



# Sustainable Value Creation for Vienna

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## Preface by the Management

Dear Reader,

The Vienna City Council passed the 2021 amendment of the Smart City Wien Framework Strategy and the Vienna Climate Roadmap by a wide majority on 23 February 2022. The new goal of the Smart Climate City Strategy is for Vienna to become carbon neutral by 2040. And to achieve the transformation process that this requires, Vienna is betting on its home-field advantage: a robust network of local shops and service providers combined with a sophisticated smart city strategy including new technologies, the opportunities afforded by digitalisation, and modern infrastructure. "This will allow us to implement large-scale, effective climate measures that are socially balanced," noted Mayor Michael Ludwig.<sup>01</sup>

Wien Holding is proud to be part of the Vienna smart city strategy and climate roadmap and to contribute actively to the planned transformation. The Vienna Climate Roadmap is based on seven principles <sup>02</sup>:

1. **Being inclusive:** climate-friendly policy that accounts for social justice
2. **Viennese success stories:** Vienna is leveraging its excellent infrastructure, effective administration, and high social cohesion.
3. **Seizing market opportunities:** strengthening the regional economy with forward-looking innovation
4. **More green jobs:** creating new jobs and vocations that make sense
5. **Active citizen involvement:** shaping the future together
6. **Viennese climate modernism:** involving science, the arts, and culture
7. **Doing our own homework:** the City of Vienna acts as a strong role model

These principles are also important for Wien Holding – one of the largest companies in the federal capital of Vienna and a key source of impetus for relevant modernisation and development processes in the city. Wien Holding has not only made significant contributions to the smart city strategy with a variety of projects from the very beginning, but was and remains the coordinator of all activities relating to Vienna's smart city efforts<sup>03</sup>.

Sustainable business practices have always been a cornerstone of the development of Wien Holding. Sustainability

was officially anchored in the corporate strategy for the first time in 2020 with the goal of bringing the Group's social, environmental, and economic sustainability efforts into alignment with the United Nations Sustainable Development Goals (SDGs) and making a contribution to the attainment of the goals of the Smart City Wien Framework Strategy. In 2021, we expanded our group-wide sustainability management and published the fact sheet titled "Ten Wien Holding Contributions to Sustainability" to provide initial insights into how and through what projects among many Wien Holding and its companies include people in Vienna's transformation into a smart city, strengthen the regional economy with forward-looking innovations, involve the arts and culture, and above all act as good role models.

We will all especially remember the year 2021 as year TWO of the COVID-19 pandemic – and as the year in which we were again confronted with the consequences of climate change such as extreme weather events. Just think of the disastrous flooding in the summer of 2021 along multiple rivers throughout Central Europe that cost over 220 people their lives. The economic damage that is caused by drought, hail, frost, high winds, and flooding is also immense. Austria's hail insurance reported record damage claims of over €200 million per year over the past years – for example €270 million in 2016 and 2018 and €215 million from January to August 2021.<sup>04</sup> The consequences of climate change such as longer dry periods in the summer in particular are also raising the risk of forest fires.

After close to two years of the pandemic, we hoped that 2022 would bring us a bit back closer to normalcy. The invasion of Ukraine by Russian troops is clear evidence that 2022 will be another extraordinary year, and once again bore out how dependent our civilization is on fossil fuels like petroleum and natural gas. Coal-fired power plants and especially nuclear power plants are not a viable solution for the future, even if the EU Commission intends to classify nuclear power plants as "green" under certain conditions starting in 2023 because they ease the transition to low-carbon energy systems (as a so-called bridging technology).

The focus on climate change must not cause us to lose sight of other urgent global problems that still exist in many



Kurt Gollowitz  
Managing Director



Sigrid Oblak  
Managing Director



Oliver Stribl  
Managing Director

countries around the world and that are mutually reinforcing such as famine, poverty, infectious diseases, unemployment, inequality, and the overexploitation of natural resources. Climate change and its consequences such as periods of drought, desertification, water shortages, and much more will further exacerbate these problems. The authors of the World Climate Report published by the IPCC on 28 February 2022, for example, warn strongly of increases in disease, malnutrition, deaths, and more as a result of climate change<sup>05</sup>: "... Global warming, reaching 1.5°C in the near-term, would cause unavoidable increases in multiple climate hazards and present multiple risks to ecosystems and humans (very high confidence). ... Near-term actions that limit global warming to close to 1.5°C would substantially reduce projected losses and damages related to climate change in human systems and ecosystems, compared to higher warming levels, but cannot eliminate them all(...)."

The United Nations placed a focus on this problem back in 1992, at the UN Conference on Environment and Development in Rio de Janeiro, and formulated the goal of sustainable development for all people and countries. A great deal was done in the following two decades, but not enough. At the Sustainable Development Summit in New York in 2015, the United Nations reiterated its goal of making global development environmentally, economically, and socially sustainable by the year 2030 in its 2030 Agenda. The core of the 2030 Agenda is formed by the 17 Sustainable Development Goals (SDGs) and the 169 targets that they contain. The members of the UN, including Austria, committed to doing their part to reach these 17 goals by 2030. In its 2018 Smart City Wien Framework Strategy, the City of Vienna explicitly committed to the UN's 2030 Agenda and the SDGs.

Kurt Gollowitz  
Managing Director

Sigrid Oblak  
Managing Director

Oliver Stribl  
Managing Director

<sup>01/02</sup> <https://www.wien.gv.at/umwelt-klimaschutz/klima-fahrplan-2040.html>

<sup>03</sup> <https://smartcity.wien.gv.at>

<sup>04</sup> <https://kurier.at/wirtschaft/hagelschaeden-erreichen-heuer-einen-rekordwert/401465656>

<sup>05</sup> IPCC: IPCC WGII Sixth Assessment Report, Summary for Policymakers. 27.2.2022 (SPM.B.3) [https://report.ipcc.ch/ar6wg2/pdf/IPCC\\_AR6\\_WGII\\_SummaryForPolicymakers.pdf](https://report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_SummaryForPolicymakers.pdf)



Thomas Bohrn, MBA  
Group Sustainability Manager

# Sustainable Value Creation for Vienna

Thinking and acting sustainably makes good social and entrepreneurial sense, and forms the foundation of Wien Holding's strategy.

The UN's 2030 Agenda and its 17 Sustainable Development Goals (SDGs) define the international framework for sustainable development, and also serve as the basis for the City of Vienna's Smart Climate City Strategy: "Vienna is committed to these global sustainability goals. The Smart Climate City Strategy builds on the SDGs and forms the strategic framework for their fulfilment as the Viennese path to sustainability. Local implementation and the monitoring of the smart city and SDG targets are closely linked."

For Wien Holding and its group companies, sustainable action is not just a buzzword. We see it as our duty and obligation to make an effective contribution to attaining the goals of the smart city strategy and the SDGs. Thus, the aspect of sustainability is firmly anchored in our corporate strategy.

Despite the challenges that the pandemic brought for all of us in 2021, we succeeded in laying the groundwork for sustainable development by establishing a sustainability management system within the Group. The newly founded sustainability team plays a central role in this and is composed of the sustainability officers from around 40 companies in the Group. I would like to take this opportunity to thank my colleagues in the Group – our sustainability ambassadors – and express my great respect for their commitment in the name of sustainability.

We are currently working on our first environmental programme, which will define the goals that the Group will pursue in implementing its strategy along with the intended measures. This is the first step towards a holistic sustainability programme that will eventually also cover the areas of corporate governance and social matters. In this way, we

are not only documenting the contribution we make towards attaining the goals of the Smart Climate City Strategy of the City of Vienna, but also satisfying the requirements of the EU's new CSR (Corporate Social Reporting) Directive. This shows that the environmental and sustainability programme are the way of the future.

But we can also showcase a variety of achievements today already. We provided a brief look at what applied sustainability looks like last year in our brochure titled "Ten Wien Holding Contributions to Sustainability". The brochure you are now reading with 20 additional examples from the Wien Holding Group provides more impressive proof of the contribution that the companies of Wien Holding make to the sustainable development of Vienna. It shows that large and small projects can play a substantial role in achieving sustainability in the Group and in Vienna.

If you have any questions about the presented projects or our sustainability management – or any suggestions or ideas – I look forward to hearing from you at [nachhaltigkeit@wienholding.at](mailto:nachhaltigkeit@wienholding.at).

**Thomas Bohrn, MBA**  
Group Sustainability Manager

# The United Nations' 17 Sustainable Development Goals (SDGs)



1. End poverty in all its forms everywhere



2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture



3. Ensure healthy lives and promote well-being for all at all ages



4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all



5. Achieve gender equality and empower all women and girls



6. Ensure availability and sustainable management of water and sanitation for all



7. Ensure access to affordable, reliable, sustainable and modern energy for all



8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all



9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



10. Reduce inequality within and among countries



11. Make cities and human settlements inclusive, safe, resilient and sustainable



12. Ensure sustainable consumption and production patterns



13. Take urgent action to combat climate change and its impacts



14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development



15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels



17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

Photo: Ingo Pertramer

Source: <https://www.un.org/sustainabledevelopment/news/communications-material>

# The Viennese path to sustainability

In German, the term “*nachhaltigkeit*”, or sustainability, first appeared in writing close to three hundred years ago in the context of forestry, where it represented the underlying concept of moving away from the excessive exploitation of resources. With its **Smart City Wien Framework Strategy**, the City of Vienna translated this approach into the here and now in the year 2014. This marked a milestone in the establishment of Vienna as a sustainable smart city (a holistic concept aimed at making cities greener, more climate fit, more socially inclusive, and more technologically advanced): The first long-term strategy was drawn up towards which all projects in all areas of the city administration could be oriented in order to reduce resource consumption while still maintaining the high quality of life.

In 2018, Vienna reiterated its intention to become a model sustainable city by adopting the **Smart City Wien Framework Strategy 2019–2050**. The 2019–2050 framework strategy is based on the UN’s **17 Sustainable Development Goals (SDGs)**, which were formulated at the sustainable development summit in New York in 2015. These 17 SDGs that are contained in the 2030 Agenda address not only economically and environmentally sustainable development, but also advocate that sustainability can only be achieved in a socially inclusive manner. Thus, the 2030 Agenda that applies equally to all countries in the world contains targets that relate to social and environmental challenges. Embedding these Sustainable Development Goals in the foundation of the City of Vienna’s sustainability strategy sent a clear signal: Fulfilling European and global climate targets is not just empty rhetoric for Vienna.

The **Viennese coalition agreement** from 2020 underscores the city government’s determination to not turn a blind eye to the urgent issues in times of climate change by reaffirming its intention to implement the UN’s 17 SDGs. To live up to its own aspirations as a model sustainable city, Vienna has been pursuing the goal of becoming climate neutral by 2040 since the year 2020. And to this end, the coalition agreement includes the “Liveable Model Climate City” promotion programme. This ground-

breaking promotion programme supports measures to adapt to climate change in all 23 Viennese districts – with funding of €100 million through to 2025. These measures include the unsealing of paved surfaces, planting trees, and the application of the sponge city concept.<sup>01</sup>

The **photovoltaic offensive** that was launched in 2021 has also set new standards for all of Austria in the utilisation of solar energy. And to achieve its goal of climate neutrality by 2040, Vienna is to become a model solar energy city. Between 2021 and 2030, the total capacity of all photovoltaic systems in Vienna is to be increased by 1,500% – from 50 MW<sub>peak</sub> to 800 MW<sub>peak</sub>. This will require the installation of photovoltaic panels covering an area of 90 to 100 football pitches per year. Installation on publicly accessible spaces and spaces that can be used by the general public is to be avoided whenever possible. Thus, a suitable expansion approach for urban areas is envisaged, for example by using roofs, facades, parking areas, landfills, power plant grounds, and industrial and school campuses. In addition to tripling the public funding from one to three million euros per year, the approval process for photovoltaic systems has now also been streamlined to allow for faster permits. A greater focus is also being placed on citizen and private business systems operated by renewable energy collectives. For this reason, a new service bureau is to begin operation in the summer of 2022 to provide competent advice to citizens and businesses that are interested in such solutions.

The **Smart Climate City Strategy** that the City of Vienna launched in 2021 is not only a strategic framework by means of which measures to improve climate protection are implemented in all 23 districts of Vienna, but also a means to tap the great potential of all residents of the city. An approach was selected to enable as many people as possible to actively contribute their ideas so that the challenges of climate change can be addressed in a socially inclusive manner. Only by involving the population will it be possible to have the 17 SDGs be implemented at the local level.

Working from the Smart Climate City Strategy, the City of Vienna announced its **climate roadmap** in 2022. This makes the step from theory to practice and outlines a clear path that Vienna will follow to become the climate-fit and climate-neutral model sustainable city by 2040. Because liveable coexistence is not possible without an environment that is worth living in. Since April 2022, an innovative pilot citizen participation project has been running under the climate strategy in the districts of Margareten, Simmering, and Ottakring with the support of the Vienna Climate Team. In a three-stage process, citizens are being called upon to contribute their ideas as to how life in the city can be made more sustainable and worthwhile. Subsequently, a citizen jury composed of randomly selected representative candidates will decide which projects will be implemented. Because one thing at least is absolutely clear: the Smart Climate City Strategy needs us all to master the challenging impacts of climate change in urban areas in particular.

But not only the City of Vienna set new standards in municipal climate protection in 2021 through the combination of the Smart Climate City Strategy and the climate roadmap – the EU also stepped up its efforts to combat climate change. In addition to agreeing the prioritisation of climate protection through the European Green Deal, it also presented the Fit for 55 package in July 2021. This not only calls for a climate-neutral Europe by 2050, but also takes concrete steps to reduce greenhouse gas emissions by at least 55% by 2030. Especially the goal of strengthening social justice in the harmonisation of climate law at the European level as prescribed by the Fit for 55 package represents a further step towards a climate-fit, socially just Europe of the future.

## Sustainability – the history of the future

- 1713 Concept of “sustainable use” put down in writing in German for the first time
- 1972 First UN world environment conference in Stockholm: the start of global international environmental policy
- 1985 **Vienna Convention for the Protection of the Ozone Layer**
- 1987 The UN publishes the Brundtland Report. Term “sustainable development” defined
- 1992 UN world environment conference in Rio de Janeiro a major milestone: economy, environment, and social matters linked
- 2000 The UN General Assembly agrees on eight Millennium Development Goals (MDGs) at the Millennium Summit – goal: attainment by 2015
- 2014 **The Smart City Wien Framework Strategy shows ways in which the EU energy and climate targets can be met by 2050.**
- 2015 UN World Summit on Sustainable Development: 17 Sustainable Development Goals adopted – goal: attainment by 2030
- 2018 **Smart City Wien Framework Strategy 2019–2050 on the basis of the UN’s 17 Sustainable Development Goals**
- 2020 **Viennese coalition agreement: Vienna commits to implementing the UN’s 17 SDGs at the local level – goal: climate-neutral Vienna by 2040**
- 2021 The EU agrees on the European Green Deal and Fit for 55 package: climate neutrality by 2050 and 55% less net greenhouse gas emissions by 2030  
**Smart Climate City Strategy Vienna: the sustainability strategy of the City of Vienna as a strategic tool for the practical implementation of the 17 SDGs at the local level**  
**Vienna launches its photovoltaic offensive: simpler approval, more funding, new service bureau, 1,500% capacity increase by 2030.**
- 2022 **Vienna Climate Roadmap: With a clear plan of climate measures, Vienna is taking the step from theory to practice and establishing its role as the Austrian model climate city.**

<sup>01</sup> <https://www.wien.gv.at/umwelt-klimaschutz/klima-foerderprogramm-bezirke.html>



# 01. Social inclusion and promoting equality

In its Smart City Wien Framework Strategy, the City of Vienna has committed to social inclusion as a central tenet in all areas of policy and to comprehensive equality in political, social, and economic terms.

Equal treatment, equal opportunities, and anti-discrimination are top priorities for Wien Holding. The share of women holding management positions in the companies of Wien Holding was 29% – and even 35% in the relevant supervisory boards – ten years ago already. This means that one executive management position in three was already filled by a woman.<sup>01</sup>

The management of Wien Holding itself, which is the parent of the overall Group, was assigned to one woman and one man for many years, and the same 50:50 division applied to employees with official powers of representation. The Wien Holding supervisory board is composed of four women (including the chair) and five men (not including employee representatives)<sup>02</sup>, which corresponds to a 44% share of women. The share of women in Wien Holding was approximately 64%<sup>03</sup> at the end of 2020. The four Wien Holding museums (Haus der Musik, Mozarthaus Vienna, Kunst Haus Wien, and Jewish Museum) are also each directed by two men and two women.<sup>04</sup>

Wien Holding and its companies had close to 3,155 employees in 2020. The lion's share of personnel is still employed in the high-staff culture division with Vereinigte Bühnen Wien, the Music and Arts University of the City of Vienna, and Wiener Stadthalle (1,260), followed by logistics and mobility with Hafen Wien (937), the real estate division (718), and the media and service division (240).<sup>05</sup>

A particular focus is placed on equality in personnel recruiting and human resources planning, professional development, and ensuring a healthy work-life balance. Wien Holding GmbH has been certified as a family-friendly company since 2018. Wien Holding has also published a regular women's report since 2015 to derive areas for action, equality goals, and relevant measures from the detailed findings. Possible internal equality measures are summarised in the manual "Equality at Wien Holding".

To assist all subsidiaries in mastering this task, Wien Holding has allocated an equality budget since 2017. This can be used to provide financial support for equality measures requested by the subsidiaries and approved by Wien Holding. These funds can be used for all measures aimed at improving the equality of men and women as defined by the equality goals of Wien Holding, for example:

- Internal training measures on the topic of equality
- Internal events on work-life balance, measures for easing the return to work after parental leave
- Personnel marketing measures targeted at the underrepresented gender
- Measures needed to make jobs more attractive for the underrepresented gender



8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value

Photo: Unsplash/Shane Rounce

<sup>01</sup> <https://www.wien.gv.at/presse/2012/03/06/wiener-stadtwerke-und-wien-holding-bei-frauenquote-fuehrend>

<sup>02</sup> Wien Holding: Annual Report 2020, p. 7

<sup>03</sup> = 28/44, Annual Report 2020, p. 7

<sup>04</sup> <https://www.w24.at/News/2021/3/Frauenfoerderung-in-der-Wien-Holding>

<sup>05</sup> Annual Report 2020, p. 11



## 02. klimaaktiv award for Blickpunkt 21 residential complex – Leopoldine

Vienna intends to become climate neutral by 2040. Final energy use for heating, cooling, and hot water in buildings is to be reduced by 20% per inhabitant by 2030 and 30% by 2040, thus lowering the associated carbon emissions by 55% (compared to the average for the years 2005–2010) and to zero by 2040.

Photos: danielhavelka.at

The mission of ARWAG – a fully consolidated subsidiary of Wien Holding<sup>01</sup> – is to create affordable and sustainable homes for people.

In 2020, ARWAG built the Blickpunkt 21 – Leopoldine residential complex with four buildings with four or five storeys and a total of 179 non-subsidised rental and owner-occupied flats at the Neu Leopoldau site at Simmelgasse 1, construction plot B. The buildings are low-energy brick structures.<sup>02</sup> Heating is supplied by the Wiener Netze district heating grid, with the rooms being heated via low-temperature floor heating systems. The Neu Leopoldau site is a low-traffic area with green spaces, pe-

destrian zones, footpaths and bicycle paths, and has no parking spaces for cars in public spaces. The site offers optimal public transport connections (Siemensstraße commuter rail station, Leopoldau U1 metro station, bus lines 36A and 36B). Climate-friendly means of transportation such as electric bicycles and cargo bicycles can be rented at stations under the area's mobility concept. Parking spaces for cars can be rented at the adjacent WIPARK residential garages.

Nature conservation measures include the creation and ongoing monitoring of nest holes and regeneration areas for flora and fauna on the site and in the adjacent green areas. »

<sup>01</sup> Shareholders: Wien Holding GmbH: 63.03%, ERSTE Bank der österreichischen Sparkassen AG: 19.20%, Fonds für temporäres Wohnen in Wien: 13.47%, Wiener Städtische Versicherung AG: 4.30%

<sup>02</sup> Blickpunkt 21 – Leopoldine A-1210 Vienna, Simmelgasse 1, construction and finishing description, July 2020

[https://www.arwag.at/assets/immobilien/objekte/21195\\_BAB\\_Vergabe\\_Simmelg1\\_Index\\_C.pdf?h=1d7956a2459c5647cb93fb28ed9384ce207a7ddc](https://www.arwag.at/assets/immobilien/objekte/21195_BAB_Vergabe_Simmelg1_Index_C.pdf?h=1d7956a2459c5647cb93fb28ed9384ce207a7ddc)



7.3 By 2030, double the global rate of improvement in energy efficiency



9.4 By 2030, upgrade infrastructure ... to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies...



13.2 Integrate climate change measures into national policies, strategies and planning

In April 2021, the four buildings in the residential complex were awarded 856 to 859 of a possible 1,000 points under the klimaaktiv building standard. The complex thus holds the Austrian "klimaaktiv Silver" quality seal for sustainable residential and service buildings (buildings that meet all mandatory criteria and earn at least 750 points<sup>03</sup>). In addition to energy efficiency, the quality of planning and construction work, the quality of the materials and building structure, and key comfort and indoor air quality aspects were evaluated.<sup>04</sup> ÖGUT (the Austrian Society for Environment and Technology) named the complex the klimaaktiv property of the month for April 2021<sup>05</sup>. The Neu Leopoldau site is also a candidate for the International Building Exhibition Vienna IBA\_Wien 2022.<sup>06</sup>



Photos: danielhavelka.at

### Key data for Blickpunkt 21 – Leopoldine residential complex (Neu Leopoldau)

**Developer:** ARWAG Objektvermietung GmbH

**General:** multi-family homes, completed in 2020.  
Simmelgasse 1, A-1210 Vienna

**Additional features:** HFC\*-free insulation and foam sealant

	Building 1	Building 2	Building 3	Building 4
Number of residential/functional units	75	44	25	35
Gross floor space [m <sup>2</sup> ]	6,686	4,043	2,459	3,328

**Energy metrics:**

• Heating energy demand [kWh/m <sup>2</sup> GFSa]	21.67	22.89	25.36	23.54
• Primary energy demand [kWh/m <sup>2</sup> GFSa]	45.29	45.71	46.66	45.98
• Carbon emissions [kg CO <sub>2</sub> /m <sup>2</sup> GFSa]	5.51	5.55	5.61	5.56
klimaaktiv score	859	859	858	856

**Building label:** klimaaktiv Silver. Property of the month 2021/4

<sup>03</sup> <https://www.klimaaktiv-gebaut.at/gebaut/ka-standard>

<sup>04</sup> <https://www.wienholding.at/Presse/News/ARWAG-klimaaktiv-Auszeichnung-fuer-Blickpunkt-21-Leopoldine>

<sup>05</sup> <https://www.klimaaktiv-gebaut.at/gebaut/objekte/klimaaktiv/simmelgasse-1-blickpunkt-21-leopoldine-stg-1>

<https://www.klimaaktiv-gebaut.at/gebaut/objekte/klimaaktiv/simmelgasse-1-blickpunkt-21-leopoldine-stg-2>

<https://www.klimaaktiv-gebaut.at/gebaut/objekte/klimaaktiv/simmelgasse-1-blickpunkt-21-leopoldine-stg-3>

<https://www.klimaaktiv-gebaut.at/gebaut/objekte/klimaaktiv/simmelgasse-1-blickpunkt-21-leopoldine-stg-4>

<sup>06</sup> <https://www.iba-wien.at/projekte/projekt-detail/project/blickpunkt-21-leopoldine>





## 03. ARWAG/MIGRA D16/D17 Aspern residential complex

Vienna intends to become climate neutral by 2040. Final energy use for heating, cooling, and hot water in buildings is to be reduced by 20% per inhabitant by 2030 and 30% by 2040, thus lowering the associated carbon emissions by 55% (compared to the average for the years 2005–2010) and to zero by 2040. In addition, circular planning and construction are to be implemented for new construction and renovation to minimise resource consumption to the greatest degree possible starting in 2030.

**A**RWAG Holding AG – or ARWAG for short – is a fully consolidated subsidiary of Wien Holding<sup>01</sup>. Its mission is to create affordable and sustainable homes for people. Since it was established in 1990, it has built more than 155 buildings with a total usable space of around 1.5 million square metres.<sup>02</sup>

The ARWAG/MIGRA D16/D17 residential complex that was built by ARWAG and MIGRA at the Aspern Seestadt urban lakeside development site in 2015 consists of 124 subsidised rental flats and is located on the western edge of the new quarter. The complex is formed by four individual buildings oriented from east to

west and that mirror each other. The flats range from 2 to 5 rooms with an average floor space of between 51 m<sup>2</sup> and 108 m<sup>2</sup>.

The residential complex was one of five winning projects in the first developer competition for Aspern Seestadt in 2015. In the evaluation according to the certification requirements of the Austrian Sustainable Building Council (ÖGNI), the complex earned an outstanding 903 of 1,000 possible ÖGNB points and thus meets the Gold standard.<sup>03</sup> The complex that was built according to the efficient EU low-energy standard in 2020 thus surpassed the construction regulations that were in force at the time by 50%. A particular focus was placed »



7.3 By 2030, double the global rate of improvement in energy efficiency



9.4 By 2030, upgrade infrastructure ... to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies...



13.2 Integrate climate change measures into national policies, strategies and planning

<sup>01</sup> Shareholders: Wien Holding GmbH: 63.03%, ERSTE Bank der österreichischen Sparkassen AG: 19.20%, Fonds für temporäres Wohnen in Wien: 13.47%, Wiener Städtische Versicherung AG: 4.30%

<sup>02</sup> 30 Years of ARWAG Holding-Aktiengesellschaft. 18.12.2020. DAS Wien Aktuell, [https://www.arwag.at/assets/presse/30-Jahre-ARWAG-Holding-Aktiengesellschaft-703b1bcb1d2f917943ff623ba26b03c7/DAS\\_Wien\\_Ausgabe36\\_Arwag.pdf](https://www.arwag.at/assets/presse/30-Jahre-ARWAG-Holding-Aktiengesellschaft-703b1bcb1d2f917943ff623ba26b03c7/DAS_Wien_Ausgabe36_Arwag.pdf)

<sup>03</sup> [https://www.oegnb.net/zertifizierte\\_projekte.htm](https://www.oegnb.net/zertifizierte_projekte.htm)



on the use of products with eco-labels and that are free of PVC and HFCs as well as low-emission construction and other materials.<sup>04</sup> This led to the maximum score of 200 points for resource efficiency.

**The individual scores:**<sup>05</sup>

• Location and finishings	175
• Economy and technical quality	165
• Energy and utilities	188
• Health and comfort	175
• Resource efficiency	200

**ARWAG/MIGRA  
D16/D17 Aspern residential complex key data**

**Developer:** ARWAG Wohnen im schönsten Wien GmbH and MIGRA Gemeinnützige Wohnungsges.m.b.H.

**General:** residential buildings, completed in 2015  
Seestadt Aspern, A-1220 Vienna

**Gross floor space:** 11,596 m<sup>2</sup>

**Energy metrics:**

- Heating energy demand: 17.09 kWh/m<sup>2</sup>GFSa
- Primary energy demand: 75.3 kWh/m<sup>2</sup>GFSa

**Additional features:**

- Comprehensive product management
- PVC-free floor coverings and windows
- Measurement of indoor air quality
- Fresh air ventilation
- Blower door result 0.53 h<sup>-1</sup>
- Building label
- ÖGNB, klimaaktiv

Photos: schanda.at

<sup>04</sup> Aspern Seestadt: Superb buildings demonstrate pioneering role, 6. 11. 2015. [https://www.oekonews.at/?mdoc\\_id=1102542](https://www.oekonews.at/?mdoc_id=1102542)

<sup>05</sup> <https://monitor.aspern-seestadt.at/wohnhausanlage-arwagmigrabaufeld-d16d17.htm>

# 04. Affordable housing and a climate-fit city go together

Vienna is a city that offers a high quality of living to its residents. Basic services are provided in all areas of life such as work and housing. The city is committed to social inclusion and consistently employs its assets such as municipal flats to promote the common good and social inclusion.



11.1 By 2030, ensure access for all to adequate, safe and affordable housing...



13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

Especially in housing, Vienna provides a strong international model of best practices with the construction of municipal residential buildings and the provision of funding for social housing construction (building associations). Unlike many major cities in Europe, Vienna has also never sold flats, but always built more. After the construction of the municipal housing complex on Rößlergasse in Liesing in 2004, the City of Vienna temporarily ceased its construction activities. As Vienna will likely reach a population of 2 million after 2027<sup>01</sup>, Vienna has again begun planning and building municipal flats after a 15-year pause. Some residential complexes are being built on former industrial or commercial properties – such as Barbara-Prammer-Hof that was completed on the site of the former AUA headquarters in Oberlaa (10th district) in 2019 – while other existing complexes are being expanded without overcrowding their sites. WIGEBÄ, a subsidiary of GESIBA, is currently building 332 new municipal flats for the City of Vienna at Handelskai 214a in the Leopoldstadt district in harmony with the existing residential buildings in the area, creating a total above-ground usable space of 19,000m<sup>2</sup>. The build-

ings that are designed as seven “towers” were erected on the site of a demolished and rebuilt underground parking garage. The garden deck on the roof of the ground storey forms an uninterrupted open space, including beneath the residential buildings. “This broad open space that extends beneath the buildings with the flats offers numerous opportunities for interaction with neighbours and community activities. There is a wide range of shared facilities such as a playground for small children, places for street ball and table tennis, a bicycle workshop, a water feature, and urban gardening as well as a communal kitchen and the complex laundry facilities.”<sup>02</sup>

Construction began in December 2020, and completion is scheduled for the summer of 2022. It has been possible to file applications for the new municipal flats through the Vienna housing service’s online flat search since 7 October 2021. Applicants are required to have a Vienna housing ticket with a justified need for a flat. This means that the offering is aimed at people who not only earn less than the income cap specified in the Vienna Housing Promotion and Housing Rehabilitation Act (WWFSG) but that also meet at least one of the recognised

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Photo: iso Gesiba Handelskai



<sup>01</sup> Vienna by the Numbers in 2021

<sup>02</sup> <https://www.wienerwohnen.at/gemeindewohnungenneu/handelskai-214a.html>



WIGEBA

GESIBA

“housing need criteria”. This includes young Viennese (under 30 years old and no own flat yet), couples living in separate households, persons living in flats that are too small, single parents, housing needs based on age or medical condition, and wheelchair users or persons needing barrier-free housing.

Social inclusion is a key focus of this project. At the same time, new construction projects must create no new heat islands, but should actually improve the city climate if at all possible (see the sidebar about heat islands).

Existing trees had to be felled for the new buildings at Handelskai 214a. But this loss is being offset by replacement trees and an improved green space concept. Among other things, the concept includes the greening of the existing garden deck, the roofs of the seven new towers, and the supply route between the old and new residential buildings. The vertical greening of the entire base facade

over a length of 300 metres along Handelskai is also planned. Indigenous and tall-trunked trees such as rock pear, Judas tree, and honey locust will be planted. The leaf area estimate for the green space concept<sup>03</sup> shows that the new design will result in close to 4% more leaf area than under the previous vegetation culture. And this does not yet include the growth of the newly planted trees and other flora in the area. This will allow for comparable or even better climate regulation than is provided by the current vegetation on the site.

The planning process was supported by experts from the University of Natural Resources and Life Sciences in Vienna. This revealed that the leaf area, which is highly important for ecosystem services, can even be increased through a new design.

Photo: iso Gesiba Handelskai

### Heat islands

Climate change is also a source of great challenges for cities. A number of factors come together here that contribute to the so-called heat island effect. The numerous sealed surfaces absorb the sun's rays and heat up the surroundings. There is a lack of green spaces to compensate for this. Wind circulation is limited because of dense development and unsuitable structural orientations. Waste heat from industry, traffic, and households (air conditioners) also contributes to increased heating during the day and substantially reduced cooling during the night (“tropical nights”). High temperatures can have a massive effect on the health, well-being, and physical and mental capacity of people. Especially older people, children, and the chronically ill suffer under the stress that heat places on the cardiovascular system.

There are different ways to reduce the heat island effect. One of these is to plant vegetation on buildings, because this casts shade, insulates against heat, and cools – thus improving the urban climate. Thus, Vienna intends to substantially reduce the felt temperatures in the summer with vegetation, shade, and other measures in public spaces, and to allow the creation of vibrant, climate-fit neighbourhoods.

<sup>03</sup> HAK green space concept, Handelskai 214a residential complex, 9.9.2019. querkraft architekten zt gmbh, and KIERAN FRASER LANDSCAPE DESIGN e.U.

# 05. GESIBA

## Brockhausengasse residential complex

Vienna intends to become climate neutral by 2040. Final energy use for heating, cooling, and hot water in buildings is to be reduced by 20% per inhabitant by 2030 and 30% by 2040, thus lowering the associated carbon emissions by 55% (compared to the average for the years 2005–2010) and to zero by 2040.



7.3 By 2030, double the global rate of improvement in energy efficiency



9.4 By 2030, upgrade infrastructure ... to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies...



13.2 Integrate climate change measures into national policies, strategies and planning

To achieve climate neutrality, thermal energy for building heating is to be obtained from the groundwater and wastewater, from the soil and air, and from waste heat sources, all by means of highly efficient heat pumps. Vienna building code<sup>01</sup> also specifies that highly efficient alternative heating systems must be used in new buildings if this is technically, environmentally, and economically viable starting in January 2021. In addition to decentralised energy supply systems that use renewable sources, this also includes heat pumps.

One of the residential complexes in which this technology will be fitted is the Brockhausengasse project that is planned in Aspern in the 22nd district by the Wien Holding subsidiary GESIBA. GESIBA, which was founded in 1921 by the Republic of Austria and the City of Vienna under the name "Gemeinwirtschaftliche Siedlungs- und BAustoffanstalt GESIBA" was initially tasked with providing low-cost building materials to the various building associations and providing assistance with solving financing issues. After the end of the war, the City of Vienna involved the company in the rebuilding



Photos: Gesiba



efforts, including commissioning it to erect new large residential complexes. GESIBA mastered the difficult challenge of building optimally equipped flats with high quality materials in attractive areas at the lowest possible cost. It also accounted for environmental concerns early on, for example by installing insulated windows on sides facing high-traffic streets, having living areas face interior courtyards, and building new complexes according to low-energy principles. This includes the installation of solar power systems to heat swimming pools and connections to the district heating grid<sup>02</sup>.

Because GESIBA has always been a pioneer in the housing movement in the area of low-energy and passive house technologies, the company crowned its carbon-neutral Brockhausengasse residential complex as its centennial project. The complex contains 155 flats, some with rooftop terraces, a daycare centre, and a common recreational area.

A special feature of this complex is heating energy supply from so-called thermal component activation, or concrete core temperature control. Here, lines carrying water in the walls, ceilings, and floors use the thermal storage capacity of the concrete elements for temperature regulation. The heat for this system comes from around 200 metres below the ground's surface. It is brought up through more than 80 geothermal probes beneath the complex by means of heat pumps. Using geothermal energy is far more efficient than collecting heat through air-source heat pumps. The electricity needed for the heat pumps is provided by photovoltaic modules on the roofs. In this way, the total heating energy demand of the complex is to be covered with zero emissions.<sup>03</sup>

<sup>01</sup> Vienna building code, last amended on 25.9.2020, announced on 13.10.2020, entered into force on 13.1.2021 <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrW&Gesetzesnummer=20000006>

<sup>02</sup> <https://www.gesiba.at/100-jahre-gesiba>

<sup>03</sup> Planungsleitfaden Energiespeicher Beton. Pub.: Federal Ministry for Transport, Innovation and Technology, Vienna, June 2016 [https://nachhaltigwirtschaften.at/resources/sdz\\_pdf/schriftenreihe-2016-9-energiespeicher-beton.pdf](https://nachhaltigwirtschaften.at/resources/sdz_pdf/schriftenreihe-2016-9-energiespeicher-beton.pdf)

# 06. New food distribution centre for Wiener Tafel



One of the ten target areas of the Smart City Wien Framework Strategy 2021 is zero waste. To achieve this goal, food waste is to be cut in half by 2030 and reduced to an absolute minimum by 2050, among other things.

Austria generates close to 791,000 tonnes (t) of avoidable food waste every year as estimated by the Auditor General's Office using the data collected in its investigation titled "Reducing Food Waste – Implementing Target 12.3 of the 2030 Agenda". Households account for the greatest share at nearly 207,000t, followed by the food service industry at 175,000t. Wholesale and re-

tail cause the least avoidable food waste of all sectors at 120,000t, with less than 10% of this total (10,300t in 2019) being attributable to wholesale. Even though wholesalers contribute only a small share of food waste (1.3% of the total unavoidable waste), every tonne should still be eliminated here as well. Every tonne of avoidable food waste is a tonne too much. This view

Photos: Großmarkt Wien, Peter Leskovar, Wiener Tafel



2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round



12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses



is shared by GMW Großmarkt Wien Betrieb GmbH, a company of the Wien Holding subsidiary WSE. GMW is responsible for the commercial management of Großmarkt Wien wholesale centre in Inzersdorf. The wholesale market covers 30 hectares and is the most important trading platform for food and flowers in Austria. GMW already placed a particular focus on environmental and sustainability issues

before the coronavirus crisis, as well as on handling food respectfully. In its policy for more sustainable commercial management (as of 6 August 2019), GMW defined the following principles, among others:

- Avoiding food waste at all stages of the production and supply chain – especially with the involvement of charitable organisations

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- Minimising waste through avoidance, for example by means of reuse
- Increasing sales of regional and seasonal products and certified organic products

In line with this policy, GMW collaborates with the Wiener Tafel food bank and the association of Austrian food banks. The headquarters of this organisation have been located on the market grounds at Laxenburger Straße 365 since the summer of 2020. This proximity has the advantage that donated goods, including from businesses, can be distributed quickly and directly. The rising number of persons suf-

fering from poverty during the pandemic quickly strained the limits of the storage and logistics spaces, and more space had to be found. In July 2021, a new food centre that is now home base for the efforts to save food and that offers more space for refrigeration and sorting was opened.

This is a win-win situation for saving food. The wholesalers provide fruit and vegetables that are not yet spoiled, and do not have to dispose of them as waste. Wiener Tafel sorts and distributes this food to people in need. This is true resource efficiency and also helps to protect the environment and climate.

Photo: Wiener Tafel

Because according to the German world hunger aid agency Welthungerhilfe, producing, processing, and transporting food has an impact on the environment. And the food that is thrown away wastes scarce resources such as arable land and water, and the environment is damaged with fertilisers and pesticides. In addition, a large share of our food is no longer produced in Europe, but in Asia, Australia, and Central and South America. In these places, valuable virgin forest is being cleared, the environment polluted, and indigenous peoples displaced – all for the lucrative planting of food crops and even greater quantities of animal

feed for export to the industrialised countries. Tonnes of greenhouse gases are then emitted during the storage, transport, processing, packaging, and preparation of these foods – and for nothing in the end because the food is then not even consumed.



# 07. Transport and refrigeration with electricity at Großmarkt Wien

Vienna intends to become climate neutral by 2040. For this reason, the city is promoting the switch to new technologies such as electromobility, thus reducing energy consumption and carbon emissions. This applies not only to passenger traffic, but also to commercial traffic within the city. This is also to be largely carbon free by 2030. To this end, the conversion of commercial vehicle fleets to carbon-free drive systems is to be promoted. If this is to succeed, a sufficiently dense network of charging stations must also be available.



9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies...



13.2 Integrate climate change measures into national policies, strategies and planning

**G**MW Großmarkt Wien Betrieb GmbH, a company of Wien Holding subsidiary WSE, is responsible for the commercial management of Großmarkt Wien wholesale centre in Inzersdorf. The wholesale market covers 30 hectares and is the most important trading platform for food and flowers in Austria. GMW already placed a particular focus on environmental and sustainability issues before the coronavirus crisis. In its policy for more sustainable commercial management (as of 6 August 2019), GMW defined principles for taking measures to fight climate change and its effects: To support the logistics industry, vendors, and customers at the wholesale market in the switch to electric vehicles, Großmarkt Wien already provided ten parking spaces with

charging stations in 2021. They are located just past the main entrance on Laxenburger Straße 365, next to the truck parking lot. The park and ride lot also has a hypercharger with a charging output of up to 300 kilowatts (kW). This station is open to the public and allows trucks to charge their batteries without signing up to enter the market grounds.

The ten SMATRICES charging stations each have an output of 22 kW – meaning that electric cars can be charged and cooling units on refrigerated trucks powered. These cooling units are needed to ensure that the cold chain is not interrupted when fresh, refrigerated, or frozen food is transported. For this reason, trucks for refrigerated transport are equipped with units



Photos: Großmarkt Wien



that maintain the temperature in the freight compartment at the necessary level. For example, frozen animal products must be stored and transported at  $-18^{\circ}\text{C}$ . The refrigeration units must operate constantly and normally run on diesel fuel while the truck is driving and also when it is parked. This causes considerable carbon emissions along with other pollutants (nitrogen oxide, fine dust, etc.) and noise. In technical terms, the SMATRICES station can be used to run the cooling unit on a truck without problems. Many refrigeration units are also equipped with a rotary-current plug that allows relatively quiet, electrical operation, meaning

that the noise and exhaust emissions are reduced especially while the truck is parked in the hold of a ferry. The refrigeration unit must simply be equipped with a five-contact type 2 plug to connect to the charging station. This option is especially environmentally friendly because the electricity comes entirely from hydropower plants.







## 08. Vienna data centre

“Vienna will be climate neutral by 2040!” To achieve this primary goal, Vienna intends to invest heavily in the efficiency of the entire energy system – from generation and distribution to the end customer and from building heating and cooling to the production processes in Vienna’s manufacturing companies.



7.3 By 2030, double the global rate of improvement in energy efficiency



9.4 By 2030, upgrade infrastructure ... to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies...

Vienna also intends to become the digitalisation capital of Europe. Digitalisation is a central tool for furthering the transformation of the energy system and mobility in the city and the transition to a circular economy and for helping to protect the urban ecosystem. However, digitalisation should only be used when its benefits outweigh the energy and resource consumption that is associated with its deployment.

Data centres are the backbone of digitalisation. Streaming, surfing, chatting, e-mails, online shopping, cloud applications, the Internet of Things (IoT) with its countless networked devices, machines, and vehicles, and artificial intelligence (AI) are leading to rapidly expanding

data volumes and thus to a constantly growing demand for storage capacity. Digitalisation is only possible with electrical energy. Data centres continuously need large quantities of electricity – 24 hours a day, 365 days a year.

The main data centre of the City of Vienna is located in one of the STAR22 office complexes in Donaustadt (22nd district). The infrastructure of RZ@Star22 was installed by Rechenzentrum der Stadt Wien GmbH, a company of the Wien Holding subsidiary WSE Standortentwicklung, in 2013. The data centre is used by Wien Digital, the IT department of the City of Vienna, which operates its state-of-the-art processing infrastructure that offers high performance, security, and availability.

Photos: Eva Kelely

The Vienna data centre has earned Datacenter Star Audit certification multiple times since 2013. Garnering nearly all 1,000 possible points, RZ@Star22 impressed the international auditors across the board. The resource-sparing operation of the centre was recognised with an additional green star. This also makes the City of Vienna’s data centre an Approved Energy Efficient Data Centre.<sup>01</sup>

At the end of October 2021, the data centre was certified according to EN 50600 by Cis-Cert at the behest of RZW GmbH. EN 50600 is the first Europe-wide international standard that sets comprehensive requirements for the planning, construction, and operation of a data centre on the basis of a holistic approach.

The certification procedure was based on the very demanding high availability class VK 3, and was successfully passed. **Availability class 3** means “high availability”, i.e. design with redundant components based on multiple supply paths. In detail, **Security Level 3** was achieved for physical security and **Level 2** for energy efficiency capability.

The scalable building systems and sophisticated planning during the construction phase means that as the IT requirements increased, components only needed to be expanded and not replaced, and that these modifications were completed during operations. Considerable savings have already been achieved especially in the HVAC system as a result of the continuous optimisation measures, thus reducing the environmental impact. The cooling energy



for the component activation of the office building has also been generated in the data centre for a number of years already, for example. The “increased” cooling energy demand has a positive effect on the number of starts and running times of the cooling units, and the machines are run in an operating range with a very high and improved overall degree of efficiency. The additional use of the outside air (free cooling) and the use of local groundwater to cool the IT devices also led to further reductions in the consumption of resources.

**RZW**  
Rechenzentrum der  
Stadt Wien GmbH

<sup>01</sup> <https://www.wienholding.at/Presse/News/Rechenzentrum-Wien-neuerlich-zertifiziert>

# 09. Harvesting district heat from spa water

“Vienna will be climate neutral by 2040!” The decarbonisation of the energy segment should be advanced to meet this primary goal. To this end, the City of Vienna intends to move forward consistently with the transition to renewable energy sources, and to forgo fossil heat generation entirely by 2040, for example. Instead, the required heating energy is to be obtained from the groundwater and wastewater, and from waste heat sources.



7.3 By 2030, double the global rate of improvement in energy efficiency



9.4 By 2030, upgrade infrastructure ... to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies...



13.2 Integrate climate change measures into national policies, strategies and planning



In collaboration with Wien Energie, Therme Wien will make a contribution to the exit from fossil heat generation starting in 2022.

The thermal spring in Oberlaa has been a source of healing and relaxation since the middle of the 1950s, especially for patients with musculoskeletal illnesses. In 1974, the year of its founding, Wien Holding acquired the shares in Kurbetrieb Heilquelle Oberlaa GmbH from the City of Vienna, and the Oberlaa thermal spa was opened. In the subsequent years, the area around the therapeutic sulphur springs was developed in accordance with the needs of the population for health and relaxation, and after completion of the renovation work in autumn 2010, Therme Wien<sup>01</sup> was opened with a total area of 75,000m<sup>2</sup> and is managed by VAMED Vitality World. Around 4,000m<sup>2</sup> of this area is water and some 3,000m<sup>2</sup> a sauna zone;

there is also a health area that occupies more than 6,000m<sup>2</sup> and a roughly 1,200m<sup>2</sup> fitness area.

Therme Wien strives to use energy as efficiently as possible by tapping renewable sources (such as the spring) and thus is able to cover a large share of its heating energy needs through geothermal systems. In particular, work is currently under way with an external partner on an efficiency-boosting solution. The resulting new findings will go into a short- to medium-term investment programme of Therme Wien.

The still relatively warm wastewater from the spring has been routed into the Danube Canal without being used up until now. In future, the residual heat from the waste spring water (around 30°C) will be used to harvest district

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Photos: Echo/Dimko, Stukhard

<sup>01</sup> Therme Wien is a project of Wien Holding GmbH in collaboration with VAMED AG and the Vienna Insurance Group – Wiener Städtische Versicherung AG, UniCredit Bank Austria AG, and Erste Group AG. <https://www.thermewien.at/unternehmen>

heat by means of heat pumps. To this end, two heat pumps will be installed in an expanded engineering centre in the underground parking garage of Therme Wien, with a direct connection to the wastewater collected from the spa. The principle of heat exchange is like a refrigerator, just reversed. Two heat pumps extract the residual heat from the spa wastewater and convert it into district heat with a temperature of up to 85°C. The generated heat will be fed directly into the local district heating grid in Oberlaa and will supply around 1,900 households in the area with the climate-friendly heat. And will save around 2,600t of carbon emissions per year. Project partner Wien Energie is investing around €3 million in the project, and the system will go into operation in 2022.<sup>02</sup>

<sup>02</sup> <https://www.wienholding.at/Presse/News/Aus-Badewasser-wird-Fernwaerme>



Photos: Stukhard, www.christian-husar.com

### Key figures on Therme Wien waste heat usage

**Location:** Therme Wien, Oberlaa

**Output:** roughly 2 megawatts

**Annual heat production:** 11 gigawatt hours (GWh)

**Heat consumers:** around 1,900 households in Oberlaa

**Carbon emission savings:** 2,600t per year

**Startup:** 2022 (planned)

**Total investment:** €3 million (Wien Energie)

The project is being funded in part by the Federal Ministry of Sustainability and Tourism through the Domestic Corporate Environmental Funding programme.

# 10. Wiener Messe: The ideal venue for green events

International conferences and trade fairs have always been an important economic factor for the City of Vienna. The conference and event segment raises the international profile and competitiveness of the city – and Messe Wien plays a key role in this. Recently<sup>01</sup>, around 4,000 conferences and corporate events were held every year at the Vienna exhibition and conference centre, which is managed by Wiener Messe Besitz GmbH (MBG), a company of the Wien Holding subsidiary WSE.



12.2 By 2030, achieve the sustainable management and efficient use of natural resources



13.2 Integrate climate change measures into national policies, strategies and planning

Vienna is striving to be known around the world as a centre of circularity-oriented and resource-efficient business in 2030, and to be climate neutral by 2040. Among other things, the sparing use of resources means reducing material consumption and implementing the circular economy and zero waste principles. The goal of climate neutrality requires the consistent switch to renewable energy sources and the radical reduction of energy consumption in all areas, including during trade fairs and conferences.

Wiener Messe has already focused on environmental protection in the past, for example by using electricity from renewable sources and photovoltaic systems, avoiding waste, and separating and collecting recyclable materials as well as installing more than 20 charging stations in its parking garages.<sup>02</sup> And the period of the COVID-19 pandemic was used to improve

the technical infrastructure. For example, all lighting in Hall B was converted to LED lamps, and the gas burner was replaced. An energy monitoring project was completed in 2021 and included the replacement of all electricity, heat, cooling, and water meters and the connection of the new smart meters in a network. Since then, the consumption data has been collated and logged every 15 minutes, which allows consumption to be optimised. At the same time, the IT network in the entire building complex was updated to the latest technological standards. A total of 37 circuit breakers are being replaced in Hall B to ensure smooth operation in the coming decades.

Wiener Messe Besitz GmbH (MBG) manages the Vienna exhibition centre. It is used by Reed Messe Wien GmbH, a subsidiary of Reed Exhibitions, the world's largest organiser of trade fairs. Under the brand Messe Wien Exhibition

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Photos: Reed Messe Wien/G. Szuklits

<sup>01</sup> Based on the operating years immediately before the COVID-19 pandemic

<sup>02</sup> [https://www.umweltzeichen.at/de/green-meetings-und-events/veranstalter?cert\\_number=GM+069](https://www.umweltzeichen.at/de/green-meetings-und-events/veranstalter?cert_number=GM+069)



Wohnen und Interieur interior design exhibition 2018



Top: Europe-Latin America-Caribbean Conference



Left: Vienna Autoshow 2008

certification process that many of the criteria are already met by the Messe Wien Exhibition & Congress Center," noted Messe Wien<sup>04</sup>. This especially includes criteria such as

- Climate protection and mobility (including bicycle racks)
- Event venue (location, transport connections, environmental standards)
- Energy and water (electricity from renewable sources, energy-efficient technical event systems, environmentally friendly cleaning)

During the COVID-19 pandemic, during which events had to be cancelled or postponed, the centre proved its key function as part of the public infrastructure in Vienna. It was rapidly converted into a service centre at which the City of Vienna conducted mass testing and vaccinations starting in December 2020. The handling of the university entry tests at the centre also showed how safe events can be held under coronavirus conditions.

Photos: www.christian-husar.com, Reed Messe Wien, Reed Messe Wien/C. Breneis, Reed Messe Wien/G. Szuklits



Right: Holiday Fair 2018



Left: Piazza bar and restaurant



Right: Lebenslust senior citizen's fair 2018

Real Vienna47

& Congress Center, major events are planned, organised, and held there for large companies from Austria and abroad. Since 2016, the Messe Wien Exhibition & Congress Center has been a licensee of the Austrian eco-label for green meetings and green events and can licence green meetings and green events for its customers.<sup>03</sup> "It is particularly helpful in this

<sup>03</sup> <https://www.messecongress.at/services/green-meetings>

<sup>04</sup> [https://www.umweltzeichen.at/de/green-meetings-und-events/veranstalter?cert\\_number=GM+069](https://www.umweltzeichen.at/de/green-meetings-und-events/veranstalter?cert_number=GM+069)



# 11. Monti, the mobile school

Vienna intends to become climate neutral by 2040. Among other things, local greenhouse gas emissions, which are (currently) not covered by EU emissions trading, shall be reduced by 55% compared with 2005 levels by the year 2030 and be reduced further to zero by 2040. Thus, half of Vienna's final energy use is to be covered by renewable and decarbonised sources by 2030, and all of it by 2040<sup>01</sup>. In addition, circular planning and construction are to be implemented for new construction and renovation to minimise resource consumption to the greatest degree possible starting in 2030.



7.2 By 2030, increase substantially the share of renewable energy in the global energy mix



9.4 By 2030, upgrade infrastructure ... to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies...



12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

Wiesberggasse school on Montleartstraße, WIP



**A** current example for the implementation of this in the education sector is Monti, the mobile and modular school.<sup>02</sup> The system was developed by WIP Wiener Infrastruktur Projekt GmbH, a company of the Wien Holding subsidiary WSE Wiener Standortentwicklung GmbH, under commission by the City of Vienna, Department of Schools. Monti is flexible, mobile, reusable, expandable, and meets all the requirements of modern school construction.

The name Monti comes from the site where the mobile school was first set up, on Montleartstraße in Ottakring. The building was planned by the architectural agency Veit Aschenbrenner Architekten and has six well-lit classrooms, connected outside areas, and combined corridor/break areas and has met the needs of modern educational practice extremely well. It also in-

cludes a room for teaching staff, sanitary facilities, a wardrobe, a room for the custodian, and storage areas.

After being used for two years, the mobile school was relocated to Franklinstraße in the Floridsdorf district in July 2021. Monti was adapted for the new location with little effort and expense. The structure was expanded for full-day operation by adding a cafeteria and kitchen. A photovoltaic system was also installed on the roof. Because of the need for school places in the area around Mengersgasse, Monti is expected to remain at its new location for five years. Then, it will be possible to dismantle Monti in a short time, configure it for a new location, and use it again.



Photos: Romana-Fürnkranz, David Bohmann

<sup>01</sup> Including potential use of geothermal energy from the greater Vienna area  
<sup>02</sup> <https://www.wse.at/#Flexibel-und-wiederverwendbar/3642>



# 12. Renovation of the circular gymnasium on Steigenteschgasse

Vienna intends to become climate neutral by 2040. For buildings, this is to be achieved in part through thermal renovation to increase energy efficiency and through the expansion of district heating.

In 2019, WSE Wiener Standortentwicklung GmbH began the general refurbishment of multiple round gymnasiums that have been in use for over 40 years through its subsidiary WIP Wiener Infrastruktur Projekt GmbH under a commission from the City of Vienna. Based on the round gymnasium at Steigenteschgasse 1 in the 22nd district of Vienna, an architectural competition was held to find the best concept for the refurbishment of the gyms. The goal was to find a solution that would not be too invasive and that would preserve the building fabric. The gym was not to be altered in its structure or geometry. The winners were Raum-

kunst ZT GmbH and RWT plus ZT GmbH, both from Vienna.

The renovation work at the Steigenteschgasse round gymnasium began in the summer of 2019 and was completed in autumn 2021. The building is around 11 metres high and has an exterior diameter of roughly 50 metres. It was built as a skeleton structure with facade panels and angled glazing. After the renovation, the refurbished facade insulates the building against the exterior conditions, especially the existing structural elements, according to current construction standards and ensures low

Photos: Romana Fürnkranz



energy costs for the gym's operation. According to the Sports Office of Vienna<sup>01</sup>, the renovation will cut energy consumption by one third. The new building shell consists of three overlapping rings. The resulting spaces are used for the simple, low-cost ventilation of the gymnasium by means of dampers. Night cooling can be accomplished in a technically simple manner, and mechanical ventilation systems can be switched on when an event is being held. Heat for the round gymnasium is still supplied via the district heating connection of the existing school.<sup>02</sup>

The pilot project that was implemented by WSE will serve as a model for the general refurbishment of further round gymnasiums in Vienna. WSE has now been commissioned to renovate the two round gymnasiums at Steingasse 22 in the 23rd district (Liesing) and Florian-Hedorfer-Straße 24 in the 11th district (Simmering).<sup>03</sup> Later, the gyms in Per-Albin-Hansson-Siedlung Ost (10th district, Jura-Soyfer-Gasse 3) and Rennbahnwegsiedlung (22nd district, Lieblgasse 4a) are to follow.

<sup>01</sup> <https://www.wien.gv.at/freizeit/sportamt/sportstaetten/hallen/kagran.html>

<sup>02</sup> <https://www.wienholding.at/Presse/News/Sanierung-Rundturnhalle-Steigenteschgasse>

<sup>03</sup> <https://www.wse.at/#Mehr-Platz-fuer-den-Sport/3620>



7.3 By 2030, double the global rate of improvement in energy efficiency



9.4 By 2030, upgrade infrastructure ... to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies...

# 13. Green airport: carbon-neutral operation starting in 2023

Flughafen Wien AG<sup>01</sup> is expected to begin operating with zero carbon emissions starting in 2023. The successive conversion of the vehicle fleet to electric vehicles to reduce carbon emissions is part of the sustainability strategy of Vienna International Airport.



At the beginning of 2021, close to 400 electrically driven vehicles were already traversing the apron of the airport. This not only includes passenger buses, cars, scooters and mopeds, but also electric baggage tugs, baggage conveyor belts, electric forklifts, and passenger stairs.<sup>02</sup> The switch from diesel-operated ground power units to electric GPUs is currently being tested. Around 30 diesel-powered catering trucks are also to be

placed by electrically powered trucks by 2025.<sup>03</sup> Because planes cannot drive backwards, so-called pushback tugs are used at airports to push the aircraft out of their parking position. This may also be emission-free at Vienna International Airport in the near future. In the spring of 2020, the airport tested the first fully electric tug for ground handling. The new Bison E620 aircraft tug from Goldhofer is the most power-



Julian Jäger, COO of Flughafen Wien AG, with an electric tug

ful tug in its weight class to ever have been used at a European airport. With a battery capacity totalling 175 kilowatt hours (kWh) and an on-board charger, even large aircraft such as a Boeing 777-200 or Airbus A350 can be towed or pushed conveniently and with zero emissions. The experiences gathered during the test phase regarding performance, suitability for various applications, and the battery are being reported back to the manufacturer. If the test operation phase is completed successfully, the airport plans to use further such tugs.<sup>04</sup> Despite the crisis, Vienna International Airport is continuing to expand its alternative energy supply systems. Austria's largest photovoltaic system, covering an area of 24 hectares, will go into operation on the airport grounds in 2022. With a total of eight photovoltaic systems, Vienna International Airport will then generate around 30 million kilowatt hours of electrical energy from the sun every year, covering around 30% of its annual electricity needs. Smart city control software that was developed specifically for Vienna International Airport also monitors the energy flows at the site and will allow energy consumption to be further reduced and optimised.

Sustainability and energy efficiency are the key considerations for all construction projects at Vienna International Airport, with a focus being placed on state-of-the-art solutions for technical building infrastructure, optimised thermal insulation, and effective facade design. Heating and cooling with geothermal energy also plays a large role here. Office Park 4, which was opened in 2020, is a model project for sustainable building at Vienna International Airport. The energy of the terminal is used to cover around 94% of the heating and 45% of the cooling needs of the building. All future construction projects at the site will be oriented towards the principles of sustainable building that were established here. OMV will expand its Schwechat district heating hub in 2022, converting industrial waste heat into environmentally friendly district heat, and will also supply Vienna International Airport. This will reduce the carbon emissions at the airport by 21,000 t per year. This and further measures are currently expected to allow Vienna International Airport to operate with zero carbon emissions starting in 2023.



9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies...



13.2 Integrate climate change measures into national policies, strategies and planning



<sup>01</sup> Wien Holding GmbH holds a stake of 20% in Flughafen Wien AG. It is consolidated according to the equity method in the financial statements. NÖ Landes-Beteiligungsholding GmbH holds another 20%. The syndicate formed by these two companies thus holds more shares than the largest individual shareholder, Airports Group Europe S.à.r.l., a company of the Australian IFM Global Infrastructure Fund (IFM).

<sup>02</sup> Vienna International Airport: key figures from the current sustainability report, accessed on 26.11.2021 <https://www.viennaairport.com/jart/prj3/va/uploads/data-uploads/Konzern/Investor%20Relations/Nachhaltigkeit/2020/NHB%20ZAHLEN%202020.xlsx>

<sup>03</sup> Vienna International Airport: environmental declaration 2020. <https://www.viennaairport.com/jart/prj3/va/uploads/data-uploads/Umwelteklaerung%202020.pdf>

<sup>04</sup> Vienna International Airport: Powerhouse with low noise and zero carbon emissions: Vienna International Airport testing new aircraft tug with electric drive. Press release 05/21, 24.1.2021



# 14. Hafen Wien goes green

Some 2,000 kilometres from the Black Sea and roughly 1,500 kilometres from the North Sea, the Vienna port authority has the advantage of offering trimodality: an optimal direct connection to three modes of transport – water, rail, and road. And on an area of 3 million square metres, it operates the two ports at Freudenau and Albern as well as the Lobau oil port. These ports handle some 1,200 cargo ships per year. The subsidiary WienCont, the highest-capacity container terminal in Austria, handles around 450,000 TEU<sup>01</sup> in traffic per year.<sup>02</sup>



7.3 By 2030, double the global rate of improvement in energy efficiency



9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies...



12.2 By 2030, achieve the sustainable management and efficient use of natural resources



13.2 Integrate climate change measures into national policies, strategies and planning

Hafen Wien attaches considerable importance to sustainability and environmental protection and has been operating its third solar power system since early 2022. Hafen Wien has also converted a large share of its exterior and interior lighting at its warehouses to LED lamps over the past years, quick vehicle charging stations have been installed on the port grounds, electric bicycles are being used for more and more trips on and outside of the port grounds, and all company systems have switched over to green electricity. In addition, two oil-fired heating systems will be replaced with air-source heat pumps in 2022, which will in turn be powered by solar electricity and bring Hafen Wien ever closer to complete carbon neutrality. The City of Vienna has also defined a roadmap for achieving carbon neutrality by 2030, and Hafen Wien plays an important role here as a trimodal logistics centre. Continuous and sustainable expansion is important to stay

ahead of the curve and remain attractive for customers.

Hafen Wien has already invested in three solar power systems and conducted a study of its carbon neutrality in collaboration with the Austrian Energy Agency, documenting that the share of renewable energy at all Hafen Wien sites is 25% (Hafen Wien: 20%; WienCont: 30%). Compared to a per-capita final energy consumption of 38MWh per year in Austria (BMK, 2020, and Statistics Austria, 2019), this corresponds roughly to the energy consumption of 236 Austrians.

The study also assessed the advantages and utility of the trimodal transport access (combination of water, road, and rail) and evaluated it in terms of the employed energy and climate-relevant emissions. This showed that by combining the transport modes of road, rail, and inland water, Hafen Wien saves around 42.7% of the energy and 44% of the emissions



Photos: David Bohmann, Hafen Wien



in CO<sub>2</sub> equivalents for 1,000 tonne kilometres (tkm) of transport compared to a monomodal site.

A key focus on the path to carbon neutrality and a central point for Hafen Wien is promoting transport by water, because an inland cargo vessel only emits 10g CO<sub>2</sub>e/tkm. By contrast, a truck emits 92g CO<sub>2</sub>e/tkm and a diesel train 28g CO<sub>2</sub>e/tkm. This means that inland shipping only generates around one third of the carbon emissions as a diesel train and one ninth of the emissions of a truck. (Source: PPT, Upper Austrian University of Applied Sciences) Hafen Wien not only considers the carbon emissions from its own operations, but also its potential to reduce the emissions of its partners and customers with its products and services. For example, Hafen Wien launched a collaboration project with the trailer innovator HELROM in August 2021. Until now, it has not been possible to move over 90% of the trailers in Europe from the road to rail due to technical barriers. The goal of the project with HELROM is to move more trailers by rail rather than by road. Now, three runs take place between Düsseldorf and Vienna every week. A swivelling system that is integrated directly into the wagon allows the trailers to be moved directly from the wagon to the waiting tractor truck. Since the launch of pilot operations in August 2020, more than 500 trains have been handled in the Freudenau train yard in Vi-

enna, saving 8,000t CO<sub>2</sub>e<sup>03</sup> of greenhouse gas emissions through transport by rail.

In addition, WienCont has been powered exclusively by hydroelectricity since August 2018, making a positive contribution to the transport chain for maritime and continental container transport. The use of hydropower saves around 160t of carbon emissions per year in Vienna.

Hafen Wien is also responsible for supplying the population of Vienna and the surrounding area with goods to meet their daily needs, which makes it all the more important to act sustainably and reduce carbon emissions. thinkport VIENNA, the innovation centre of Hafen Wien, develops, tests, and implements innovative solutions for goods logistics in Vienna. In 2020, thinkport VIENNA launched the world's first open innovation challenge for inland ports together with the European Federation of Inland Ports (EFIP) – a challenge aimed at making a contribution to reaching the climate targets.

<sup>01</sup> TEU = twenty-foot equivalent unit; dimensions: 6.058 m x 2.438 m x 2.591 m

<sup>02</sup> <https://www.wienholding.at/Presse/News/Hafen-Wien-startet-Kooperation-mit-Trailer-Innovator-Helrom>

<sup>03</sup> WienCont profiting from empty container trade – Wien Holding

<sup>03</sup> CO<sub>2</sub>e = CO<sub>2</sub>e is a unit of measure that is used to make the effect of all greenhouse gases on the climate comparable

# 15. Urban gardening: regional, seasonal, environmentally sound, vegetarian, fresh, and unpackaged



Intact, climate-resilient ecosystems, the high share of green space, and low pollution levels are key contributors to the high quality of life in the smart city of Vienna. But the healthy and pleasant living conditions in the city also depend on Vienna's residents making environmentally-conscious mobility and consumption choices (SCWR<sup>01</sup>, 2021). Local green and open spaces are not only important for the urban climate and biodiversity, but also for social cohesion and the attractiveness of public space.

This is why the City of Vienna is promoting a sustainable food supply system, including in the form of urban gardening. This refers to the usually small-scale use of urban spaces within residential areas or their immediate surroundings to grow gardens. While urban gardening was originally aimed at enabling people who own no property to engage in gardening to supply themselves with food, the focus now is on aspects such as the sustain-

able management of the gardens and environmentally friendly production, for example without pesticides or synthetic fertilisers. Urban gardening makes a contribution to environmental and climate protection because it (largely) eliminates the expenses for long transport distances, energy-intensive storage (refrigeration), and (plastic) packaging for food that generates high volumes of waste. The products from urban gardeners are regional,

Photos: Hafen Wien



seasonal, environmentally sound, vegetarian, fresh, and unpackaged – which also directly helps to protect the climate. Another important aspect is the targeted consumption of agricultural products.

Near Port Albern, Hafen Wien has been offering urban gardening opportunities to interested persons since 2018 – in its green, serene oasis surrounded by large gardens (Alberner Straße 21, A-1110 Vienna). Plots of 50m<sup>2</sup> or 100m<sup>2</sup> can be rented by urban gardeners, who can plant whatever vegetables and herbs their hearts desire on their "own plot". The site includes a well with 22 taps for

watering, a portable toilet, and waste bins for plastic bottles, metal, and non-recyclable waste.

There are also parking spaces for cars and bicycles. But the facility can also be reached easily by public transportation, being only a 5–10 minute walk from the 76A station Alberner Straße/Sendnergasse.

You can find further information at: [urbangardening@hafenwien.com](mailto:urbangardening@hafenwien.com) or by telephone at +43 1 727 16-1199. The 2022 season runs from 1 April to 31 October 2022.



2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality



11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries



12.2 By 2030, achieve the sustainable management and efficient use of natural resources

<sup>01</sup> Smart City Wien Framework Strategy

# 16. Circular housing – anchoring the circular economy in new housing construction

Vienna’s waste management is to be climate neutral by 2040. By 2050, 100% of all unavoidable waste is to be recycled. To reach this goal, Vienna intends to implement the principles of circular economy and zero waste. A sustainable future will not be possible without new business practices that use considerably less materials. Products and materials must circulate for as long as possible in an economic system. Goods of all types will be designed to be long-lasting, repairable, and optimised for reuse.



Construction is an important aspect of this because of the high volume of raw materials used. Thus, the transformation to a circular model must especially take place here. Around 71% of the total weight of waste in Austria is generated by construction activity. The circular economy offers a particularly high degree of potential when the principles of circular building are implemented from the start of planning. The goal in this is to decouple value-add from the consumption of finite resources. Under the EU’s European Green Deal, the circular economy is also one of the instruments intended to complete necessary development in a sustainable and resource-sparing manner.

Circularity begins in the planning stage. Practical experience has shown that the corresponding decisions must be made at the urban planning level. How aspects such as circular economy can be integrated into the target system and quality management of housing construction that receives public funding or is monitored by the quality council was examined in the housing construction research project “Circular Housing. Approaches for anchoring the principles of circular building in new housing construction” that was conducted by UIV in 2020 and 2021.

Working from the principles of “reduce,” “long use”, “reuse”, and “recycle”, criteria were de-

finied that identify circular buildings and urban structures and that show areas for action that must be addressed.

The project also examined which aspects of circular building are already anchored in the quality management system for publicly funded housing construction and where improvements need to be made. The key findings were that there are already quality requirements in all four “pillars” of publicly funded housing construction – architecture, economy, environmental compatibility, and social sustainability – that at least partially reflect aspects of circularity. But to systematically anchor the concept, the principles of circular building must be integrated much more deeply.

Put simply, there are currently six impediments to circular housing construction. Each of these impediments, which could easily mark the end, game over, of the concept of circularity, was contrasted with an innovative approach, a game changer, that calls into question the current rules, proposes new mechanisms, and thus contributes to the successive implementation of the principle of circular economy in quality management for publicly funded housing construction.

In future, the results of the research project can serve as a basis for anchoring the principle of circular building as a primary quality criterion for housing construction.

Photo: Unsplash/Daniel McCullough



Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation



12.2 By 2030, achieve the sustainable management and efficient use of natural resources  
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

Game over → or → Game changer

- |    |   |  |
|----|---|--|
| 01 | The principle of circular economy is new to many. | → <b>Setting goals, building knowledge, entering into cooperation</b>          |
| 02 | The focus in construction is on costs.            | → <b>Orienting economy towards life cycle costs</b>                            |
| 03 | Quality demands are formulated (too) loosely.     | → <b>Defining circularity concretely and anchoring it more firmly</b>          |
| 04 | The principle of balance prevails.                | → <b>Promoting circularity, weighting it highly in assessments to this end</b> |
| 05 | The crux is the interface.                        | → <b>Guarantee that the aspects will be carried forward in the process</b>     |
| 06 | Quality assurance is resource-intensive.          | → <b>Stage performance to reduce costs</b>                                     |

Term “game changer or game over” ©Martin Radjaby-Rasset



# 17. The Internet of Things



Companies of Wien Holding are testing IoT projects with the potential to facilitate sustainable daily practices and resource conservation.



9.4 By 2030, upgrade infrastructure ... to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies...



11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries

Vienna, the world's most liveable city, is not only to become a European centre of research and innovation, but also the European capital of digitalisation by 2030. The goal of the Smart City Wien Framework Strategy is to improve the quality of people's lives while using as few resources as possible and in as sustainable a manner as possible through social and technical innovations. The needs of Vienna's residents always take centre stage in this, and not the technologies themselves. The pilot projects presented here help to make the infrastructure ready for the digital world and save resources.

Urban Innovation Vienna GmbH (UIV) – a company of Wien Holding – is coordinating the testing of multiple IoT (Internet of Things) projects with the potential to make daily life sustainable under a commission from MD-OS/PIKT<sup>01</sup> and in collaboration with Wien Digital<sup>02</sup> and the external provider Kapsch. The transmission of sensor data via secure and resilient networks is being tested so that operability can be maintained even during crises. These networks are known as LoRaWAN – Long Range Wide Area Network<sup>03</sup>.

The goal of the LoRaWAN pilot applications is to make operational processes and services more environment-friendly, efficient, resilient, and customer-friendly via networked sensors, machines, and other assets. In addition to the functionality and secure transmission of data, the sustainability of the underlying technology is being evaluated (such as security, costs, and service lives of batteries in sensors).

For **Messe Wien**, logistics during events is one of the greatest challenges, especially transport to and from the exhibition grounds. Because the delivery and exhibitor vehicle access point on Trabrennstraße crosses a busy pedestrian path (connection between the U2 metro line and Vienna University of Economics and Business as well as the Viertel Zwei office complex), traffic congestion can occur. And the pedestrian crossing signal is controlled independent of the traffic conditions. Intelligent people counting is now giving Messe Wien valuable information that can help to optimise traffic flows, especially for delivery vehicles. It also allows the optimal control of the pedestrian crossing signal, thus minimising traffic congestion at the vehicle access point to the exhibi-



tion grounds. This allows for the smooth management of events without unnecessarily inconveniencing pedestrians and other road users.

At **Vienna's ports**, contact sensors ensure that doors to sensitive areas cannot be opened or fire extinguishers removed from their brackets in an uncontrolled manner. The digital sensors trigger an alarm immediately when a door to a sensitive area has been opened, for example. For the **Parks and Gardens** department, the primary objective is to save water when watering the areas under its responsibility. The current project is evaluating an intelligent weather station and digital leak detectors for multiple irrigation systems. The weather station provides valuable data for the use of the irrigation system. Thanks to the digital leak detectors, damaged water lines are identified early on by sensors and can be repaired quickly. Both components help to avoid resource waste.

The **Water Management** department reports the groundwater levels at 200 points to the federal government on a regular basis. Nearly all measuring points must be read by hand. The project is testing fully automatic digital sensors for monitoring groundwater levels. The LoRaWAN level sensors permit the central and constant reading of all such equipped level measurement points, and thus improves the data quality.



Photos: UIV Urban Innovation Vienna GmbH – David Bohmann

<sup>01</sup> Chief Executive Office, Executive Group for Organisation and Security, Process Management and ICT Strategy Group

<sup>02</sup> "Wien Digital is an innovative, service-oriented IT department that focuses on the digitalisation of the City of Vienna." <https://www.wien.gv.at/kontakte/ma01/index.html>

<sup>03</sup> For example <https://www.technikum-wien.at/newsroom/news/niedrigstrom-netzwerk-befeuert-internet-of-things--projekte-im-studium>  
Low Power Wide Area Network – Link: What is LoRa and LoRaWAN? Pros, cons, background information in German (lora-wan.de)

# 18. Provision of mobility funding under the Vienna Green Electricity Fund

The City of Vienna has set itself the goal of becoming climate neutral by 2040. Commercial traffic in the city is to be largely carbon-free by 2030.



9.4 By 2030, upgrade infrastructure and retro-fit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies...



13.2 Integrate climate change measures into national policies, strategies and planning

To promote mobility innovations, the City of Vienna launched two e-mobility funding programmes under the Vienna Green Electricity Fund in 2020. For close to two years now, Viennese companies have been offered funding of up to €4,000 for the purchase of new electric cargo bicycles. In housing construction, funding is being offered for the establishment of innovative sharing offerings. A total of €2.8 million is available. Because of the great demand, the cargo bicycle funding was extended to the end of 2022 and the electric car sharing funding (for residents) was extended by a further submission period. UIV Urban Innovation Vienna GmbH (UIV) manages these funding checks, advertises the funding, and reports on its results on behalf of the City of Vienna, Energy Planning department.

Among other things, it reviews the funding applications, provides funding advice, prepares the documents for the funding office and green electricity council, and evaluates the projects during their implementation.

## Viennese businesses appreciate the advantages of electric cargo bicycles

Roughly 300 businesses have already been awarded funding for the purchase of close to 350 new electric cargo bicycles. And the range of participating sectors is impressive: from craftspeople and lawyers to funeral homes, restaurants, and retailers. UIV published portraits of many of these companies in 2021 to communicate the advantages and polyvalence of the electric cargo bicycle. Especially in urban areas with their often narrow and heavily used



Photos: UIV Urban Innovation Vienna GmbH



streets, the compact and agile electric cargo bicycles are an ideal alternative for many companies to meet their daily transport needs. Thanks to the electric motor on the bicycle, even heavy loads can be transported rapidly without harming the environment. Many companies also used the funding to provide delivery services or create entirely new offerings during the pandemic. When asked about their motives, around 80% of the companies stated that the switch to carbon-free business transport was especially relevant for their decision to purchase an electric cargo bicycle, followed closely by uncomplicated parking. The potential time and cost savings and the improved image were also noted as being especially relevant.

## Innovative mobility solutions/sharing offerings in housing construction

The second funding track is aimed at the creation of attractive sharing offerings that are easy to use, and thus focuses on where over 80% of the journeys completed by Viennese residents begin and end: at their homes. The mobility offering should provide targeted alternatives to a private car and must thus at least include an electric car, but can also include

other (electric) vehicles such as cargo bicycles, electric scooters, and the like. To date, nine projects of different scopes and with different offer structures and operator modules have been funded. This includes both "smaller" projects from a collective of residents as well as comprehensive sharing offerings created by developers, for example. Eight projects have already begun their at least two years of test operations.

## The promoted projects will yield important experience for the city

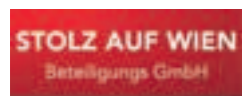
In addition to the desired carbon emission reductions, the City of Vienna is also seeking to gain important information for neighbourhood and energy planning through its promotion programmes. To this end, UIV arranged an exchange of experiences with companies participating in the cargo bicycle funding programme in 2021. Another such exchange of experiences and a discussion with the stakeholders of the funded mobility projects is to take place in 2022.

# 19. Proud of Vienna initiative

In its fight against the impacts of the coronavirus crisis on the Viennese economy, the City of Vienna not only adopted a €200 million coronavirus aid package, but also took entirely novel approaches.



8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value



In April 2020, „Stolz auf Wien“ Beteiligungs GmbH (SAWI), was founded as a subsidiary of Wien Holding. Its mission is to take on temporary equity interests in Viennese companies whose existence is threatened by the coronavirus crisis. This supplies Viennese companies that are in need of help with equity capital to stabilise them and to preserve the jobs of their employees. This is intended to enable long-standing Vienna companies to master the challenges brought by the coronavirus crisis and to continue achieving success into the future. In the first stage, roughly €40 million were available, half of which was provided by the City of Vienna and the other by a group of additional investors (Vienna Economic Chamber, BAWAG Group, Erste Bank, UniCredit Bank Austria, Wiener Städtische, Raiffeisen-Landesbank Steiermark, and AVZ Privatstiftung). An equity investment by SAWI is limited to €2 million or 20% of the total shares per company, and is only made for a limited time. These holdings will be returned to the companies af-

ter no later than seven years. At the beginning of the investment, the clear exit scenario is also defined for both parties.<sup>01</sup>

To expand the scope of sectors covered and to act in a more targeted manner, SAWII Beteiligungs GmbH was established in the spring of 2021 to place an additional focus on restaurants, hotels, and tourism. With €3.1 million in investments from private partners, SAWII focuses on these areas of the economy that were hit particularly hard by the coronavirus crisis. By the end of 2021, these two “proud of Vienna” companies, as the name can be translated, were able to support more than 20 Viennese companies with around €10 million. This saved in excess of 400 jobs.

A large number of further companies are undergoing detailed evaluation by SAWI and II and are being presented to the respective advisory boards.



Economic City Councillor Peter Hanke (3rd from left) and SAW Managing Director Barbara Forsthuber (4th from left) with “proud of Vienna” entrepreneurs

Photos: Tobias Holzer, WienTourismus/Christian Stemper



<sup>01</sup> Wien Holding: Annual Report 2020, p. 49



# 20. BRISE Vienna – Building Regulations Information for Submission Involvement

The City of Vienna intends to become the digitalisation capital of Europe. It sees digitalisation as a driver of innovation but also as a contributor to the highest quality of living and an effective tool for a climate-neutral city. Digitalisation is an important instrument in the fight against climate change and for adaptation to the change that cannot be prevented.



9.1 Develop quality, reliable, sustainable and resilient infrastructure ... with a focus on affordable and equitable access for all

Vienna intends to use digital data and applications in a targeted manner to master the greatest challenges confronting mankind together. For example, all services and procedures of the city administration are to be successively offered in digital form. This will mean less effort for citizens and thus additional value for the population. And it will make a significant contribution to the “compact city”. This goal also includes making it easier, faster, and more efficient to handle official business with the authorities.

The population of Vienna has grown by around 218,000 people (+12.8%) since 2011<sup>01</sup>. The growing population also means greater demand for affordable housing and thus also construction. In 2020, more than 4,000 new municipal flats were being built and roughly 24,000 new flats were in construction and planning that were promoted with around €900 million in funding<sup>02</sup>. Some 13,000 applications for building permits are processed in Vienna every year. But because of increasing complexity, these can require up to a year to process.<sup>03</sup>

The BRISE project is intended to help with this. BRISE stands for Building Regulations Information for Submission Involvement. This system will process the growing number of construction permit applications and construction permits in Vienna digitally, and thus more quickly, more efficiently, more transparently, and at lower cost. Ultimately, this will lead to the demand for affordable housing being met more quickly. The result will be an end-to-end digital approval procedure that will save everyone involved time and money in future. Over the medium term, it is estimated that 50% of the time required for the conventional procedure will be saved.

The current status can be viewed by all involved parties at any time. As all planning steps are contained in a 3D model, the system can already give feedback on the submitted building model and thus on the building project during the pre-assessment. This will contribute to the necessary planning certainty. In addition, interested citizens can view new building projects as 3D models before the start of construction and understand them better.<sup>04</sup> The pilot phase for BRISE Vienna will end in the second quarter of 2023. This project will bring Vienna

a significant step closer to becoming the digitalisation capital of Europe.

Wien Holding is involved in this project through a number of different subsidiaries. WH Media is the project partner. EuroVienna GmbH coordinated the funding application and the six-month initiation phase at the beginning of the project and is assisting the consortium in its reporting and coordination with the promotion programme. As is the case with numerous other projects, EUFA (EU-Förderagentur GmbH) is responsible for the personnel and financial management of this project that is being funded with €4.8 million from the EU's Urban Innovative Actions initiative.

In June 2021, BRISE Vienna was the winner of the Austrian Public Administration Award in the category of “Innovative service design/digital services”. The Austrian Public Administration Award of the Ministry of the Arts, Culture, the Civil Service and Sport spotlights various innovations in the public administration sphere. The “Innovative service design” category focuses on needs-oriented, high quality, and modern services for citizens.



Photo: Schaub-Walzer

<sup>01</sup> Vienna by the Numbers in 2021, edition August 2021, page 2

<sup>02</sup> Figures from the 2020 coalition paper




<sup>03</sup> City of Vienna: BRISE Vienna. Project description. [https://digitales.wien.gv.at/wp-content/uploads/sites/47/2021/07/BRISE\\_Vienna\\_Projektbeschreibung.pdf](https://digitales.wien.gv.at/wp-content/uploads/sites/47/2021/07/BRISE_Vienna_Projektbeschreibung.pdf)

<sup>04</sup> <https://digitales.wien.gv.at/projekt/brisevienna>

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### Publisher

Wien Holding GmbH  
A-1010 Vienna  
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 [www.wienholding.at](http://www.wienholding.at)  
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### Contact

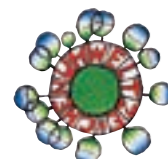
Wien Holding GmbH  
Thomas Bohrn, MBA  
Group Sustainability Manager  
A-1080 Vienna  
Auerspergstraße 15/5/51  
Tel.: +43 1 408 25 69-86  
E-mail: nachhaltigkei@wienholding.at

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