly reviewed and confirmed through external certification in accordance with ISO 27001 and ISO 27019. In addition, the Austrian Network and Information System Security Act (Netz- und Informationssystemsicherheitsgesetz, NISG) now in force requires compliance with legally stipulated security requirements. The rapidly changing threat situation in the digitalised environment is monitored continuously, and measures are developed and implemented to mitigate relevant cyber risks. A high level of security awareness is ensured in all areas through ongoing awareness-raising.

Risk arising from compliance and legal matters

Compliance is the observance of all laws as well as internal company regulations, though business activities must also be in line with APG's values and uphold the principles of morality and ethics. This is

why APG has a comprehensive compliance management system (CMS) in place that helps its employees to comply with and implement the regulations. Environmental impact assessments can potentially lead to significant project delays.

Risks arising from the pandemic

APG is aware of its extensive social responsibilities as an operator of critical infrastructure in these difficult times and fully supports the measures taken by Austria's federal government to limit the spread of COVID-19. Such measures include the formation of a crisis team, or COVID-19 task force, the expansion of standby teams, maximum use of teleworking and splitting up teams.

Risks from hedging transactions

Electricity forwards of up to two years into the future are purchased in order to cover system losses. There is no price risk due to the procurement process coordinated with the regulatory agency E-Control Austria. APG utilises the "own use" method of accounting, as all purchases of forwards are physically settled and therefore facilitate operating activities.

Horizontal monitoring and tax review system

By taking part in the horizontal monitoring ("Begleitende Kontrolle") project, APG has a duty to maintain a tax review system pursuant to Section 153b(6) of the Austrian Federal Fiscal Code (BAO). The tax review system comprises all measures designed to ensure that the tax base for the type of taxes and charges in question is presented in the correct amount and that the correct amount of taxes charged is transferred in good time. This tax review system is a critical part of APG's internal control system. It supplements the specification and regulations of the Group policy for VERBUND's review network. An external audit is currently examining the effectiveness of the tax review system put in place. This audit will be completed in the coming financial year.

Outlook

The alarming change to our climate is one of the greatest challenges facing our generation. On account of new technologies, the digitalisation and democratisation of the energy system is taking place at the same time. APG will continue to face enormous challenges going forward due to the resulting developments in the energy market, the implementation of the energy transition and the process of transforming the energy system itself. So that this complex and dynamic environment can continue to be actively influenced for the benefit of Austria, its people and its businesses, the next year will be dominated by the following tasks, among others:

- High trans-regional load flows in the European transmission grid will continue to necessitate interventions in Austrian power-generating facilities in order to secure grid operations over the long term. Congestion management measures will continue to be one of APG's biggest cost items.
- In light of the current energy market situation, the timely and efficient implementation of the APG grid expansion and modernisation programme is urgently necessary in order to be able to ensure the performance and stability of the system in the long term. Furthermore, APG is planning extensive capital expenditures for the modernisation and reinforcement of substations and line systems. These investments are a key factor for ensuring the permanent security of supply of Austria as a place to live and conduct business and being able to grow the domestic economy. Sharply rising investment volumes will lead to an expansion of the regulatory asset base and therefore to permanently increased earnings in the future.

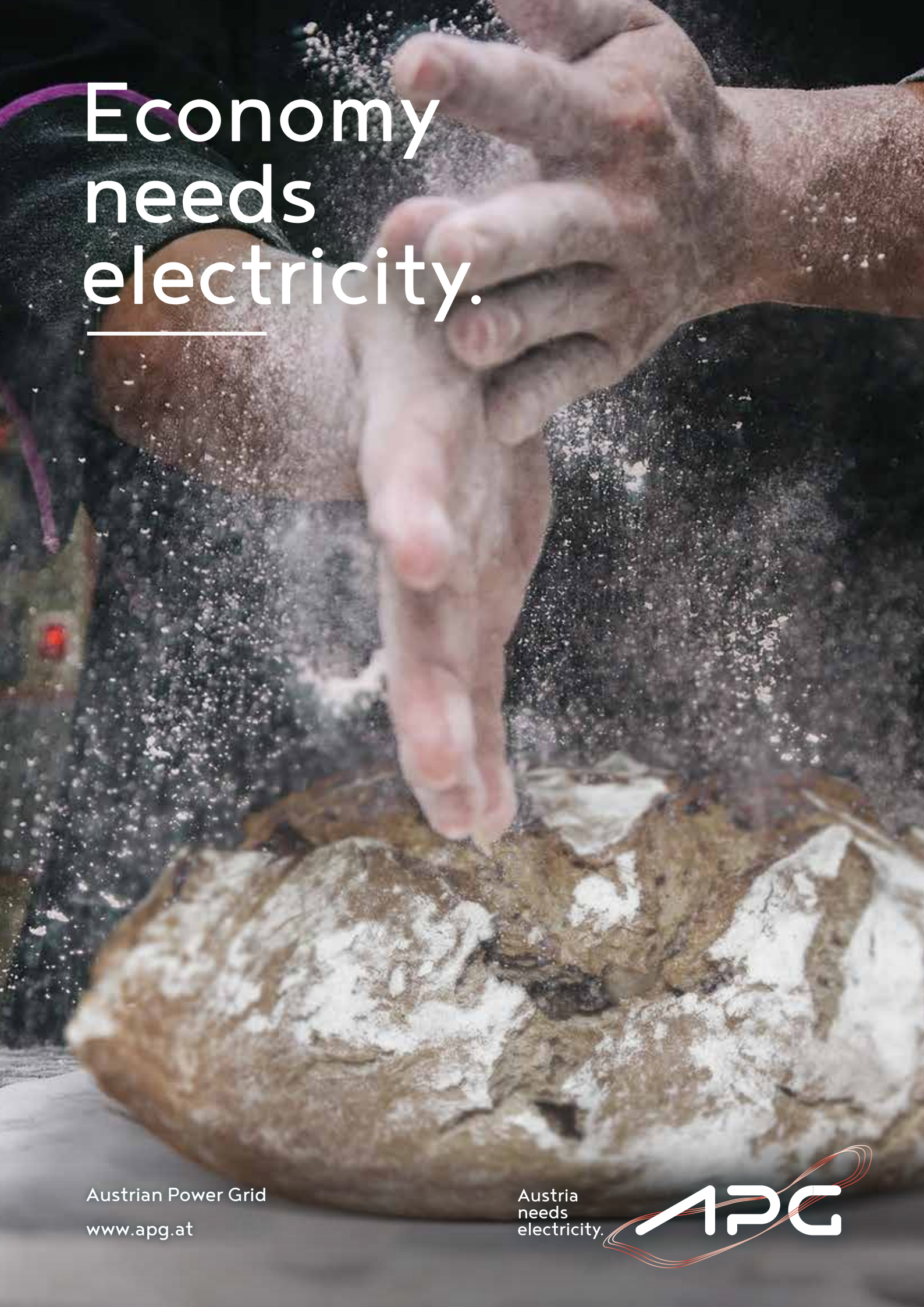
Management Report

- The planned increase in investing activities and the changing operating environment will ultimately lead to an increase in the Company's own personnel, own work capitalised and purchased external services.
- Long-term borrowings will continue to be used to finance grid expansion, with green finance instruments playing an important role here. APG's debt level will continue to rise.
- APG will take advantage of digitalisation in all of its facets and tasks in order to be sustainable, innovative and efficient.
- Due, among other things, to the Corporate Sustainability Reporting Directive (CSRD) in effect across Europe, APG will in future sharpen its strategic focus on sustainability.
- The electricity business with monopoly and market products in the national and international context will become increasingly important in connection with the further development of the energy market and be correspondingly reflected in APG's figures. These developments will have a substantial impact on the regulatory account, which will stabilise the results under the Austrian Commercial Code (UGB). However, the effects on APG's cash flow and balance sheet are important in this context. Based on current developments, a high level of provisions will need to be recognised to cover future contingencies.
- In addition, APG's business activities should continue to be considered from the perspective of generating sustainable and appropriate EBIT under the regulatory return parameters and creating cost efficiencies. Ensuring this on a lasting basis will also require APG to act quickly and, together with affected stakeholders, deal with the new regulatory period starting in 2023. This is especially so when it comes to the Company's business model which, in addition to the construction and operation of plants, now also entails major tasks relating to security of supply, integration of renewables, and the development of markets and management of electricity products.

Based on current information and forecasts, it appears that the revenue and earnings situation will pick up in 2022 given the planned RAB growth of around 14%, the non-recurrence of considerable one-off effects (particularly in social capital) and the fact that cost management is still strict.

Report on branch offices

The Company had one non-operating branch office in financial year 2021. This is the substation in Jochenstein, Germany, which was put into technical operation in 2018.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Financial Statements

Balance Sheet as at 31/12/2021

ASSETS in €K	Note	2020	2021
A. Fixed assets			
I. Intangible fixed assets	(1)	18,391.0	19,024.6
II. Tangible fixed assets	(2)	1,880,084.2	2,152,587.6
III. Long-term financial assets	(3)	15,322.3	15,278.9
		1,913,797.5	**2,186,891.2**
B. Current assets			
I. Inventories	(4)		
1. Consumables and operating supplies		488.5	490.6
		488.5	**490.6**
II. Receivables and other assets	(5)		
1. Trade receivables		93,764.9	141,066.9
of which due in > 1 year: €0.0k (previous year: €0.0k)			
2. Receivables from affiliated companies		71,882.1	105,762.7
of which due in > 1 year: €0.0k (previous year: €0.0k)			
3. Receivables from other long-term investees and investors		11,375.9	38,224.0
of which due in > 1 year: €0.0k (previous year: €0.0k)			
4. Other receivables and assets		33,660.6	79,146.7
of which due > 1 year €58,932.4k (previous year: €16,466.9k)			
		210,683.5	**364,200.3**
III. Cash-in-hand and bank balances		1,018.1	942.7
		1,018.1	**942.7**
C. Prepaid expenses			
1. Other		5.8	350.3
		5.8	**350.3**
D. Deferred tax assets	**(6)**	**4,155.6**	**0.0**
		4,155.6	**0.0**
		2,130,149.0	**2,552,875.0**

Financial Statements

EQUITY AND LIABILITIES in €K	Note	2020	2021
A. Equity			
I. Called and paid-in share capital	(7)	70,000.0	70,000.0
Available share capital: €70,000.0k (previous year: €70,000.0k)			
II. Capital reserves	(8)	15,383.5	15,383.5
III. Revenue reserves	(9)	381,520.4	418,100.2
IV. Net retained profits	(10)	18,163.5	37,342.9
		485,067.5	**540,826.7**
B. Provisions	(11)		
1. Provisions for termination benefits		21,459.3	19,437.0
2. Provisions for pensions and similar obligations		71,345.5	58,960.0
3. Provisions for taxes		0.0	13,027.1
4. Other provisions		289,691.8	417,697.7
		382,496.6	**509,121.7**
C. Liabilities	(12)		
1. Payments received on account of orders		4,600.4	1,777.0
of which due in < 1 year €1,777.0k (previous year: €4,600.4k)			
2. Trade payables		18,287.6	30,757.6
of which due in < 1 year €29,404.0k (previous year: €17,452.1k)			
of which due in > 1 year €1,353.6k (previous year: €835.5k)			
3. Liabilities to affiliated companies		814,117.7	1,013,293.9
of which due in < 1 year €52,356.4k (previous year: €36,055.2k)			
of which due in > 1 year €960,937.5k (previous year: €778,062.5k)			
4. Liabilities to other long-term investees and investors		725.5	564.1
of which due in < 1 year €564.1k (previous year: €725.5k)			
5. Other liabilities		303,618.4	308,752.4
of which from taxes €2,868.2k (previous year: €1,360.0k)			
of which from social security €1,504.7k (previous year: €1,225.5k)			
of which due in < 1 year €151,604.6k (previous year: €167,597.8k)			
of which due in > 1 year €157,147.9k (previous year: €136,020.6k)			
		1,141,349.5	**1,355,145.1**
D. Deferred income	(13)		
1. Contributions to building costs		106,879.2	134,457.6
2. Other		14,356.2	13,324.0
		121,235.4	**147,781.6**
		2,130,149.0	**2,552,875.0**

Financial Statements

Income Statement for financial year 2021

€K	Note	2020	2021
1. Revenue	(14)	695,803.2	1,082,279.8
2. Other own work capitalised		19,954.7	22,474.9
3. Other operating income	(15)		
a. Income from disposal and reversal of write-downs of fixed assets with the exception of long-term financial assets		288.4	279.0
b. Income from reversal of provisions		2,562.8	3,925.2
b. Miscellaneous		8,781.1	9,903.4
		11,632.3	**14,107.5**
4. Gross profit (subtotal from lines 1 to 3)		**727,390.2**	**1,118,862.2**
5. Expenditures for electricity and other purchased services and production services		-417,891.6	-756,674.0
6. Personnel expenses	(16)		
a. Wages		-383.1	-369.6
b. Salaries		-52,976.1	-58,604.8
c. Social expenses		-17,351.0	-6,290.5
of which cost of old age pensions €8,407.1k (previous year: €-2,779.0k)			
aa. Expenses for termination benefits and payments to employee pension funds €-396.8k (previous year: €-1,691.2k)			
bb. Expenses for social security as required by law as well as income-based charges and mandatory contributions €-13,523.9k (previous year: €-12,159.3k)			
		-70,710.2	**-65,264.9**
7. Depreciation and amortisation	(17)	-92,602.1	-99,608.3
8. Other operating expenses	(18)		
a. Taxes not included under line 16		-337.0	-372.0
b. Miscellaneous		-75,617.4	-75,109.5
		-75,954.4	**-75,481.6**
9. Operating profit (subtotal from lines 4 to 8)		**70,232.0**	**121,833.5**

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10. Income from long-term equity investments		1,610.6	1,616.2
of which from affiliated companies €763.1k (previous year: €801.1k)			
11. Income from other securities and long-term loans		0.0	120.3
12. Other interest and similar income		5.7	161.5
of which from affiliated companies €2.2k (previous year: €2.2k)			
13. Income from the disposal of long-term financial assets		246.7	470.7
14. Expenses from long-term financial assets and securities classified as current assets		-264.1	0.0
of which amortisation €k (previous year: €-264.1k)			
15. Interest and similar expenses		-24,871.2	-26,251.5
of which from affiliated companies €-25,049.5k (previous year: €-23,765.4k)			
16. Financial result (subtotal from lines 10 to 15)	**(19)**	**-23,272.2**	**-23,882.8**
17. Result from ordinary activities		**46,959.7**	**97,950.8**
18. Taxes on income	(20)	-11,433.8	-24,028.1
of which deferred taxes €-17,182.7k (previous year: €-5,341.0k)			
19. Net income for the financial year		**35,526.0**	**73,922.7**
20. Allocation to revenue reserves		-17,362.4	-36,579.8
21. Net retained profits		**18,163.5**	**37,342.9**

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Statement of Changes in Fixed Assets

	Historical cost in €k				
	Balance 1/1/2021	**Additions**	**Disposals**	**Reclassifications**	**Balance 31/12/2021**
I. Intangible fixed assets					
1. Concessions, industrial property rights, electricity purchase rights, usage fees and similar rights and benefits as well as licences derived therefrom	67,330.8	6,429.0	164.3	5.9	73,601.4
	67,330.8	**6,429.0**	**164.3**	**5.9**	**73,601.4**
II. Tangible fixed assets					
1. Land, land rights and buildings, including buildings on third-party land					
a. With residential buildings	269.7	0.0	0.0	0.0	269.7
b. With plant facilities and other structures	306,399.0	3,863.7	254.2	23,368.2	333,376.8
c. Undeveloped land	6,001.4	2,250.3	9.1	378.7	8,621.4
2. Machinery	5,369.5	34.9	0.0	8.3	5,412.7
3. Electrical installations	1,291,209.9	24,224.4	424.7	65,528.8	1,380,538.4
4. Power lines	1,472,063.2	24,917.7	883.5	3,770.2	1,499,867.6
5. Other equipment, operating and office equipment	53,259.3	6,274.8	833.0	360.8	59,062.0
6. Assets under construction, projects and prepayments	556,024.6	306,148.7	0.0	-93,420.9	768,752.4
	3,690,596.7	**367,714.5**	**2,404.4**	**-5.9**	**4,055,900.9**
Tangible and intangible fixed assets	**3,757,927.5**	**374,143.5**	**2,568.7**	**0.0**	**4,129,502.2**
III. Long-term financial assets					
1. Shares in affiliated companies	127.2	0.0	0.0	0.0	127.2
2. Other long-term equity investments	6,754.3	10.0	0.0	0.0	6,764.3
3. Long-term securities	12,301.5	0.0	653.2	0.0	11,648.3
	19,183.0	**10.0**	**653.2**	**0.0**	**18,539.8**
Fixed assets	**3,777,110.6**	**374,153.5**	**3,222.0**	**0.0**	**4,148,042.1**

The value of properties as at 31/12/2021 €36,913.9k
31/12/2020 €34,385.3k

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Depreciation and amortisation in €k						Net carrying amount in €k	
Balance 1/1/2021	Additions	Disposals	Write-ups	Reclassifications	Balance 31/12/2021	Net carrying amount as at 31/12/2021	Net carrying amount as at 1/1/2021
48,939.8	5,751.1	114.2	0.0	0.0	54,576.7	19,024.6	18,391.0
48,939.8	**5,751.1**	**114.2**	**0.0**	**0.0**	**54,576.7**	**19,024.6**	**18,391.0**
260.4	0.3	0.0	0.0	0.0	260.7	8.9	9.2
162,268.5	8,398.3	6.9	0.0	0.0	170,659.9	162,716.9	144,130.5
0.0	0.0	0.0	0.0	0.0	0.0	8,621.4	6,001.4
2,749.0	252.7	0.0	0.0	0.0	3,001.7	2,411.0	2,620.5
846,077.4	50,125.1	189.3	0.0	0.0	896,013.2	484,525.2	445,132.5
757,596.5	30,114.5	77.9	0.0	0.0	787,633.0	712,234.6	714,466.7
41,560.7	4,966.2	782.2	0.0	0.0	45,744.7	13,317.3	11,698.7
0.0	0.0	0.0	0.0	0.0	0.0	768,752.4	556,024.6
1,810,512.5	**93,857.1**	**1,056.4**	**0.0**	**0.0**	**1,903,313.3**	**2,152,587.6**	**1,880,084.2**
1,859,452.3	**99,608.3**	**1,170.6**	**0.0**	**0.0**	**1,957,890.0**	**2,171,612.2**	**1,898,475.2**
0.0	0.0	0.0	0.0	0.0	0.0	127.2	127.2
0.0	0.0	0.0	0.0	0.0	0.0	6,764.3	6,754.3
3,860.7	0.0	195.9	403.9	0.0	3,260.9	8,387.4	8,440.8
3,860.7	**0.0**	**195.9**	**403.9**	**0.0**	**3,260.9**	**15,278.9**	**15,322.3**
1,863,313.1	**99,608.3**	**1,366.5**	**403.9**	**0.0**	**1,961,150.9**	**2,186,891.2**	**1,913,797.5**

Details on equity investments in accordance with Section 238 [1] [4] UGB

€K	Registered office	Share of capital in % as at 31/12/2021	Most recent annual financial statements	(+) (-)	Net income/loss for the financial year	Equity
Affiliated companies non-consolidated						
VUM Verfahren Umwelt Management GmbH	Klagenfurt	100.00	2021	+	953.9	1,158.0
Other long-term equity investments						
OeMAG Abwicklungsstelle für Ökostrom AG	Vienna	24.40	2020	+	430.2	6,040.6

Notes to the financial statements

I. Accounting policies

Preliminary remarks

The annual financial statements were prepared in accordance with Austrian Generally Accepted Accounting Principles and the general standard of giving a true and fair view of the Company's financial position and financial performance.

The accounting, measurement and presentation of the individual items in the annual financial statements have been carried out in accordance with the general provisions of Sections 195 to 211 of the Austrian Commercial Code (UGB), taking into account the special provisions for corporations in Sections 221 to 235 UGB. It was assumed that the Company will continue as a going concern.

The Company is a large corporation as defined in Section 221 of the Austrian Commercial Code (UGB).

Rounding differences may occur when adding rounded amounts and percentages due to the use of automated calculation systems.

Fixed assets

As a rule, depreciable fixed assets are measured at cost less depreciation and amortisation.

In addition to direct costs, an appropriate amount of material and indirect labour costs is capitalised in the production cost of internally generated assets. APG has chosen not to apply the optional method of measurement with respect to the inclusion of social security expenses, termination benefits and contributions to the employee pension funds defined under Section 203(3) of the Austrian Commercial Code (UGB) as well as with respect to the capitalisation of borrowing costs in accordance with Section 203(4) UGB. Low-value assets are fully written off in the year of acquisition in accordance with Section 226(3) UGB.

Tangible and intangible assets used for more than six months during the financial year are depreciated at the full annual rate; those used for less than six months are depreciated at half the annual rate.

Purchased intangible assets are measured at cost and - if amortisable - are amortised based on the typical useful life.

The current catalogue of uniform depreciation rates applied by Austrian Power Grid AG (APG) essentially comprises the following rates of depreciation:

	Depreciation rate in %	Useful life in years
Intangible fixed assets		
Rights to telecommunications facilities	10	10
Rights to software products	25	4
Other rights	5	20
Buildings		
Residential and office buildings	2 and 3	33.3 and 50
Plant buildings	3	33.3
Technical equipment and machinery		
Machinery	4 and 5	20 and 25
Electrical installations	4 and 5	20 and 25
Power lines	2	50
Office and plant equipment	**10-25**	**4-10**

Long-term financial assets are recognised at cost or fair value in accordance with Section 189a(4) of the Austrian Commercial Code (UGB). Due to the fact that the option previously granted under Section 208(2) UGB no longer applies, the reversals of write-downs that were omitted until 2015 were recognised in 2016. The option granted under Section 906(32) in conjunction with Section 124b(270) of the Austrian Income Tax Act (EStG) 1988 was exercised and the reversals of write-downs were recognised under deferred income.

Loans bearing interest are recognised at nominal value. Receivables with a remaining term of more than one year are reported as loans under long-term financial assets.

Notes to the financial statements

The useful lives of the tangible fixed assets stipulated by taxation requirements were evaluated together with Österreichs Energie and the Tax Office in 2020 and extended and adapted for the entire industry. These must be applied to all new tangible fixed assets commissioned from 1 January 2021.

Current assets

Inventories of consumables and operating supplies are measured at cost or fair value in accordance with the strict lower of cost or market value principle. A permanent inventory is kept of stored supplies and spare parts measured based on the moving average price method. Inventory risks arising from the storage period and reduced utility are taken into account through appropriate write-downs in value.

Receivables and other assets are measured at nominal value, unless a lower amount is to be recognised in the event of identifiable specific risk.

Prepaid expenses and deferred income

Prepaid expenses relate to expenses already paid for future financial years and are reversed in accordance with the contractual term.

Deferred income includes building cost contributions and investment grants, which are depreciated based on the useful life of the tangible fixed assets.

In financial year 2020, APG applied for the COVID-19 investment subsidy. According to information published in December 2020 by the Austrian Financial Reporting and Auditing Committee (AFRAC) in a document entitled "AFRAC-Fachinformation COVID-19", the subsidy shall only be capitalised in proportion to the expenses actually incurred that have already been recognised in the financial statements.

Deferred tax liabilities

Deferred tax liabilities are recognised in the balance sheet for tax charges expected in subsequent years. This item results from different depreciation methods and differences between the carrying amounts under commercial law and the tax base of line items that cannot be offset until future tax periods. The deferred taxes attributable to APG as a group member[1] based on tax allocation are presented under the current result in the income statement.

Regulatory assets and liabilities

APG's grid rates are set by E-Control Austria (regulator) using estimates of costs and revenues based on audited prior-year figures for the year following the review. Lower or higher costs or revenues in previous periods are taken into account when determining future tariffs.

In order to ensure the steady development of fees over time, the regulatory account was introduced under Section 50 of the 2010 Austrian Electricity Industry and Organisation Act (EIWOG 2010) and also under Section 59(8) EIWOG 2010. These special provisions in EIWOG 2010 regarding accounting treatment are applied by APG.

The option granted under Section 50(2) EIWOG 2010 to distribute relevant extraordinary income or expenses over the regulatory account is exercised as needed. The option granted under Section 59(8) EIWOG 2010 to recognise an asset item for the time lag arising in connection with the settlement of system charges is also applied.

- Regulatory assets: APG's higher costs and/or lower revenue will be compensated in future years by grid users being charged higher tariffs. This future claim is presented as an asset under other receivables.
- Regulatory liabilities: APG is obligated to reimburse grid users for lower costs and/or higher revenue by charging lower tariffs. Such obligations are presented as current provisions in the year of recognition. In the subsequent year, this provision will be reclassified as a regulatory liability as specified in a notice received from the regulator and presented under other liabilities.

Provisions

Provisions reflect all identifiable risks attributable to a past financial year and include all amounts

[1] See taxes on income

Notes to the financial statements

deemed necessary based on prudent business judgement.

Provisions for termination benefits are allocated at the full actuarial amount based on the projected unit credit method typically used in international accounting. With respect to termination benefit obligations, service cost is allocated over the entire length of service, but at most over the period in which the employee maximises their termination benefit entitlement (or reaches the age of 62). Employees whose contracts began after 31 December 2002 are not entitled to a direct claim against their employer for statutory termination benefits. For these employment contracts, the employer pays 1.53% of the salary monthly into an employee pension fund in which the premiums are invested for the employee. The provisions for termination benefits reflect regulations that go beyond the statutory claims specified under the collective agreement for energy providers.

APG is obligated based on labour-management agreements and contracts to pay pension benefits to employees when they retire if certain requirements are met. Dedicated pension fund assets of APK Pensionskasse AG are available to cover some of these defined benefit obligations. The provisions determined in accordance with the projected unit credit method typically used in international accounting are presented net of pension fund assets. The employer is obligated to provide additional funding to the extent that these defined benefit obligations are to be fulfilled by APK Pensionskasse AG. The defined contribution plans do not result in any obligation on the part of the employer in excess of the premium payments.

Provisions for current pensions, vested pension benefits and similar obligations are determined based on the projected unit credit method.

Interest expense arising from personnel-related obligations is presented in the financial result in accordance with international standards.

The calculations were based on the "AVÖ 2018-P Actuarial Assumptions for Pension Insurance" in force since 2018.

The interest rate applied for the expected return on plan assets was the same as the one used to calculate the associated provisions.

Calculations as at 31 December 2021 and 31 December 2020 are based on the following assumptions:

	2020	2021
Interest rate		
Pensions and similar obligations	0.75%	1.00% and 1.25%
Termination benefits	0.50%	0.75%
Trend		
Increases in pension	2.00%	1.75%
Increases in salary	2.75%	2.75%
Contribution payments for obligations similar to pensions - old contracts	6.00%	5.50%
Contribution payments for obligations similar to pensions - new contracts	3.75%	3.75%
Turnover	0.00%-4.10%	0.00%-4.10%
Retirement age for women	56.5-65 y.	56.5-65 y.
Retirement age for men	61.5-65 y.	61.5-65 y.
Expected long-term return on fund assets	0.75%	1.00%

Liabilities

Liabilities are recognised at their settlement amount based on the principle of prudence.

Taxes on income

Austrian Power Grid AG is not a taxable entity in terms of corporate income tax due to its inclusion as a member of the corporate group of the parent entity VERBUND AG (Group and Tax Allocation Agreement dated 21 September 2005).

The members of the group are charged attributable amounts for corporate income tax incurred by them in the form of positive tax allocations amounting to 25% of their attributable positive income; if a loss is generated, they are credited 25% of their attributable negative income in the form of negative tax allocations. The offsetting of allocated tax amounts shifts the tax expense within the group parent's income statement.

The tax offsets with the group members are only adjusted to reflect subsequent differences if they are material.

APG's participation in the horizontal monitoring project means there is permanent dialogue with the tax authorities instead of a subsequent external audit. The goal is to increase legal certainty and planning reliability in tax matters. Participants in this project first have to implement a tax review system. For more information, see the notes in the management report under "Risk and opportunity management".

II. Notes to the balance sheet and income statement

General information

Individual line items are consolidated in the balance sheet and income statement in the interest of clarity. These line items are explained separately in the notes to the financial statements.

In accordance with Section 223(7) UGB, items in the balance sheet and income statement that did not show an amount in either the financial year or the previous year are not stated. In accordance with Section 223(4) UGB, the descriptions of the items were shortened or expanded to reflect their actual contents if it was deemed to increase the clarity and understanding of the annual financial statements.

As a general rule, if the presentation was changed in comparison to the previous year, the amounts reported for the previous year are adjusted and explained in accordance with Section 223(2) UGB.

Effects of COVID-19 on APG

The guideline on APG protection measures is continually updated in line with current conditions, with the applicable measures based on the federal government's traffic light status for the federal states. Most employees worked from home during the financial year. Various measures enabled construction site operations to be maintained in spite of COVID-19. However, the COVID-19 crisis is causing supply chain disruptions, which are impacting on services already ordered and project costs. COVID-19 did not have a significant effect on the grid situation in 2021.

Overall, COVID-19 had only very minor negative impacts on APG's finances.

For more information on the effects of COVID-19, see the information provided in the management report.

Notes regarding assets

A. Fixed assets

For more details, see the separate "Statement of changes in fixed assets".

[1] I. Intangible fixed assets

The net carrying amount of the rights to use plants acquired from affiliated companies amounts to €64.6k (previous year: €136.9k).

[2] II. Tangible fixed assets

The capitalised borrowing costs related to the financing of tangible fixed assets in the years up to and including 1989 for the transmission systems contributed by VERBUND AG in 1999 amounted to €4,018.2k at the balance sheet date (previous year: €4,544.0k).

[3] III. Long-term financial assets

Disclosures required under Section 238(1)(4) UGB are presented in a separate schedule entitled "Disclosures regarding other long-term equity investments in accordance with Section 238(1)(4) UGB".

Changes in equity investments and securities classified as fixed assets can be found in the separate "Statement of changes in fixed assets".

Notes to the financial statements

Long-term securities

These primarily consist of shares in Austrian investment funds and bonds.

B. Current assets

[4] I. Inventories

€K	2020	2021
Consumables and operating supplies	488.5	490.6

[5] II. Receivables and other assets

€K	2020	2021
Regulatory assets	29,941.2	75,399.4
Security deposits	1,198.3	1,848.3
Relating to social security	63.6	154.3
Personnel accounting	210.1	138.1
Local tax offices	2,092.3	42.3
Other	155.2	1,564.4
	33,660.6	**79,146.7**

Other receivables include income in the amount of €76,963.7k (previous year: €30,096.3k) that will be realised after the balance sheet date in accordance with Section 225(3) UGB.

The item "Other" includes receivables of €76.3k (previous year: €31.4k) from Austria Wirtschaftsservice Gesellschaft mbH (aws) arising from investment subsidies for investments made in the financial year. The investment volume for which an application was submitted pursuant to the COVID-19 Investment Subsidy Act (Covid-19-Investitionsprämiengesetz) is €148.1k.

Regulatory assets are described in the "Accounting policies" section. This line item shows the following changes:

€K	2020	2021
As at 1/1	52,520.6	29,941.2
Addition	16,519.3	58,932.4
Disposal	-39,098.7	-13,474.2
As at 31/12	**29,941.2**	**75,399.4**
of which maturity > 1 year	16,466.9	58,932.4

[6] D. Deferred tax assets

€K	2020	2021
Social capital	18,447.8	0.0
Untaxed reserves	-9,568.7	0.0
Other	-4,723.4	0.0
	4,155.6	**0.0**

Overall in financial year 2021, the use of the declining balance method of depreciation in accordance with Section 7(1a) and Section 8(1a) of the Austrian Income Tax Act (EStG) gives rise to a provision from deferred taxes. For further information, see [11] B.3. Provisions for taxes.

Notes regarding equity and liabilities

A. Equity

[7] I. Called and paid-in share capital

The share capital amounts to €70,000.0k and is fully paid in and composed of 70,000,000 registered no-par-value shares.

[8] II. Capital reserves

€K	2020	2021
Restricted capital reserves	7,000.0	7,000.0
Unallocated capital reserves	8,383.5	8,383.5
	15,383.5	**15,383.5**

The restricted capital reserves equate to 10% of the share capital.

[9] III. Revenue reserves

€K	2020	2021
Unappropriated reserves	352,590.0	389,508.9
Unappropriated reserves in acc. with Section 906(31) UGB	28,930.4	28,591.3
	381,520.4	**418,100.2**

Notes to the financial statements

Effective 1 January 2016, the untaxed reserves recognised in accordance with Section 205 UGB (version prior to the federal law published in the Austrian Federal Law Gazette (BGBl.) I no. 22/2015) were reclassified to revenue reserves less 25% deferred taxes in accordance with Section 906(31) UGB.

[10] IV. Net retained profits

Changes in net retained profits are shown below:

€K	
As at 31/12/2020	18,163.5
Distribution of dividends	-18,163.5
Net income	73,922.7
Allocation to revenue reserves	-36,579.8
As at 31/12/2021	**37,342.9**

[11] B. Provisions

1. Provisions for termination benefits

€K	2020	2021
Premium reserve based on actuarial calculations	21,459.3	19,437.0
Taxed portion of provisions	21,459.3	19,437.0

In accordance with Section 14 of the Austrian Income Tax Act (EStG), the provision was transferred in 2002 tax-exempt to a reserve qualifying as taxed (Section 124b(68) EStG).

2. Provisions for pensions and similar obligations

€K	2020	2021
Pension provisions	71,345.5	58,960.0
Of which obligations similar to pensions	29,708.5	25,819.2

3. Provisions for taxes

The provision for taxes consists entirely of the provision for deferred taxes.

€K	2020	2021
Social capital	0.0	-15,219.4
Untaxed reserves	0.0	9,455.7
Other	0.0	18,790.8
	0.0	**13,027.1**

In the previous year, deferred tax assets were reported. For further information, see [6] C. Deferred tax assets.

Deferred taxes were calculated based on a tax rate of 25%.

4. Other provisions

€K	2020	2021
Other provisions related to the electricity/grid business		
Regulatory reserves	143,552.1	237,611.8
Grid billing		
Services not yet billed	30,934.8	79,086.7
	174,486.9	**316,698.5**
Other personnel-related provisions		
Premiums	4,847.9	5,304.4
Unused holidays	4,180.3	4,426.0
Anniversary bonuses	2,984.8	3,487.0
Holiday bonus	2,192.6	2,410.5
Time credits	771.6	871.5
Funeral benefit	824.4	746.5
	15,801.6	**17,246.0**
Deliveries and services not yet billed	**99,403.3**	**83,753.1**
	289,691.8	**417,697.7**

At the reporting date, the unbilled services from grid billing include a provision for subsequent billing of congestion management and redispatching by TenneT in the amount of €3,395.4k (previous year: €3,223.5k) for the years 2017-2021. In addition, in the previous year several wind power operators had filed claims seeking appropriate compensation for the economic disadvantages incurred as a result of restrictions in wind power feed-in. A provision of €260.8k (previous year: €260.8k) was recognised for this.

Regulatory provisions were described in the "Accounting policies" section and show the following changes:

Notes to the financial statements

€K	2020	2021
As at 1/1	127,677.4	143,552.1
Addition	144,245.1	238,516.7
Disposal	-1,056.0	0.0
Reclassification as a regulatory liability	-127,314.4	-144,457.1
As at 31/12	**143,552.1**	**237,611.8**

[12] C. Liabilities

2. Trade payables

€K	2020	2021
Trade payables	18,287.6	30,757.6
of which maturity > 1 year	700.1	1,125.6
of which maturity > 5 years	135.3	228.0

3. Liabilities to affiliated companies

€K	2020	2021
Liabilities to affiliated companies	814,117.7	1,013,293.9
of which financial liabilities	795,299.3	978,145.3
of which trade payables	18,818.4	35,148.6
of which maturity > 1 year	214,000.0	202,187.5
of which maturity > 5 years	564,062.5	758,750.0

5. Other liabilities

€K	2020	2021
Regulatory liabilities	280,837.8	282,490.0
Easement agreements	19,444.7	21,712.5
From taxes	1,360.0	2,868.2
Relating to social security	1,225.5	1,504.7
Personnel accounting	58.6	52.0
Other	691.8	124.9
	303,618.4	**308,752.4**
of which maturity > 1 year	58,749.4	99,040.2
of which maturity > 5 years	77,271.1	58,107.6

Other liabilities include expenses in the amount of €285,613.9k (previous year: €282,813.6k) that will be realised after the balance sheet date in accordance with Section 225(6) UGB.

Regulatory liabilities are described in the "Accounting policies" section. They show the following changes:

€K	2020	2021
As at 1/1	272,306.9	280,837.8
Addition	17,639.7	24,158.8
Disposal	-136,423.3	-166,963.6
Reclassification as a regulatory liability	127,314.4	144,457.1
As at 31/12	**280,837.8**	**282,490.0**
of which maturity > 1 year	57,262.7	97,584.0
of which maturity > 5 years	60,041.7	38,458.0

[13] D. Deferred income

€K	2020	2021
Building cost contributions (financial contributions)	106,879.2	134,457.6
Other		
Investment grants	11,244.5	10,775.6
Revaluation of securities in accordance with RÄG 2014	995.6	948.4
Prepayments for auctions	1,479.1	0.0
Other	637.1	1,600.0
	121,235.4	**147,781.6**

Building cost contributions relate to third-party contributions associated with the use of individual facilities.

Deferred income includes €14,157.2k (previous year: €12,802.6k) related to affiliated companies.

In financial year 2021, applications were submitted for the COVID-19 investment subsidy in the amount of €148.1k. Of this figure, €76.3k (previous year: €31.4k) had already been recognised in the balance sheet as investment grants at the reporting date.

Notes to the financial statements

Notes to the income statement

[14] 1. Revenue

€K		2020	2021
Revenue from electricity delivery and grid tariff settlement			
Austria	Energy providers	452,137.1	476,146.2
	Industrial customers	3,874.1	5,005.1
	Other customers	45,877.9	80,656.0
		501,889.1	**561,807.3**
EU	Energy providers	74,993.3	342,551.8
	Other customers	1,129.0	17,346.6
		76,122.3	**359,898.5**
Other countries	Energy providers	1,963.5	667.7
	Other customers	19.3	0.0
		1,982.8	**667.7**
		579,994.1	**922,373.5**
User and management fees			
Austria	Energy providers[1)]	- 800.7	- 5,313.6
	Industrial customers	0.2	0.2
	Other customers	171.4	194.8
		- 629.1	**- 5,118.6**
EU	Energy providers[1)]	- 1,555.0	- 3,436.3
	Other customers[2)]	112,753.6	162,305.4
		111,198.6	**158,869.2**
		110,569.5	**153,750.6**
Other revenue		**5,239.6**	**6,155.7**
		695,803.2	**1,082,279.8**

[1)] Negative revenue in the EU arises as a result of auction revenue forwarded to the merchant line.
[2)] Other customers in the EU only include the Joint Auction Office (JAO) in Luxembourg, which carries out the auction of marginal capacities for APG.

Notes to the financial statements

[15] 3. Other operating income

€K	2020	2021
a) Income from the disposal of fixed assets with the exception of long-term financial assets	288.4	279.0
b) Income from the reversal of provisions	2,562.8	3,925.2
c) Miscellaneous		
Reversal of building cost contributions	7,260.1	7,896.0
Reversal of investment grants	538.1	513.5
Other	982.9	1,493.9
	8,781.1	**9,903.4**
	11,632.3	**14,107.5**

[16] 6. Personnel expenses

€K	2020	2021
a) Wages	383.1	369.6
b) Salaries	52,976.1	58,604.8
	53,359.2	**58,974.4**
c) Social expenses		
Cost of old age pensions		
Early retirement benefits, pension payments and similar obligations	3,279.0	3,067.5
Change in the provisions for pensions and similar obligations	-1,892.4	-12,900.8
Pension fund contributions (including additional funding obligations)	1,392.4	1,426.2
	2,779.0	**-8,407.1**
aa) Expenses for termination benefits and payments to employee pension funds		
Termination benefits	1,589.7	1,883.8
Change in the provision for termination benefits	-449.2	-2,126.3
Premium payments to employee pension fund	550.7	639.3
	1,691.2	**396.8**
bb) Expenses for social security contributions as required by law as well as income-based charges and mandatory contributions	12,159.3	13,523.9
Other social expenses	721.5	777.0
	70,710.2	**65,264.9**

Pension fund contributions include payments for defined contribution plans and defined benefit plans. Any obligation to provide additional funding to APK Pensionskasse AG relates exclusively to defined benefit commitments.

Notes to the financial statements

[17] 7. Depreciation and amortisation

€K	2020	2021
Amortisation of intangible fixed assets and depreciation of tangible fixed assets		
Depreciation and amortisation in the financial year	91,953.2	98,681.6
Immediate write-offs of low-value assets in accordance with Section 13 EStG	648.8	926.7
	92,602.1	**99,608.3**

[18] 8. Other operating expenses

€K	2020	2021
a) Taxes not included in taxes on income	337.0	372.0
	337.0	**372.0**
b) Miscellaneous		
Third-party deliveries and services for repair and maintenance	18,766.7	22,179.7
Telecommunications services and data services	11,047.1	11,078.6
Regulatory costs	11,701.6	11,016.9
IT support, electronic data processing	6,274.7	8,461.4
Operating costs for buildings, rent and leasing	3,756.2	4,157.6
Legal, audit and consulting expenses	3,779.8	3,447.3
Consumables for offices, operations and maintenance	2,025.0	2,725.9
Temporary staff and personnel secondment	3,450.2	2,632.4
Advanced training and further education (incl. apprentice training)	1,108.6	1,403.5
Travel expenses	1,029.3	908.9
Write-downs of and valuation allowances on receivables	133.3	613.8
Insurance	203.4	257.4
Miscellaneous administrative expenses	182.3	177.7
Allocations to other regulatory liabilities	3,909.0	0.0
Other expenses	8,250.1	6,048.5
	75,617.4	**75,109.5**
	75,954.4	**75,481.6**

[19] 16. Financial result

€K	2020	2021
Other interest and similar income		
From affiliated companies	2.2	2.2
Other	3.5	159.4
	5.7	**161.5**
Interest and similar expenses		
From affiliated companies	23,765.4	25,049.5
Interest components for long-term provisions for personnel expenses	779.9	647.9
Other	326.0	554.1
	24,871.2	**26,251.5**

Notes to the financial statements

[20] 18. Taxes on income

€K	2020	2021
From the group parent		
Income tax for the current period	6,092.8	6,845.4
Deferred tax assets		
from social capital	143.2	3,228.4
from untaxed reserves	-366.1	-113.0
from other	5,563.8	14,067.4
	5,341.0	**17,182.7**
	11,433.8	**24,028.1**

Upon the entry into force of RÄG 2014, the untaxed reserves were recognised in equity in the carrying amount as at 1 January 2016 less 25% deferred taxes. Deferred taxes were recognised for the first time directly in equity. Deferred taxes will be reversed in line with the gradual reversal of the untaxed reserves.

Earnings before taxes are reduced by income tax in the amount of €24,028.1k (previous year: €11,433.8k).

Notes to the financial statements

III. Other disclosures

1. Total amount of other financial commitments

€K	Total commitment	2022	2022–2026
Main items			
Rent and lease agreements	[1]	16,213.2	75,526.9
Other (insurance, compensations, fees for usage and operational management)	[1]	4,820.0	19,153.7
Purchase commitments for reserve capacity contracted for congestion management	101,443.3	89,967.8	101,443.3
Purchase commitments for supplies and services	530,271.7	295,131.3	530,271.7
Purchase commitments for energy to cover system losses	216,170.1	216,170.1	216,170.1
Purchase commitment for balancing energy	3,761.3	3,761.3	3,761.3
of which to affiliated companies	[1]	86,522.3	152,074.3

[1] The total commitment cannot be determined because the contractual periods are indefinite.

APG is obligated to provide additional funding to land owners for a limited period of up to ten years after a power line is put into operation if a portion of the developable land is rededicated.

In June 2018, 31 European transmission system operators (including APG) involved in the Cross-Border Intraday Market (XBID) project concluded a contract stipulating indemnification for the 16 power exchanges with respect to third-party claims for damages on the one hand and liability between the transmission system operators on the other. The liability regime provides for a cap on liability wherever possible. However, liability is unlimited where the law does not allow for a limitation on liability.

At the balance sheet date, there were no employees with a letter of loyalty granting them a higher degree of protection against layoffs (previous year: one employee). To qualify, an employee must have worked for VERBUND for at least 20 years and be at least 45 years of age.

APG is obligated based on labour-management agreements and contracts to pay pension benefits to employees when they retire if certain requirements are met. The employer is obligated to provide additional funding to the extent that these pension obligations are to be fulfilled by APK Pensionskasse AG. Due to the trend on the financial markets, APK Pensionskasse AG reported an anticipated obligation to provide additional funding in the amount of €0.0k (previous year: €0.0k).

2. Transactions with related parties

As a transmission system operator, Austrian Power Grid AG is obligated under ElWOG 2010 to ensure the balance between generation and consumption for the purpose of operating a secure system as well as to maintain frequency and voltage. Reserve capacity for use in congestion management was contracted from a number of plant operators in 2021, including VERBUND Energy4Business GmbH.

Grid services in the form of control power and energy to cover system losses are also purchased from VERBUND AG, VERBUND Hydro Power GmbH, VERBUND Energy4Business GmbH and VERBUND Energy4Flex GmbH.

A contract has been entered into with VERBUND Services GmbH for the billing of services in the areas of IT and telecommunications as well as administrative services.

A contract has been entered into with VERBUND Finanzierungsservice GmbH for the billing of services relating to the processing of payment transactions and cash management.

In financial year 2021, all agreements entered into with members of the Supervisory Board or any entities closely associated with individual members of the Supervisory Board were formed at arm's length as defined under Section 238(1)(12) UGB.

Notes to the financial statements

Services were rendered for various companies of the VERBUND consolidated group; these contracts were approved by E-Control Austria.

3. Number of personnel

Average	2020	2021
Salaried employees	535	589
Apprentices	23	22
	557	**611**

4. Expenses for termination benefits and pensions

€K	2020	2021
Members of the Managing Board	59.3	38.8
Managerial employees	112.8	22.2
Employees	4,298.0	-8,071.3
	4,470.1	**-8,010.4**

Overall in the financial year, the interest rate adjustment for employees gave rise to income from termination benefits and pensions. For further information, see the commentary in the "Economic trends" section of the management report.

5. Governing bodies of the company

The details regarding the Company's governing bodies (members of the Executive Board and Supervisory Board) are provided before the management report.

The Executive Board comprised two members in the financial year. No loans or advances were paid to members of the Executive Board.

€K	2020	2021
Remuneration of two members of the Executive Board		
Fixed remuneration	514.1	521.9
Variable remuneration[1)]	207.6	218.8
Total	**721.7**	**740.8**

[1)] Variable remuneration for the respective financial year is paid starting in June of the following year in 14 equal payments because whether or not goals have been achieved can only be determined during the first quarter of the following year. Consequently, the variable components shown are the proportionate variable components paid to the members of the Executive Board in 2021 in respect of financial years 2019 and 2020. Variable remuneration for 2021 will be paid starting in June 2022.

Remuneration for members of the Supervisory Board in the financial year amounted to €54.5k (previous year: €52.9k).

6. Intra-group relationships

The parent company of APG obligated to prepare consolidated financial statements is VERBUND AG, Am Hof 6a, 1010 Vienna.

Austrian Power Grid AG is a member of the parent company's corporate group (as defined under Section 9(8) of the Corporate Income Tax Act (KStG)).

Due to APG's inclusion in the consolidated financial statements of VERBUND AG, Vienna, as well as the corresponding disclosure of expenses for the financial statements audit in the aforementioned consolidated financial statements, this information is omitted in these annual financial statements.

The consolidated financial statements are filed with the commercial register of the Vienna Commercial Court.

7. Influence of the 3rd EU Internal Energy Market Package in Austria

VERBUND has decided to implement the ITO (Independent Transmission Operator) as defined under the 3rd EU Internal Energy Market Package and ElWOG 2010, which entailed stricter unbundling rules, thereby remaining the owner of APG.

APG received ITO certification in a notice issued by E-Control Austria (ECA) dated 12 March 2012. The official designation as an independent transmission operator was announced in the Austrian Federal Law Gazette (BGBl) II 134/2012 on 19 April 2012 by the Austrian Federal Minister of Economy, Family and Youth. In accordance with Section 27(2)(3) ElWOG, the compliance officer began his activities on 1 March 2012.

Business transactions as defined under Section 8(3) ElWOG will be carried out in particular with the following companies:

Notes to the financial statements

Electricity deliveries
VERBUND Hydro Power GmbH, VERBUND Thermal Power GmbH & Co KG, Ennskraftwerke Aktiengesellschaft, VERBUND Energy4Flex GmbH

Grid services
VERBUND Hydro Power GmbH, VERBUND Thermal Power GmbH & Co KG, VERBUND Wind Power Austria GmbH, VERBUND Energy4Business GmbH, VERBUND AG, Ennskraftwerke Aktiengesellschaft, Donaukraftwerk Jochenstein AG, Österreichisch-Bayerische Kraftwerke AG, Energienetze Steiermark GmbH, KNG-Kärnten Netz GmbH

Telecommunications
VERBUND Services GmbH

Managerial services
VERBUND Verfahren Umwelt Management GmbH, VERBUND Services GmbH, VERBUND AG

Financing
VERBUND Finanzierungsservice GmbH, VERBUND AG

Personnel secondments
VERBUND Services GmbH

IV. Appropriation of profit

The Executive Board proposes the following appropriation of profit to the Annual General Meeting:

€K	2021
Net income	73,922.7
Distributable profit	**73,922.7**
Retained profit	36,579.8
Distribution of dividends	37,342.9
Appropriation of profit	**73,922.7**

V. Events after the balance sheet date

On 20 January, the eco-social tax reform was adopted in a third reading in a plenary sitting of the National Council. Among other measures, it provides for a gradual reduction in the corporate income tax rate from 25% to 23% (2023: 24%, from 2024: 23%). Based on the deferred taxes recognised as at 31 December 2021 and the likely realisation of the underlying temporary differences by 2023, this does not have a material impact.

Vienna, 31 January 2022
Executive Board

DI Mag. (FH) Gerhard Christiner

Mag. Thomas Karall

Glossary

EBIT

Earnings before interest (including personnel-related interest) and taxes.

Calculation	
	Operating profit
+	Financial result
–	Interest expense
=	**EBIT**

Notional debt repayment period

Ratio of debt to the surplus funds from ordinary activities.

Calculation	
	Provisions
+	Liabilities
–	Other securities and shares classified as current securities
÷	Surplus funds from current activities
=	**NOTIONAL DEBT REPAYMENT PERIOD**

Gearing

Net indebtedness in relation to equity plus untaxed reserves adjusted for deferred taxes and investment grants.

Calculation	
	Net debt
÷	Equity
=	**GEARING**

Net cash flow

Balance of cash inflows and outflows, usually broken down into net cash flow from operating activities, investing activities and financing activities.

Calculation	
	Net cash flow from operating activities
+	Net cash flow from investing activities
+	Net cash flow from financing activities
=	**NET CASH FLOW**

Net current assets

Current assets (including current loans and current prepaid expenses) less short-term liabilities (including current deferred income).

Calculation	
	Net current assets from operating activities
+	Net current assets from financing activities
=	**NET CURRENT ASSETS (WORKING CAPITAL)**

Glossary

Net debt

Interest-bearing debt less cash and cash equivalents (including securities and shares classified as current securities) adjusted for closed assets and closed liabilities.

Calculation	
	Interest-bearing provisions
+	Interest-bearing liabilities
–	Net balance with closed items
=	**GROSS DEBT**
–	Financial assets
=	**NET DEBT**

APG-ROCE

Return on capital employed according to APG's calculation: result before interest expense (including personnel-related interest) less attributable taxes in relation to the interest-earning capital basis.

Calculation	
	Operating profit
÷	Interest-earning capital basis
=	**APG-ROCE**

ROE

Return on equity: result from ordinary activities in relation to equity plus untaxed reserves adjusted for deferred taxes and investment grants at the beginning of the financial year.

Calculation	
	Result from ordinary activities
÷	Equity as at 1/1
=	**ROE**

ROI

Return on investment: result before interest expense (including personnel-related interest) and taxes in relation to total capital at the beginning of the financial year.

Calculation	
	EBIT
÷	Total capital as at 1/1 adjusted for closed items
=	**ROI**

ROS

Return on sales: result before interest expense (including personnel-related interest) and taxes in relation to sales (revenue).

Calculation	
	EBIT
÷	Revenue
=	**ROS**

Auditor's Report*)

Report on the Financial Statements

Audit Opinion

We have audited the financial statements of Austrian Power Grid AG, Vienna.

These financial statements comprise the balance sheet as of December 31, 2021, the income statement for the fiscal year then ended and the notes.

Based on our audit the accompanying financial statements were prepared in accordance with the legal regulations and present fairly, in all material respects, the assets and the financial position of the Company as of December 31, 2021 and its financial performance for the year then ended in accordance with Austrian Generally Accepted Accounting Principles.

Basis for Opinion

We conducted our audit in accordance with Austrian Standards on Auditing. Those standards require that we comply with International Standards on Auditing (ISA). Our responsibilities under those regulations 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 Austrian General Accepted Accounting Principles and professional requirements and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained until the date of this auditor's report is sufficient and appropriate to provide a basis for our opinion by this date.

Other information

Management 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 management report and the auditor's report thereon. The annual report is estimated to be provided to us after the date of the auditor's report.

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, as soon as it is available, and, in doing so, to consider whether - based on our knowledge obtained in the audit - the other information is materially inconsistent with the financial statements or otherwise appears to be materially misstated.

Responsibilities of Management and of the Audit Committee for the Financial Statements

Management is responsible for the preparation of the financial statements in accordance with Austrian Generally Accepted Accounting Principles, for them to present a true and fair view of the assets, the financial position and the financial performance of the Company and for such internal controls as management determines are 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, management 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 management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

The Audit Committee is responsible for overseeing the Company's financial reporting process.

*) This report is a translation of the original report in German, which is solely valid. Publication or sharing with third parties of the financial statements together with our auditor's opinion is only allowed if the financial statements and the management report are identical with the German audited version. This audit opinion is only applicable to the German and complete financial statements with the management report. Section 281 paragraph 2 UGB (Austrian Company Code) applies to alternated versions.

Auditor's Report*)

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 Austrian Standards on Auditing, which require the application of ISA, 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.

As part of an audit in accordance with Austrian Standards on Auditing, which require the application of ISA, we exercise professional judgment and maintain professional scepticism throughout the audit.

We also:

- identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.
- evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.
- evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the Audit Committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

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Auditor's Report*)

Comments on the Management Report

Pursuant to Austrian Generally Accepted Accounting Principles, the management report is to be audited as to whether it is consistent with the financial statements and as to whether the management report was prepared in accordance with the applicable legal regulations.

Management is responsible for the preparation of the management report in accordance with Austrian Generally Accepted Accounting Principles.

We conducted our audit in accordance with Austrian Standards on Auditing for the audit of the management report.

Opinion

In our opinion, the management report for the Company was prepared in accordance with the valid legal requirements and is consistent with the financial statements.

Statement

Based on the findings during the audit of the financial statements and due to the thus obtained understanding concerning the Company and its circumstances no material misstatements in the management report came to our attention.

Vienna, 31st of January 2022

Ernst & Young
Wirtschaftsprüfungsgesellschaft m.b.H.

Mag. Stefan Uher mp
Certified Public Accountant

p.p. Mag. (FH) Rosemarie König mp
Certified Public Accountant

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Report of the supervisory board

During the reporting period, the Supervisory Board performed its duties and exercised its powers under the law and the Articles of Association in four ordinary plenary meetings, four ordinary Working/Audit Committee meetings and one Annual General Meeting. In doing so, it took into consideration the specific statutory provisions (Sections 28-32 ElWOG 2010) applicable to APG as an independent transmission operator (ITO). Due to the nature of APG's activities, a voluntary Audit Committee was set up as defined under the Austrian Stock Corporation Act (AktG). The Working Committee also acts as an Audit and Emergency Committee.

The managing directors of the Executive Board were reviewed by the Supervisory Board on an ongoing basis based on oral and written reports on the course of business and the position of the Company. These reviews did not lead to any objections. The accounting system and financial statements were audited by Ernst & Young GmbH, Vienna. The auditor reported on its findings in writing. The auditor found that the Executive Board had provided all requested information, that the bookkeeping system and the financial statements complied with the legal requirements and give a true and fair view of the Company's financial position and financial performance, and that the management report was consistent with the financial statements.

The Supervisory Board reviewed these annual financial statements prepared in accordance with the Austrian Commercial Code (UGB), for which the auditor issued an unqualified auditor's report, as well as the Executive Board's management report. The Executive Board's management report was approved and acknowledged. The annual financial statements were approved by the Supervisory Board, whereby they are approved in accordance with Section 96(4) AktG.

The Chairman of the Supervisory Board is in regular contact with the Executive Board. In particular, they regularly discuss the business performance and new European developments. The Executive Board normally met every 14 days. The Chairman of the Supervisory Board and the Executive Board confirm that discussions in the meetings of the Supervisory Board, the Working and Audit Committee and the Executive Board were all held in an open manner.

The Supervisory Board would also like to thank the Executive Board and all of the Company's employees for mastering the difficult challenges with which they have been presented.

Vienna, March 2022

On behalf of the Supervisory Board

Dr Peter F. Kollmann (Chairman)

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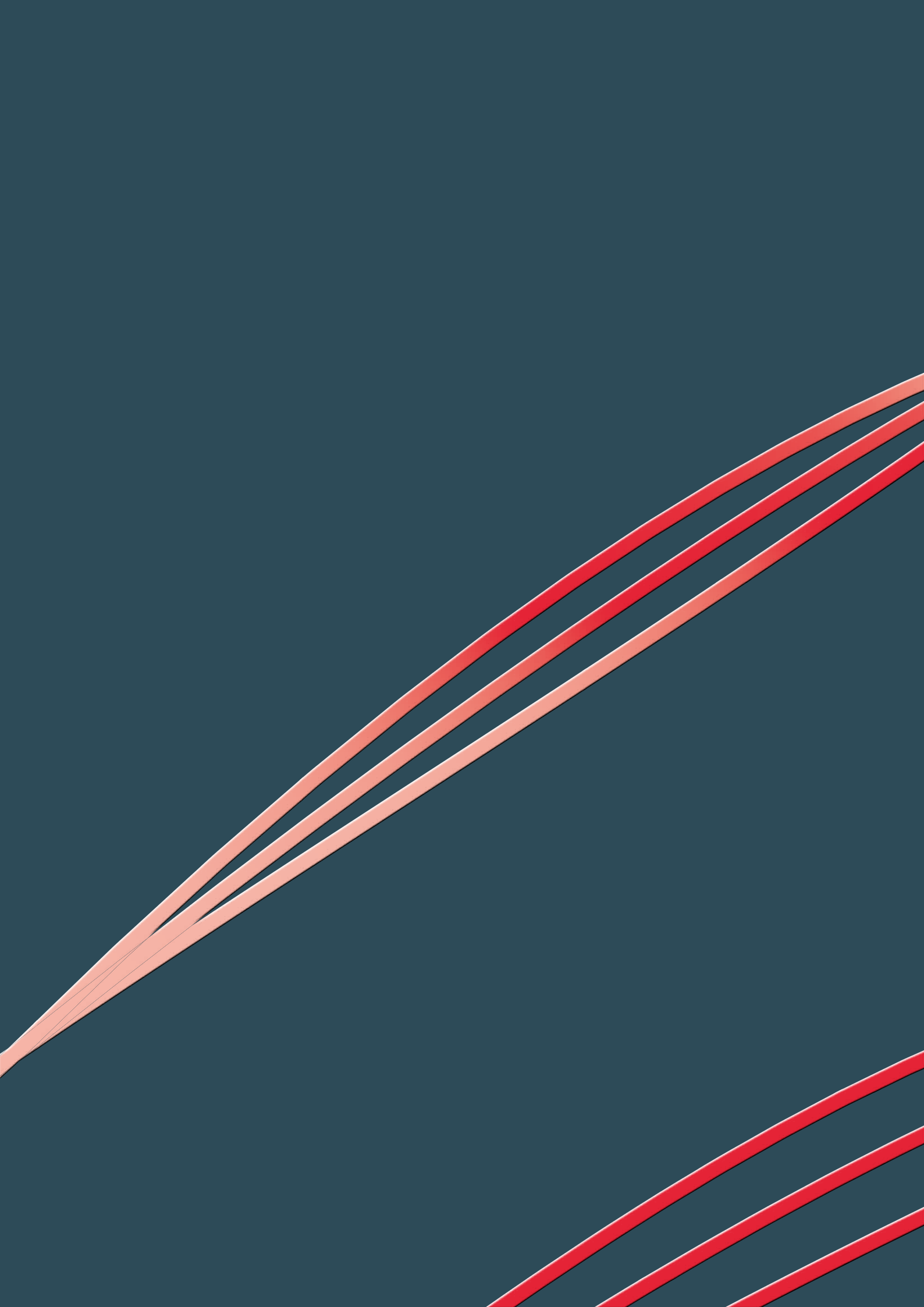
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