City of Vienna | Energy

FAO

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Adoption of the Spatial Energy Plan
for the 17th district,
Areas 17/001/1 to 17/016/1
Plan No: ERP_Bez17_BV_Plan1_v1.0

Sent in advance for review to:

1. Chief Executive Office - Executive Group for Legal Affairs

2. Executive City Councillor for Climate, Environment, Democracy and Personnel,
   Mag. Jürgen Czernohorszky

Attachments:

1. Proposal and map 1:5,000
2. Procedure
3. Legal situation (if any)
4. Basic principles
5. Opinion
6. Notification
7. Changes (if any)

Template report

after completion of the procedure as per § 2b of the Vienna Building Code [Vienna BO] for adoption of the spatial energy plans.

Table of Contents

I. General part

1. New legal basis for new buildings

In accordance with § 2b Vienna BO, the City Council may adopt spatial energy plans for parts of the urban area if:

- district heating infrastructure is already available as a high-efficiency alternative system (§ 118(3) Vienna BO); or
- sufficient technical capacity is available to expand the district heating infrastructure; and
- at least one other high-efficiency alternative system can be implemented (taking into account the targets set out in § 1(1) of the Air Pollution Control Act [IG-L], Federal Law Gazette (BGBl.) I No 115/1997, as amended in BGBl. I No 58/2017).

In these areas, only the high-efficiency alternative systems specified in § 118(3) Vienna BO are permitted for heating and hot water systems in new buildings[1]. These are:

- decentralised energy supply systems based on energy from renewable sources;
- cogeneration;
- district/local heating or cooling, especially if based in whole or in part on energy from renewable sources or high-efficiency cogeneration plants; and
- heat pumps.

The drafting of this Ordinance of the City of Vienna included identification of areas with potential for densification of existing grids or expansion of district heating and the use of at least one other high-efficiency energy system. This does not require any connection to district heating.

2. Background

With the amendment of the Vienna Building Code, Provincial Law Gazette (LGBl.) No 69/2018, an instrument was introduced in the form of the Spatial Energy Plan, which makes it possible to control the use of energy sources for the provision of space heating and hot water in new buildings in a targeted and sustainable manner.

This is intended to help meet climate and energy targets, in particular for decarbonisation (i.e. avoidance of fossil fuels, at least in new buildings) and the unbundling of the grid-bound infrastructure (district heat and gas) for financial reasons. It also aims to ensure an affordable energy supply and planning certainty for investors.

[1] This refers to new buildings pursuant to § 60(1)(a) Vienna BO: *'[...] 'New building' shall mean the construction of new buildings; this is also the case if the foundations or basement walls are reused in whole or in part after removal of existing structures.[...]'.* This Ordinance does not cover extensions or conversions.

The spatial energy plans may be regarded as sector planning, comparable to the Productive City action area[2]. As stated in § 2b(1) Vienna BO, the spatial energy plans serve for *forward-looking planning and sustainable energy supply design* and demonstrate the City of Vienna's desire to phase out fossil fuels.

Below is an explanation of the extent to which the aforementioned goals in general and the new 'spatial energy plan' instrument in particular fit within the framework of the strategies and targets adopted in recent years at the global, EU, federal and municipal levels.

2.1. Overarching strategies and targets: UN climate protection, EU, Federal Government, City of Vienna

For climate protection policy, which has been critical at the international and thus also EU and federal levels at least since the Kyoto Protocol took effect in 2005, the framework conditions under international and EU law have changed in recent years.

December 2015 saw the historic conclusion of the Paris Climate Protection Agreement. It has been in force since November 2016, and is therefore binding under international law. In the meantime (almost) all countries have acceded to the convention, whose main goal is to limit human-induced global warming to well below 2°C compared to pre-industrial levels. The agreement and the resolutions at the annual Conferences of the Parties (COP) to the UN Framework Convention on Climate Change (UNFCCC) have given rise to a regulatory framework that also affects the climate and energy policies of the European Union, and thus also Austria and indirectly also Vienna.

The EU has now committed itself (European Climate Law) to climate neutrality by 2050 and aims to achieve a 55 per cent reduction in greenhouse gas emissions by 2030. Numerous legislative packages are currently in preparation to ensure achievement of targets.

The Austrian Federal Government is aiming for climate neutrality by 2040 and must also adapt the corresponding framework conditions to enable achievement of this target.

The same applies to Vienna. The Vienna City Government has made clear in its coalition agreement that it is aiming for climate neutrality by 2040. The section entitled 'Heating, cooling and hot water without oil or gas' (p. 67 of the Coalition Agreement) covers the phase-out of fossil fuels for heating, cooling and hot water by 2040 – not only for new buildings, but also for existing ones. In February 2022, the City Council adopted the 'Vienna Smart City Strategy' as well as the 'Vienna Climate Roadmap', among other things, with regard to climate targets. The latter is a compact implementation strategy that identifies the main priority directions and measures (or measure packages) as well as the instruments necessary for mitigating and adapting to climate change.

[2] Final concept for a Productive City [Fachkonzept Produktive Stadt], Vienna urban development workshop reports (No 171), City of Vienna (2017)

2.1.1. EU

In particular since the inauguration of the new European Commission (the ‘von der Leyen Commission’) at the end of 2019 and the presentation of the European Green Deal immediately afterwards, EU climate and energy policy has been energised: Meanwhile, the EU has set itself the target in European Climate Law of being climate neutral by 2050 and not, as previously agreed, of reducing greenhouse gas emissions by 40 per cent by 2030, but by at least 55 per cent (compared to 1990).

Subsequently in 2021, the European Commission published a package of 12 legislative proposals under the title ‘Fit for 55’, which will be discussed with the EU Parliament and the Council in the course of 2022 and 2023 and become binding by 2023 to 2024. The ‘Fit for 55’ package sharpens up virtually all climate-relevant EU Directives and EU Regulations, some of which have only become applicable in recent years[3]. These must be updated for alignment with the more ambitious climate target (minus 55 instead of 40 per cent).

Although it is not yet clear in detail which regulations will achieve consensus in the current European legislative process, one thing is clear: The speed at which Europe needs to move away from oil, gas and coal will increase significantly. The regulatory provisions for this phase-out are to be tightened either by the EU itself (EU Regulations: for example, with regard to motor vehicles) or by the Member States (required by EU Directives: for example, for buildings and their heating systems).

One example of such tightening in the area of European climate action is the Commission proposal for the revision of the EU Effort Sharing Regulation. The Effort Sharing Regulation ensures that all Member States make a fair and just contribution to the EU’s climate objectives and measures. Sixty per cent of EU greenhouse gas emissions fall under the scope of the Regulation, thus all except those covered by EU emissions trading. Emissions from the building sector also fall under the scope of the Effort Sharing Regulation.

The following figure shows that Austria is expected to reduce its non-emission trading greenhouse gas emissions by 48 per cent by 2030 compared to the 2005 baseline. This is 12 percentage points higher than in the ‘old’ but still valid Regulation from 2018.

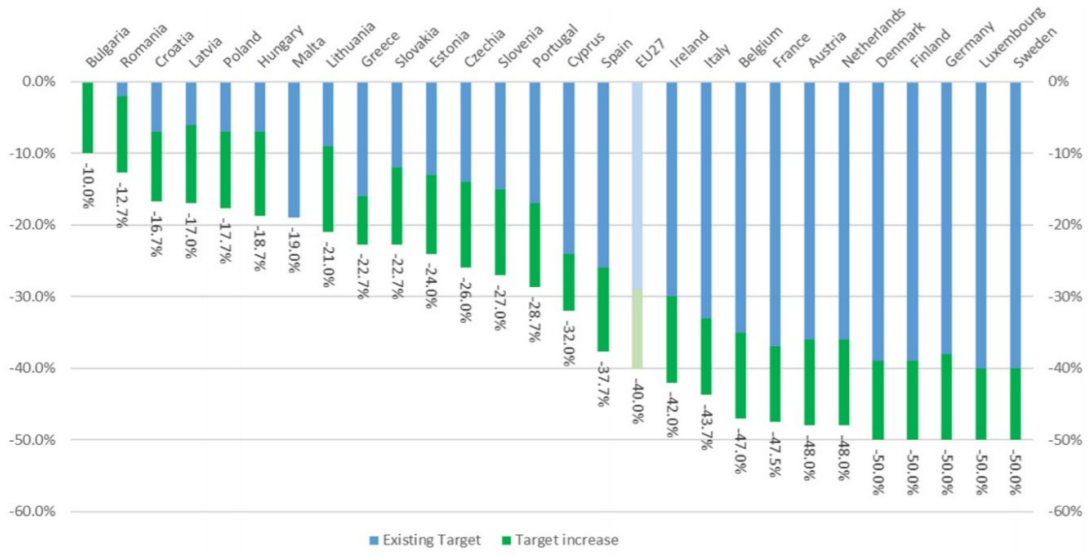


Figure 1: Member State greenhouse gas emission reduction targets proposed by the Commission for the reduction of greenhouse gas emissions in the non-emission trading sector (non-ETS) for the period 2005 to 2030

[3] E.g. the Emissions Trading Directive (ETS), the Effort Sharing Regulation (non-ETS), the Renewable Energy Directive (RED II), the Energy Efficiency Directive (EED), the Energy Performance of Buildings Directive (EPBD), the Energy Taxation Directive (ETD) or the Alternative Fuel Infrastructure Directive (AFIR), etc.

Because the CO_2 emissions from fossil-heated buildings covered by the Spatial Energy Plan Ordinance are non-ETS, this measure contributes to reducing the CO_2 emissions for which Austria is responsible.

2.1.2. Federal Government

The following quotations are taken from the chapter ‘Phase-out plan for fossil fuels in space heating’ (p. 110 to 111) of the **‘2020-2024 Government Programme’ of the Federal Government** and show that the Vienna plan for a ‘spatially differentiated’ approach to CO_2 emissions from fossil heating systems is also in line with the national climate and energy strategy:

- to safeguard its 2040 climate protection targets, Austria must minimise the combustion of fuel oil, coal and fossil gas for heating and cooling;
- promotion of local and district heating: in the future, district heating will become more important in areas with sufficient heat density. It will make a major contribution towards Austria’s non-ETS CO_2 reduction target;
- green gas is a high-quality energy source that is limited in quantity and should therefore take priority in applications requiring high quality;
- a roadmap for the phased unbundling of the heating networks must be developed in consultation with the provinces, energy suppliers and gas grid operators;
- as with the phased plan for oil and coal in space heating, the legal bases for replacing gas heating systems are as follows: from 2025, gas boilers/new connections will no longer be permitted in new constructions. Further expansion of gas networks for space heating is not permitted, except for densification within existing networks;
- improve framework conditions for spatial planning: define supply zones with the option to require connections in spatial planning instruments, legislate service easements for district heating, regulations for identification and simple integration of waste heat sources, etc., supported by corresponding funding programmes.

In the chapter 'Buildings: heating, cooling, building and refurbishment in a sustainable and energy-saving manner’ a link between energy space planning and supply systems is required:

- ‘further development of housing support to guide climate protection objectives with particular attention to spatial planning aspects …’ (p. 108);

With the Spatial Energy Plan Ordinance, Vienna is thus applying a measure that is compatible with the objectives of the Federal Government.

2.1.3. City of Vienna

First, it should be noted once again that the ‘Progress Coalition for Vienna’ government programme of November 2020 puts a clear focus on climate protection. As with the federal target, the top priority is: Vienna should be climate-neutral by 2040.

The present Spatial Energy Plan Ordinance for new buildings supports the following ambitions mentioned in the Vienna Coalition Agreement 2020:

- It is necessary to phase out solid, liquid and gaseous fossil fuels for day-to-day energy needs by 2040. (p. 125)
- New districts in particular must be designed for resource efficiency and must largely meet their energy needs locally. (p. 65)

- Heating, cooling and hot water without oil or gas: Phase-out of fossil fuels for heating, cooling and hot water by 2040 (p. 67).

In the following, it will be shown how the ordinance of energy spatial plans is in line with essential (political) strategy concepts and regulations adopted in the City of Vienna in recent years.

1) Vienna Smart City Strategy and Vienna Climate Roadmap

Both strategies were adopted on 23 February 2022 by the City Council. In the 'Vienna Smart City Strategy', which is the long-term umbrella strategy for the period until 2050, the climate and energy targets were updated by means of a government statement in line with the requirements. The Climate Roadmap outlines the route for achieving the objectives in each sector, including the building and energy sectors.

The main objective of both strategies is: **'Vienna will reduce local per-capita greenhouse gas emissions by 55 per cent by 2030 compared to the 2005 baseline and will be climate neutral from 2040 onwards.'**

The building sector, which is responsible for around 30 per cent of Vienna's greenhouse gas emissions (outside the scope of emissions trading), must make a major contribution towards meeting this target, along with the second largest sector, which is transport. After the ban on oil and coal, the spatial energy plans take the next logical step of phasing out fossil fuels for space heating and hot water.

2) 2025 Urban Development Plan [STEP 2025]

STEP 2025 first formulated the Spatial Energy Planning action area in Vienna in 2014. In particular, STEP 2025 includes the *'Integrated spatial energy planning'* initiative, whose aim is described as follows: '*spatial and energy planning are brought together at the district level in a joint process to arrive at optimal infrastructure and energy system solutions tailored to local needs. Its goals are: preventing CO_2 emissions, boosting energy efficiency, cost-effectiveness and security of supply, using local renewables, making smart and optimal use of grid-bound energy sources (e.g. decentralised heating networks, waste heat, etc.) and implementing energy storage options to make optimal use of local potential.'*

These and other mandates in STEP 2025 laid the groundwork for the preparations that culminated in development of the 'Final concept for spatial energy planning' and the preparations for the Spatial Energy Plan Ordinance.

3) Final concept for spatial energy planning

In April 2019, the City Council adopted the 'Final concept for spatial energy planning'. This lays the foundation for integrating the energy action areas into urban planning processes. It also ensures consideration of the energy supply at an early planning stage, as an essential parameter for climate protection.

Guidelines based on the final concept are intended to support this, as is the development of climate-friendly district energy concepts. These are useful for all major new developments and must be created wherever the total gross floor area exceeds 30,000 m². They are not mandatory in areas for which a spatial energy plan is adopted.

In drafting the final concept, one thing that became clear is that a spatially differentiated procedure for further development of the piping infrastructure needed for heating (district heating and gas grid) offers many benefits, but the proper legal framework conditions are lacking. These were already provided in the amendment to the Vienna BO in 2018, in part as a 'side effect' of the political coordination around the 'Final concept for spatial energy planning'.

4) Amendments to the Vienna Building Code

The 2018 Amendment to the Vienna BO has brought significant progress in climate protection and support for more energy efficiency and renewable energies.

In addition to the authorisation for the Spatial Energy Plan Ordinance (the new § 2b), which provides the basis for the present Ordinance, the amendment also made the following further improvements:

- two adapted targets from § 1(2) acknowledge the public interest in climate protection and greenhouse gas reduction;
- a ban on oil heating after comprehensive renovation.

Further subsequent amendments to the Vienna BO made further improvements in energy efficiency and the expansion of renewable energy sources.

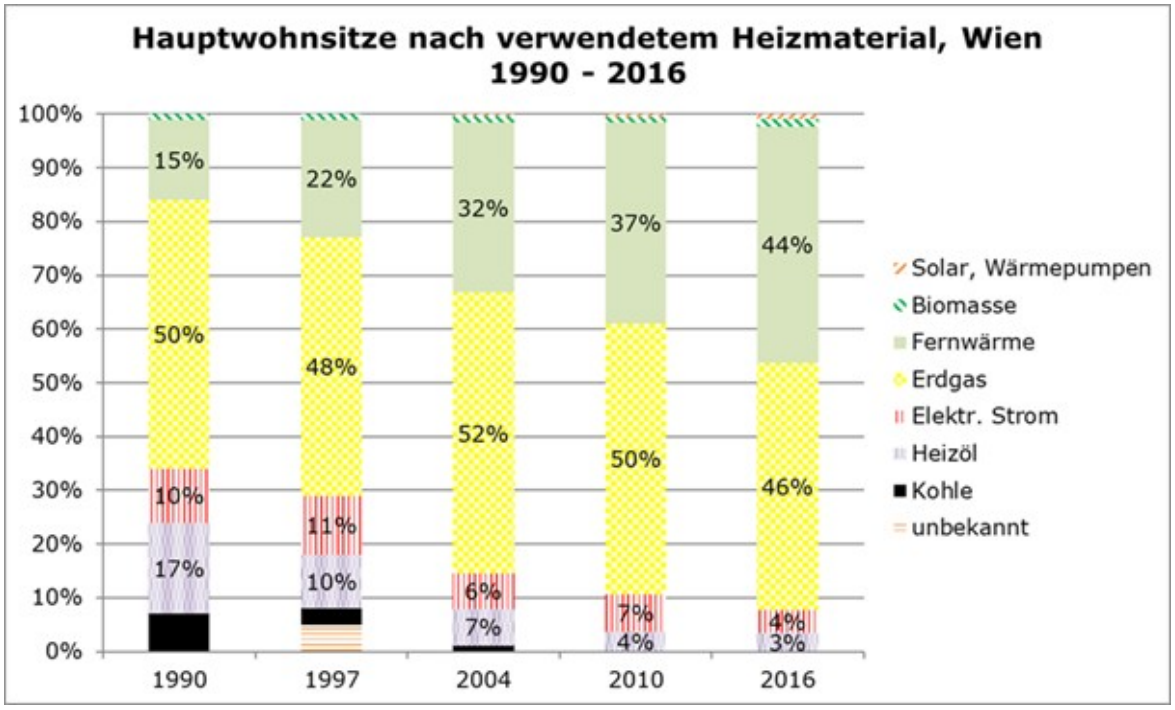
With these amendments, Vienna has demonstrated that the intentions and targets set out in the aforementioned strategy papers will also result in corresponding adjustments to the relevant legislation, clearly indicating the public interest in a climate-friendly energy supply and avoiding parallel piping infrastructure.

2.2. Baseline situation: gas and district heating dominate the Vienna space heating market

2.2.1. Historical development of the heat supply in Vienna

In the latter half of the 19th century, the centuries-old dominance of wood, most of which reached Vienna via the Danube, gave way to coal as the main heating fuel. Coal held the position of 'market leader' in Vienna until after the Second World War. It came to Vienna both via the Danube and by rail, especially the north rail line from the Polish coalfields. In the interwar and post-war periods, many people still worked distributing these fuels in the urban area. The triumph of clean-burning grid-bound energy sources (gas, district heating, electricity) saw the decline of the coal market – and a drastic improvement in the air quality of Vienna.

It was only after the Second World War that natural gas established itself as the main fuel in the heating sector, with expansion of the gas grid to near-total coverage. Today, natural gas heats less than half of all apartments in Vienna. These gas-fired heating systems include gas-fired central heating systems for housing complexes, but especially gas heaters ('single-storey heating'), which number around 600,000 in apartments and businesses in Vienna. In recent decades, gas has gained market share at the expense of solid fuel (coal or wood) and oil heating, although at the same time it has lost market share to a greater extent from the conversion of gas-fired central heating to district heating. In recent decades, district heating has been gaining market share at a rate of around one per cent a year.



Hauptwohnsitze nach verwendetem Heizmaterial, Wien 1990-2016	Main residences by heating material used, Vienna 1990-2016
Solar, Wärmepumpen	Solar, heat pumps
Biomasse	Biomass
Fernwärme	district heating
Erdgas	Natural gas
Elektr. Strom	Electricity
Heizöl	Heating oil

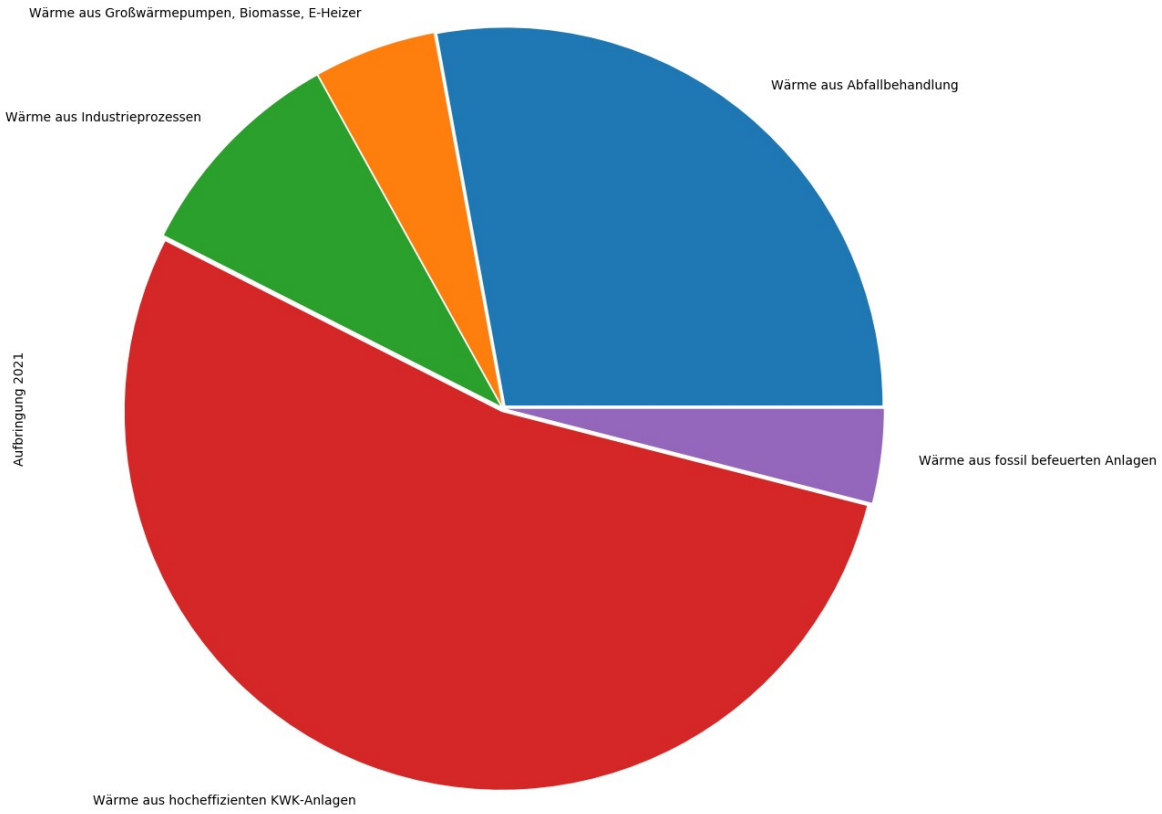
Kohle	Coal
unbekannt	unknown

Figure 2: Mix of heating fuels/energy sources used in primary residences in Vienna since 1990 (source: Statistics Austria).

The trend shown in the figure is also associated with a significant reduction in air pollution (particulate manner, NO_x etc.), climate-damaging CO_2 emissions and the use of primary energy.

While the construction and expansion of gas infrastructure (first 'town gas', then natural gas) got an early start in Vienna, the district heating expansion did not take off until the 1970s, when the waste heat from the waste incineration plants and the power plants was repurposed as district heat for heating and hot water. Today the district heating grid totals 1 200 kilometres, making it one of the largest district heating grids in Europe. It supplies over 430 000 apartments – more than a third of all households in Vienna – and about 7,700 large-scale customers with environmentally friendly heat.

As shown in the figure below for 2021, about one third of the district heating produced comes from the waste incineration plants Flötzersteig, Spittelau, Simmeringer Haide and Pfaffenau and the Wald-Biomasse-Kraftwerk in Simmering. Around two thirds come from combined cogeneration plants and industrial waste heat sources (OMV Schwechat refinery, Manner production site). Natural gas-fired hot water boilers and, more recently, large-scale heat storage, electric heaters and heat pumps are used to cover peak loads.



Wärme aus Großwärmepumpen, Biomasse, E-Heizer	Heat from large-scale heat pumps, biomass, electric heaters
Wärme aus Industrieprozessen	Heat from industrial processes
Wärme aus Abfallbehandlung	Heat from waste treatment
Wärme aus fossil befeuerten Anlagen	Heat from fossil-fired plants
Wärme aus hocheffizienten KWK-Anlagen	Heat from high-efficiency cogeneration plants
Aufbringung 2021	Generation for 2021

Figure 3: Generation mix for district heating in Vienna in 2021 (source: Wien Energie). (Cogeneration = (gas-fired) heat and power plants for the combined generation of electricity and district heating.)

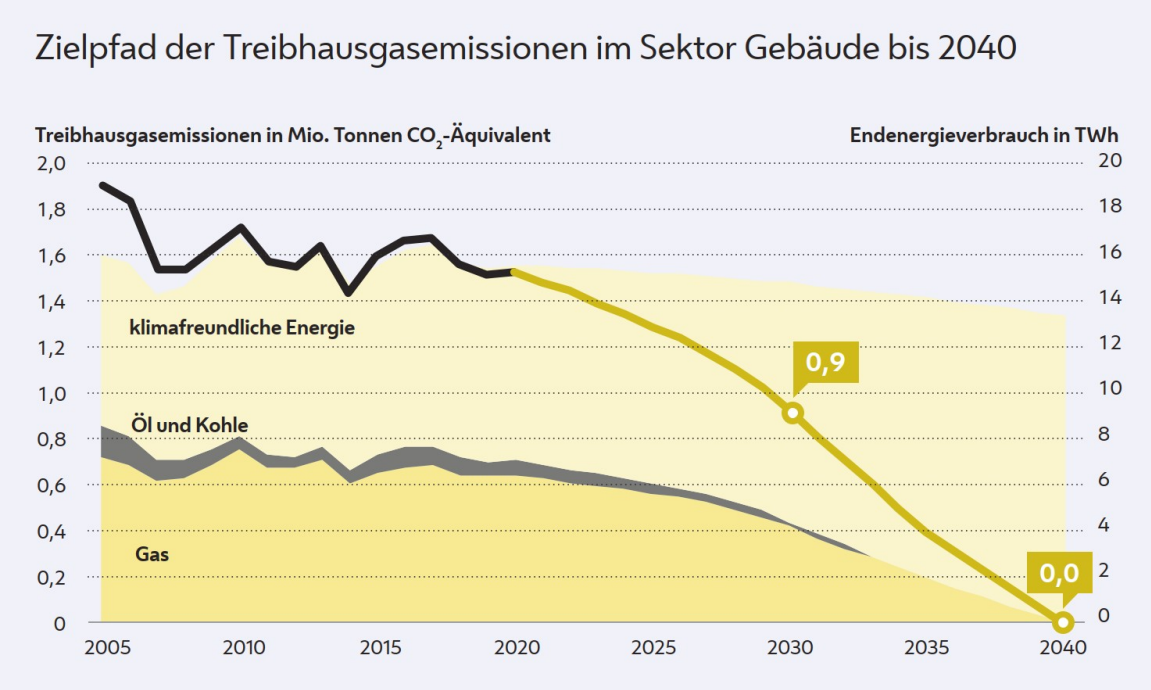
Recent years have seen changes in the framework conditions on the European energy markets, and thus also in the conditions for accelerated expansion of district heating. Above all, the falling market price of electricity has affected the economics of power generation in all European cogeneration plants (including gas-fired ones). This also impacted the production and cost conditions for its by-product: district heating. This is one of the reasons for the stricter requirements on the cost-effectiveness of district heating expansions in Vienna compared to some 10 years ago and before. This aspect is particularly relevant in view of the parallel piping infrastructure present in many parts of the city. The expansion of gas and district heating piping has created a situation where some apartments in a building, on a street or in a grid area are often serviced with natural gas and others with district heating. This has resulted in unsatisfactory connection rates and higher overall economic costs for both grids. (For comparison: In Copenhagen around 99 per cent of all households are serviced by a single grid-bound energy source, in this case district heating. A SINGLE infrastructure, rather than duplicate infrastructure, offers lower costs and with proper regulation, lower district heating prices as well.)

Heating systems with heat pumps or other decentralised renewable energy sources currently play a relatively small role. Heat pumps in particular are increasingly popular because the technology has evolved rapidly, and especially because it offers the key advantages of low operating costs and efficient cooling. The Energy Planning Department expects strong market growth in this area, which is also necessary for decarbonisation, as heat pumps can be operated with electricity from renewable sources and used in many applications.

2.2.2. Objectives for the future heat supply in Vienna

The two strategies adopted by the City Council in February 2022 – **Vienna Smart City Strategy and Vienna Climate Roadmap** – set out the following main objective for the building sector:

'The final energy consumption for heating, cooling and hot water in buildings will fall by 20 per cent per capita by 2030 and by 30 per cent by 2040. The associated CO_2 emissions will fall by 55 per cent per capita by 2030 and to zero by 2040.'



Zielpfad der Treibhausgasemissionen im Sektor Gebäude bis 2040	Greenhouse gas emissions trajectory in the building sector by 2040
Treibhausgasemissionen in Mio. Tonnen CO_2-Äquivalent	Greenhouse gas emissions in million tonnes CO_2 equivalent
Endenergieverbrauch in TWh	Final energy consumption in TWh
Klimafreundliche Energie	Climate-friendly energy
Öl und Kohle	Oil and coal
Gas	Gas

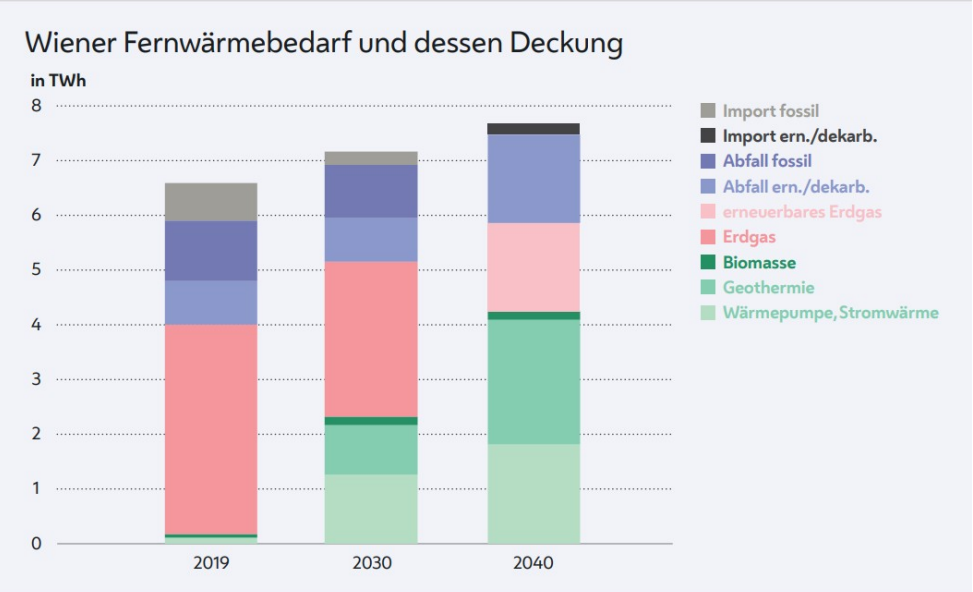
Figure 4: Roadmap for oil and gas consumption and thus towards climate neutrality in the Vienna building sector (Source: Vienna Climate Roadmap; 2022)

Due to an increasing number of building renovations, absolute final energy consumption in the building sector is decreasing, despite the expected further increase in the population. The share of gas in the final energy consumption in the building sector will fall from currently over 40 per cent to below 30 per cent by 2030 and to zero by 2040. The use of fuel oil, which still exists, is to be consigned to history by 2035. Gas heaters will be replaced primarily by district heating, which is being massively expanded, or by heat pumps.

At the same time, the City and Vienna Public Utilities share the goal of diversifying and decarbonising the generation mix for district heating in Vienna. The Vienna Climate Roadmap also includes clear objectives in this respect:

- *Renewable or decarbonised energy production in Vienna will increase to threefold by 2030 and sixfold by 2040 compared to 2005.*
- *Half of Vienna's final energy consumption will be covered from renewable or decarbonised sources by 2030, all of it by 2040.*

This will change the demand for district heating and its generation mix. In the future, district heating will cover significantly more than half of the total heating needs in the low temperature range (below 100 degrees Celsius) in Vienna. More than half a million fossil-heated apartments or workplaces have to be converted to district heating or heat pumps in buildings. This significantly increases demand for district heating despite thermal insulation and global warming.



Wiener Fernwärmebedarf und dessen Deckung inTWh	Vienna district heating demand and its coverage in TWh
Import fossil	Import fossil
Import ern./dekarb.	Import renew./decarb.
Abfall fossil	Waste fossil
Abfall ern./dekarb.	Waste renew./decarb.
Erneuerbares Erdgas	Renewable natural gas
Erdgas	Natural gas
Biomasse	Biomass
Geothermie	Geothermal energy
Wärmepumpe, Storwärme	Heat pump, stored heat

Figure 5: District heating demand in Vienna and its coverage (Source: Vienna Climate Roadmap; 2022)

The main energy sources or technologies for complete CO_2 neutrality of district heating are deep geothermal energy, large-scale heat pumps, as well as the use of green gas, especially to cover peak loads.

Because both the City and Vienna Public Utilities are working to gradually decarbonise the district heating mix, a phased and coordinated expansion of the district heating supply is also critical. The spatial energy plans follow this strategy and will be adopted for areas where densification (particularly in the ‘existing city’) or expansion (particularly in new urban development areas) of the district heating supply is possible based on current capacities.

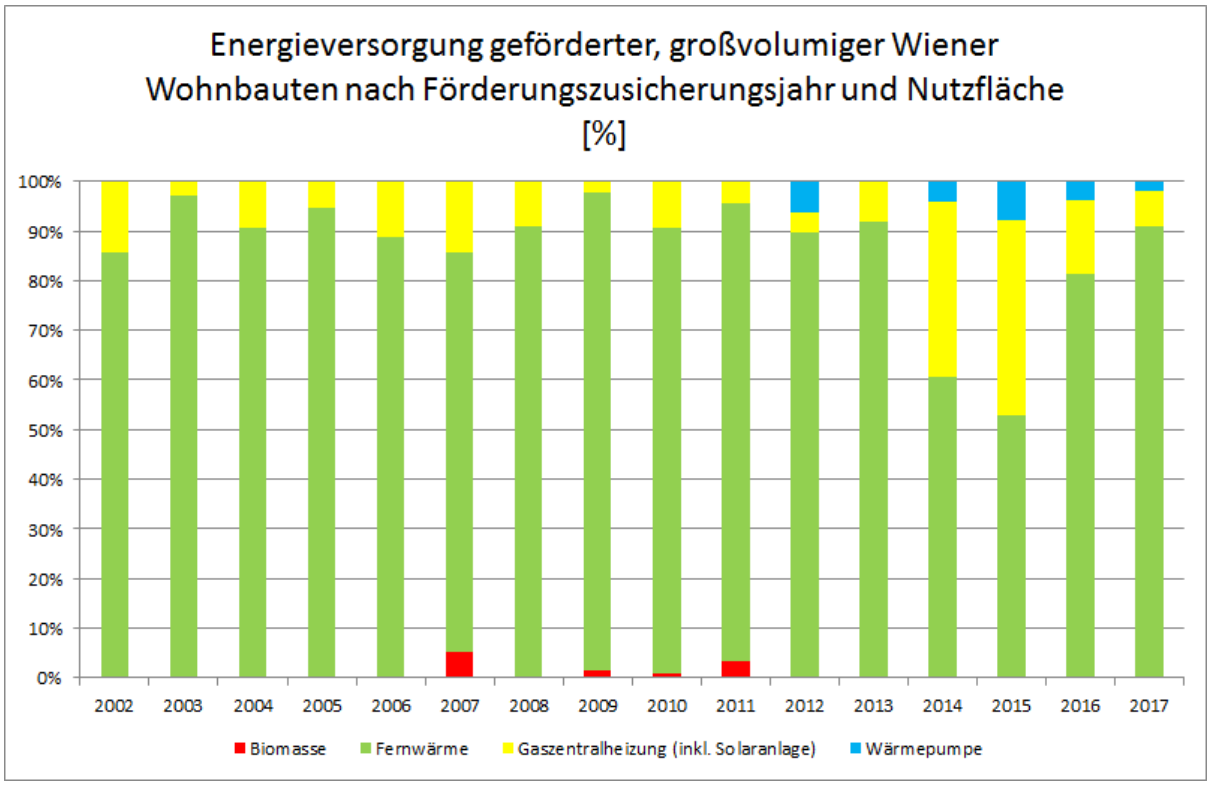
2.3. Expected impact of the Spatial Energy Plan Ordinance

2.3.1. Impact on greenhouse gas emissions in the building sector and/or the non-ETS sector and thus also on Vienna's climate targets

In order to assess the impact of the Spatial Energy Plan Ordinance on greenhouse gas emissions (or energy consumption) per capita, i.e. its impact on the indicator 'per-capita CO_2 emissions', the targets of the Vienna Smart City Strategy and the Vienna Climate Roadmap are based on several assumptions regarding future volume trends in the Vienna housing market. These assumptions are subject to uncertainty: firstly around population development in the coming years, and secondly around the impact of the provision on the share of subsidised housing (subsidised housing zoning category) that came into force with the 2018 amendment to the Vienna BO.

First, based on the figures from recent years, it is assumed that from 2020 onwards, Vienna will see the construction of new buildings totalling around 10,000 apartments a year. It is also assumed that 70 per cent of them will be built within the areas covered by spatial energy plans. Consequently, the spatial energy plans would cover new buildings with around 7,000 residential units each year.

For subsidised housing, it may be assumed that just as before, most new buildings will be connected to district heating anyway (see figure below), where there is a possibility to do so. In this regard, this housing sector will not see any relevant changes. This is also due to the fact that connection to district heating, if possible at the construction site, or the use of high-efficiency alternative systems based on renewable energies is also a prerequisite for subsidies.



Energieversorgung großvolumiger geförderter Wiener Wohnbauten nach Förderungszusicherungsjahr und Nutzfläche	Energy supply of large-volume subsidised Viennese residential buildings by year of subsidy guarantee and usable floor space
Biomasse	Biomass

Fermwärme	District heating
Gaszentralheizung (inkl. Solaranlage)	Gas central heating (incl. solar system)
Wärmepumpe	Heat pump

Figure 6: Energy supply for new large-scale subsidised buildings in Vienna by subsidy award year and useful area (in %) (Source: 2018 City of Vienna Energy Report, based on data from Municipal Department 25)

The spatial energy plans could become more relevant for the privately financed housing construction sector, which has seen significant growth in recent years, primarily due to 'gap filling construction' in inner city areas or on outlying private properties. Privately financed new housing construction recently reached the figure of nearly 50 per cent of all new construction. In the past, this segment also included new buildings fitted with gas heating, even though installation of high-efficiency alternative systems would have been possible and reasonable.

It is therefore assumed that the Spatial Energy Plan Ordinance (for all 23 districts) can redirect new construction projects with a total of 1 000 housing units from gas service to high-efficiency alternative heating systems. The annual gas consumption avoided with these 1 000 new apartments would be around 6 GWh, amounting to non-ETS CO_2 emissions of around 1 400 tonnes a year.

The ordinances can divert a total of at least around 10 000 future housing units from gas heating to high-efficiency alternative heating within just 10 years. This would save over 60 GWh of natural gas for domestic fuel in the 10th year, thus avoiding over 14 000 tonnes of CO_2 emissions (in the non-ETS sector relevant to Vienna).

The Ordinance also supports the main objectives of reducing per-capita CO_2 emissions in the building sector: zero emissions from the new construction sector covered by the ordinances would automatically reduce the average CO_2 emissions of the Vienna building sector as a whole, both per capita (relevant target indicator in the area of the City of Vienna) and by measures such as 'per square metre'.

2.3.2. Infrastructure unbundling

The new building regulations 2018 also has the new planning goal '*Provision of climate-friendly [...] facilities for supply related to [...] energy [...] while avoiding an unreasonable burden due to duplication of infrastructure*'

For the time being, this goal can only be achieved by creating new urban development areas that feature neither natural gas nor district heating at the start of planning. In these cases, these ordinances can prevent the introduction of both of these grid-bound energy sources in these areas, which would create new duplicate infrastructure.

Regarding infrastructure in the area of existing buildings, the ordinances cannot unbundle the redundant piping infrastructure over the short to medium term. This will require suitable regulations for conversion of fossil heating systems in existing buildings. Nevertheless the Spatial Energy Plan Ordinance is also intended to increase district heating connection density in the existing city by connecting new buildings. This should support cost-effective operation, thus boosting energy affordability.

2.3.3. Estimated economic impact

Preparation of the Ordinance included in-depth analyses of its economic impacts. Austrian Institute for Structural Engineering [OIB] Guideline 6 'Energy savings and thermal insulation' [Energieeinsparung und Wärmeschutz] and its implementation in the Vienna BO implement the requirements of the EU Energy Performance of Buildings Directive (EPBD)[4] in Austria and Vienna. According to this Directive, natural gas should only be used in new

[4] Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (as amended by Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018)

buildings in exceptional cases, and is therefore only permissible if cost-effective implementation of high-efficiency alternative systems is not possible (see EPBD 2018, OIB Guideline 6 and the Vienna BO).

Thus, as a rule, high-efficiency alternative systems must be used if the costs are within an economically reasonable range in relation to the goals, such as climate protection and CO_2 reduction.

Natural gas situation: Despite climate targets, new constructions still use fossil heating systems

Advances in technology, the OIB Guideline newly adopted in 2019 and also Viennese regulations, most recently the Vienna BO, have significantly shifted the economic balance towards high-efficiency alternative systems.

Because the use of natural gas (as an exception) now requires a relatively high share of renewable energy sources (20 per cent of the final energy demand for hot water in Vienna), gas heating is no longer necessarily cost-effective.

Nevertheless, fossil natural gas heating remains the reference system for cost-effectiveness comparisons, as it is in line with the standard solutions currently being implemented on the market. These are especially characterised by low investment costs, without necessarily resulting in optimal costs for consumers. These standard buildings are built to a minimum standard for building envelopes permitted under the Vienna BO and partly heated by a gas-fired condensing boiler plus a mandatory supplemental ‘renewable energy system’ (e.g. a solar system). These buildings are currently the standard for three reasons:

1. housing construction companies save 2 to 5 per cent on investment, thus maximising their profits;
2. gas must normally be supplied under the Natural Gas Management Act [GWG];
3. gas heating is a simple technology that many companies have mastered and offer on the market.

Although this standard solution is used as a reference for the cost-effectiveness comparison, it should be noted that it is not optimal for three reasons:

1. it is not compatible with climate targets;
2. it is not necessarily optimal for consumers;
3. it is not adapted to climate change because it is not possible to cool the buildings in summer.

Cost-effective district heating within the spatial energy plans

With regard to district heating, the Spatial Energy Plan Ordinance should be accompanied by clear cost structures. Areas with a spatial energy plan are subject to the following precondition:

The relevant energy supply company must publish transparent costs and affordable rates for both the district heating connection and the running costs. District heating is therefore available in these areas at costs comparable to gas plus a solar system, for instance. Thus, from the perspective of the authority, economically justified exceptions for gas plus a renewable energy share are no longer possible in spatial energy plan areas.

Expert reports show: Renewable energy is cost-effective

The expert reports commissioned by Municipal Department 20, practical experience from residential and school construction and various studies conducted in recent years all show that systems based on renewable energy sources are now economically comparable and competitive. These systems are even more favourable today, especially given certain assumptions, such as a total cost analysis over 20 years or taking into account the option of cooling with heat pumps on hot summer days. Thus, as explained below, the use of

renewable energy systems does not pose any unreasonable additional costs, which in any case makes this Ordinance acceptable from a technical point of view.

The detailed analyses show the following:

With an optimised new building, the additional construction costs for the better building envelope are around 2 to 2.7 per cent compared to the standard building. The reduced energy consumption or the lowest energy standard is an essential precondition for implementation of a renewable and thus also climate-friendly heat supply because low consumption greatly reduces the costs of the renewable supply system. Depending on the system combination used, the total additional costs (construction + building services) of the investment are around 2.6 to 5.7 per cent. Usually, the design planning for a construction project takes into account production cost fluctuations of between 5 and 10 per cent. Thus, the aforementioned additional costs will not exceed this fluctuation range, and in any case will be well below 10 per cent.

These additional investment costs must, however, be weighed against the benefits of systems of this kind. For instance, heat pump systems based on geothermal energy, which require up to approx. 5.7 per cent more in investment costs according to expert reports, offer the major advantage of being able to cool buildings in the summer by feeding the excess heat into the ground and storing it there for the winter.[5] This solution provides relief in the urban climate because unlike conventional air conditioning systems, the heat is not released into the surrounding environment. This significantly boosts the efficiency and future viability of the building, given that climate change is expected to considerably increase the number of hot days every year. This benefit for residents, especially vulnerable demographics (seniors, children, the sick), can no longer be denied in the face of climate change. The ability to cool apartments has a significant impact on their market value. Taking the overall economy of a building into account in this way, the construction of climate-friendly buildings with higher quality of life is already highly cost-effective today from the perspective of investors.

End consumers also enjoy the benefit of lower operating costs for these renewable systems because most of the energy is supplied from local sources, which are available free of charge. In addition, these systems are less maintenance-intensive.

3. Methodological approach to drafting spatial energy plans

As noted above, areas are determined to be suitable for a spatial energy plan based on the availability and/or feasibility of high-efficiency alternative systems as per § 118(3) Vienna BO. The section below explains the analysis method.

3.1. Defining the areas

District heating plays a key role in determining the areas. District heating by Wien Energie GmbH qualifies as a high-efficiency energy supply system as per § 118(3) Vienna BO. For district heating, ‘high-efficiency’ means: (at least 80 per cent of) the energy fed into a heating grid must come from cogeneration plants and/or waste heat and/or renewable energy (ambient heat, biomass, etc.). The district/local heating currently available from other providers, as well as the decentralised grids operated by Wien Energie GmbH using gas boilers, do not meet these criteria.

In densely built-up areas, the use of high-efficiency district heating must be considered a climate protection measure. From a microeconomic and macroeconomic point of view, grid-bound energy sources are unsuitable for sparsely built-up areas, such as with allotment houses, single-family homes or terraced housing estates, because long pipes combined with low heat consumption pose high investment and maintenance costs that cannot be recovered. Buildings of this type are highly suited to decentralised energy using heat pumps or pellet boilers.

[5] The use of near-surface geothermal energy (up to 300 m deep) works via geothermal probes by extracting heat from the ground. ‘Seasonal storage’ is when heat from buildings is fed into the ground loops in summer to be re-extracted for heating in winter.

In the densely built-up urban area, the situation is as follows: Under the premise of making the best possible use of the existing network infrastructure with its capacities, **areas were defined in which the existing district heating network can be compacted or expanded**. This required technical and economic analyses of the district heating grid, as the basis for decision-making. The results of these analyses include an assessment of the suitability of potential new buildings for connection. It does not matter whether or not construction has already taken place on a property.

Identification of the areas for high-efficiency district heating infrastructure required data from both the City of Vienna and the network operator, in this case Wiener Netze GmbH, for the urban territory of Vienna. Both the City of Vienna and the network operator prepared these data.

Building data such as age, use, etc., as well as likely construction trends in selected areas for the period until 2025, were used to examine the extent to which district heating is possible in principle. The methodology described below was used to assess the individual properties and then define the areas.

3.1.1. Technical assessment

The process first assessed the technical constraints of the existing grids. This includes the pipe installation type and dimensions, as well as the capacity of the area heat exchange stations and substations (see figures below). For instance, some secondary grids have pipes that are already at capacity and cannot accommodate any more buildings, or an area heat exchange station that has already reached capacity. This assessment assumes connectivity to the existing network without additional investments.

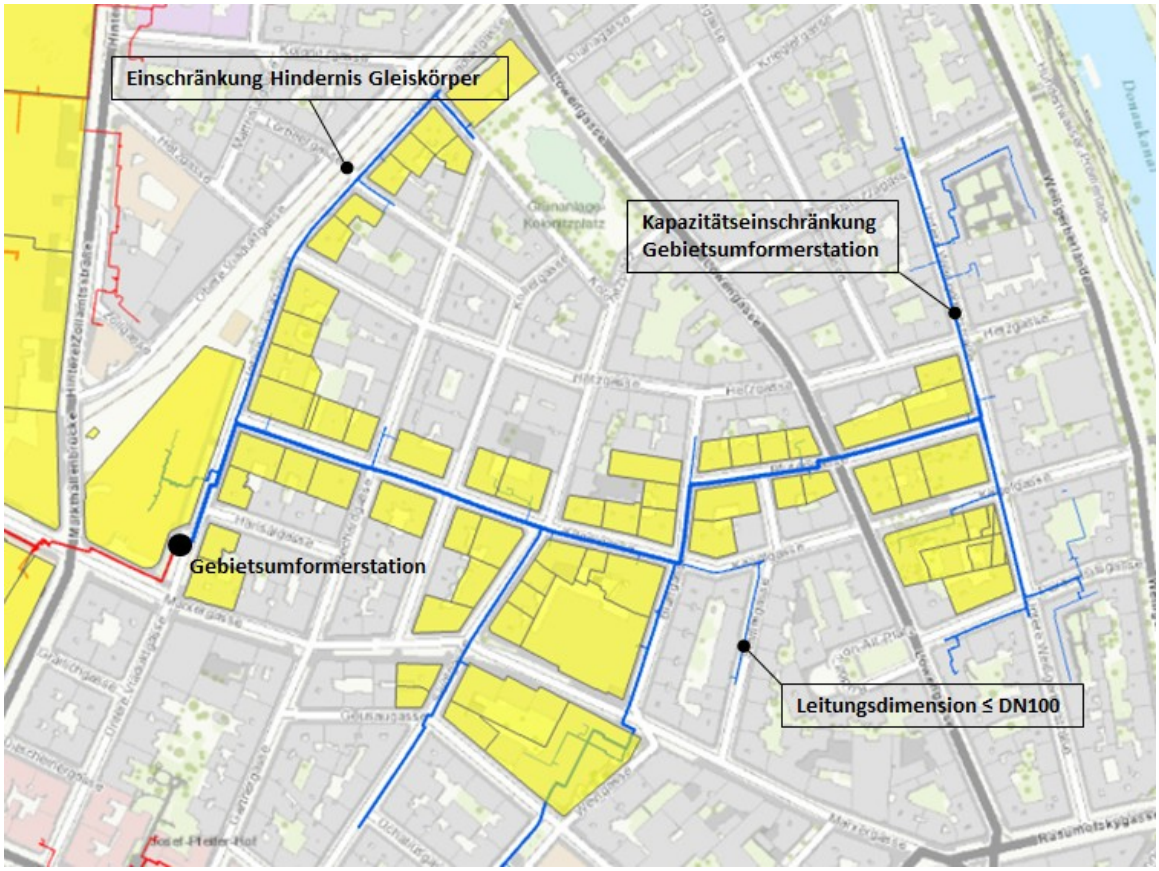


Figure 7: Example of the impact of different technical constraints (blue lines: secondary grid)

Einschränkung Hindernis Gleiskörper	Restriction - obstacle - train track
Kapazitätseinschränkung Gebietsumformerstation	Capacity restriction - area transformer station
Gebietsumformerstation	Area transformer station
Leitungsdimension	Cable dimension

Figure 8: Examples of the impact of different technical constraints in the primary grid

Leitungsdimension	Cable dimension
Verlegeart: Pressung	Type of installation: Pressing
Geringe Leitungskapazität	Low line capacity

3.1.2. Economic assessment of individual connections

This technical connectivity of a property is used to analyse the costs of connecting a new building. This includes all costs incurred by the energy supplier and network operator, such as investment costs related to connecting the building to the heating grid or running costs related to heat generation and transport to the property. If the proceeds from the sale of heat cover the costs, ensuring cost recovery, the company's economic assessment of the property is generally positive. The cost-effectiveness of a district heating connection is ultimately also relevant for the costs for end consumers, i.e. for an affordable heat supply.

3.1.3. Creation of densification zones

Grid areas are defined as densification zones as part of overarching, proactive and sustainable design and development of the energy supply. The overall assessment of all properties identified along a section of pipe must be positive in terms of technical and economic connectivity. For this, the heat density or consumption along a grid section must be sufficient and the area heat exchange station and existing pipes must offer the required capacities (see figure below). The hydraulics of the grid infrastructure, especially the substations, must also be able to handle the loads if multiple new buildings are connected.

In the built-up urban area ('existing city'), construction trends are difficult to estimate. New construction and renovation rates are fraught with uncertainties, making it difficult to simulate the expected/changing heat densities with the available data sources. Therefore

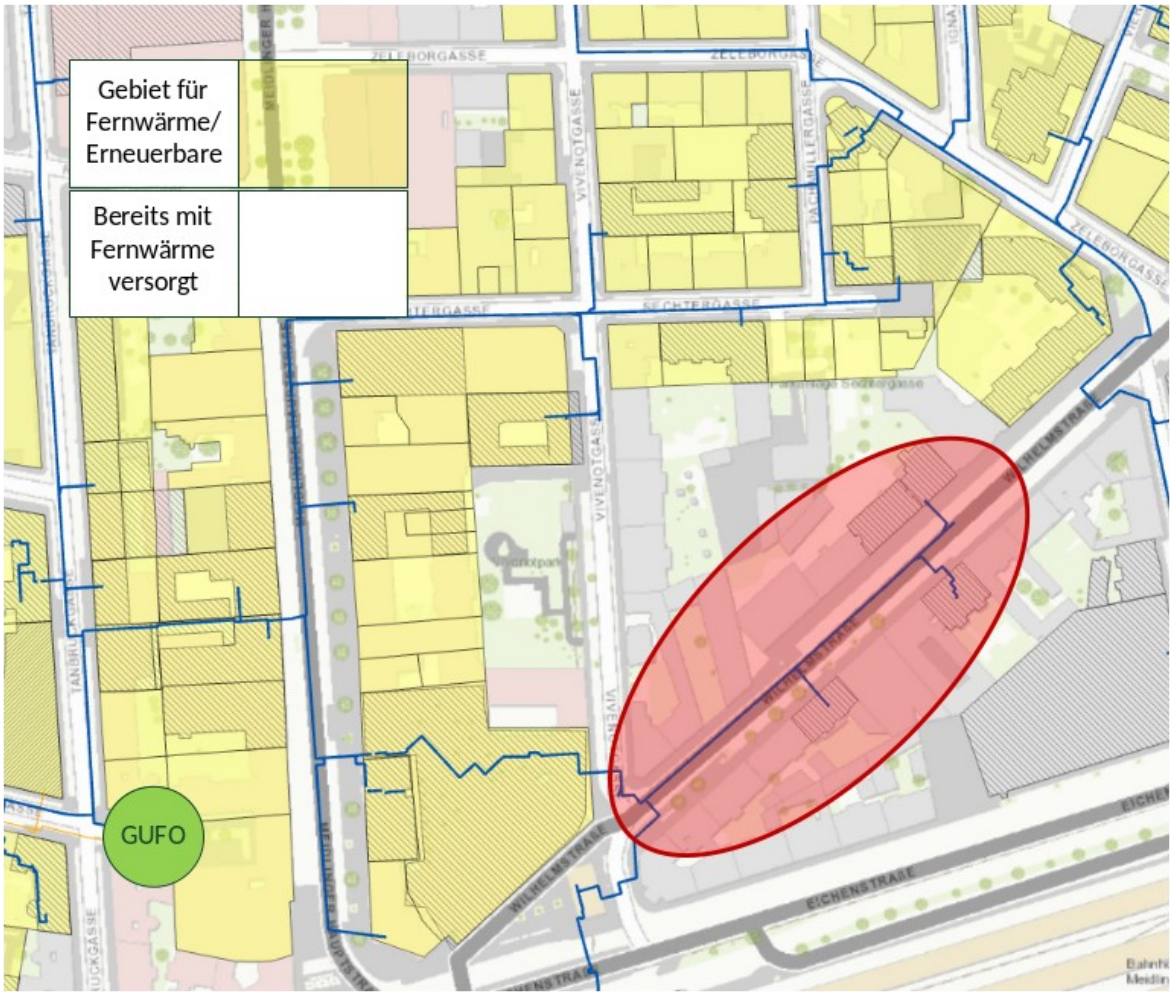
the above assessment is always for a potential new construction, without taking into account a change in heat densities in the rest of the area.

In completely undeveloped urban development areas (‘new development areas’), the expected construction density was a key criterion for potential connectivity. Those areas were used for which construction development is soon expected.

The densification zones ultimately result in the sub-areas indicated in the spatial energy plan, where the Ordinance applies.

The Ordinance has no effect on buildings already connected to district heating. Nothing will change for buildings already supplied with district heat outside the densification zones either. Here, in principle, new buildings may also be supplied with district heating. Due to technical constraints however (see figure below), additional surrounding buildings cannot be connected. Because district heating cannot be densified in these areas, they do not make up a homogeneous zone.[6]

Instead, it is necessary to promote new connections in densification zones to boost overall grid efficiency and make a greater overall contribution to protecting the climate.



Gebiet für Fernwärme/Erneuerbare	District heating/renewable area

[6] Development and structure of the district heating network: The district heating network spans large parts of the city. District heating was initially designed to service hospitals and public buildings. It was continuously expanded from various central plants, such as waste incineration plants, until all the sub-grids were interconnected. District heating is distributed in the city from central plants over a primary grid at temperatures of up to 150 degrees Celsius. Depending on the type of installation, connection to district heating may not be economically viable. What are known as ‘area heat exchangers’ distribute heat from the primary pipes at a temperature of 70 to 90 degrees Celsius into the ‘secondary grids’. These area heat exchangers have a defined thermal distribution capacity. The construction of a new area exchanger is highly cost-intensive, and only makes sense if a corresponding increase in heating demand is expected. In such cases, district heating would be transported directly through the connection pipe and substation to a property or building.

Bereits mit Fernwärme versorgt	Already supplied with district heating

Figure 9: Zoning as per § 2b of the spatial energy plans; in the area shaded in red, a homogeneous zone cannot be created due to technical constraints (pipe dimension too small).

The figure below gives another overview of the procedure for creating densification zones.

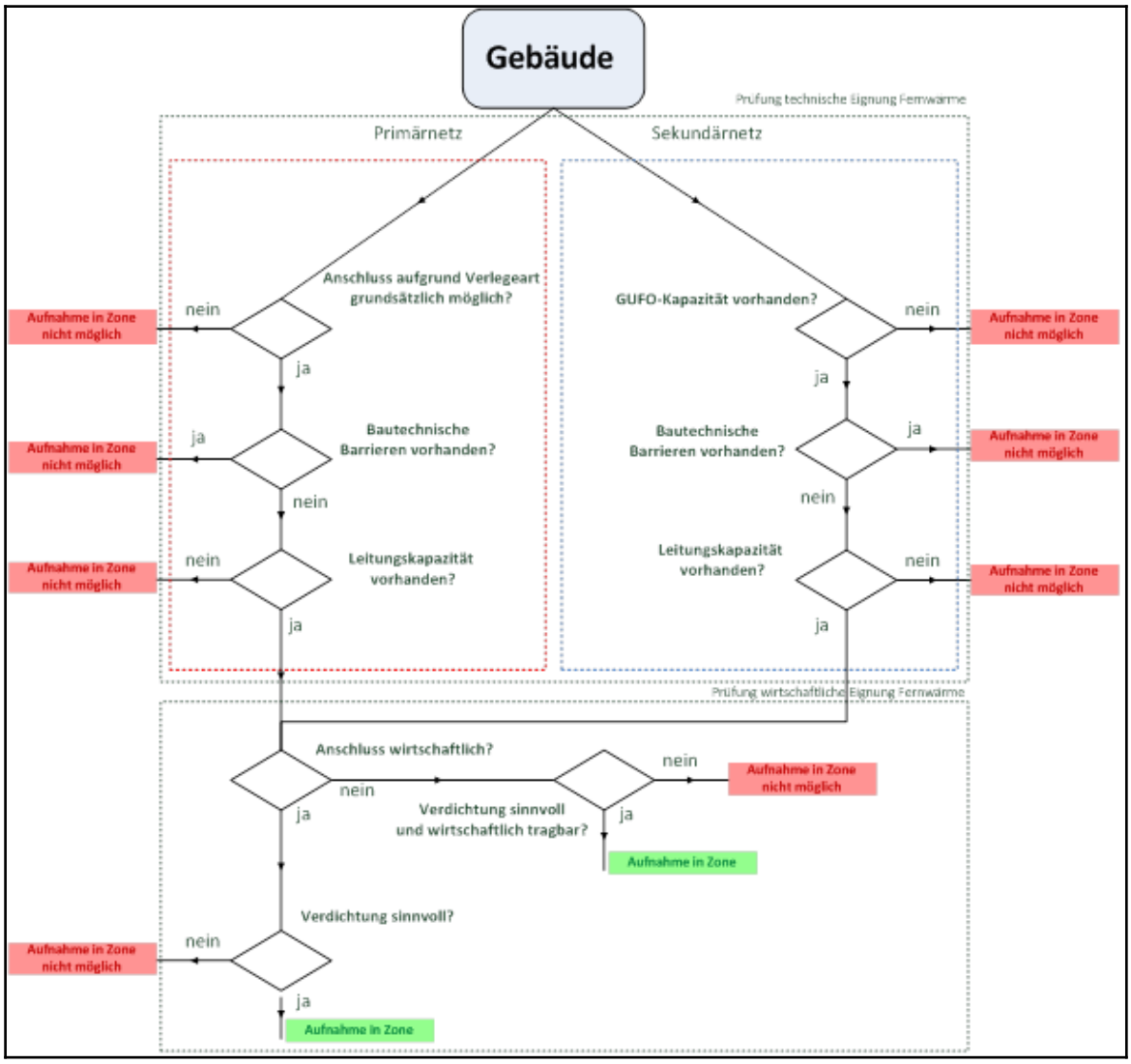


Figure 10: Decision tree and assessment steps for connecting a property to a district heating grid (source: Wiener Netze)

Gebäude	building
Primärnetz	Primary network
Sehundärnetz	Secondary network
Prufung technische Eignung Fernwärme	Testing suitability of district heating
Aufnachme in Zone nicht möglich	Follow-up in zone not possible
Anschluss aufgrund Veflegeart grundsätzlich möglich?	Is connection possible in principle due to the type of installation?

GUPO-kapazität vorhanden?	GUPO capacity available?
Nein	No
Ja	Yes
Bautechnische Barrieren vorhanden?	Are there any structural barriers?
Leitungskapazität vorhanden?	Is there line capacity?
Anschluss wirtschaftlich?	Connection economical?
Verdichtung sinnvoll und wirtschaftlich tragbar?	Compaction sensible and economically viable?
Aufnachme in Zone	Follow-up in zone
Verdichtung sinnvoll?	Does compaction make sense?

The assessment methodology was reviewed by an expert appraiser[7].

3.2. Assessment of other high-efficiency alternative systems

Renewable heating systems such as biomass, heat pump systems (geothermal, use of groundwater for heating, air) and also cogeneration plants are other high-efficiency alternative systems as per § 118(3) Vienna BO.

Because an individual assessment at the same level of detail as in a permit process for a specific project is not possible in the spatial energy plans, the following approach was selected:

- Calculations by the Geological Survey of Austria [GBA] show that geothermal energy (ground loops) can generally be used by means of heat pumps, even in new large-scale buildings.[8]
- At sites where this variant is not possible for technical reasons (due to installations or underground structures), in principle systems with air source heat pumps may be used.
- An initial report commissioned by Municipal Department 20 when preparing the spatial energy plans indicates that cost-effective implementation is possible for both heat pump systems (geothermal, air).[9]
- A second report shows that biomass and ultimately also gas cogeneration are technically and economically feasible.[10]

The law poses constraints in some areas, such as water regulations and noise and air pollution, which must be checked in individual cases.

A new building with a high building standard, and thus also a lower energy demand for heating and hot water, is a useful precondition for efficient and cost-optimal use of renewable heating systems.

This calculation by the Geological Survey of Austria shows that the soil (down to a depth of 300 m) provides adequate heat to supply heat and hot water to buildings or building plots with a sound building envelope up to a certain (heat) density. The amount of heat extracted depends on the drilling depth and the number of ground loops. If the soil is also regenerated in the summer, this will enable more efficient design and operation of the ground loop field and a higher construction density. Regeneration is primarily achieved by cooling the building in the summer by extracting excess heat from it and releasing the heat to the ground loop field, which is cooled from the winter heating season. In addition, other heat sources such as waste heat from companies, waste water, district heating, solar thermal energy, etc., may be used for regeneration. Buildings fitted with systems of this kind also offer the major benefit that they can cool the apartments or premises, which prevents overheating in the summer in a highly comfortable and cost-effective manner.

[7] Technical energy management report on the 2018 Amendment to the Vienna Building Code (§ 2b Spatial energy plans) – FERNWÄRME [District Heating], Professor Reinhard Haas, attached
[8] Source: Bund-Bundesländer Kooperation WC-35 [Federal-provincial cooperation, WC-35], Geological Survey of Austria, Vienna; March 2019
[9] Expert report by Büro Treberspurg & Partner, attached
[10] Technical energy management report on the 2018 Amendment to the Vienna Building Code (§ 2b Spatial energy plans) – HOCHEFFIZIENTE ALTERNATIVE SYSTEME [High-efficiency alternative systems], Professor Reinhard Haas, attached

For an initial assessment of the potential for geothermal and groundwater use in the urban territory of Vienna, please see the online Vienna city map for environmental resources (https://www.wien.gv.at/umweltgut/public/) or area zoning (https://www.wien.gv.at/flaechenwidmung/public/) under the category > *Energie* > *Energiepotenziale* > *Erdwärmepotenzialkataster*.

Therefore, at least one other alternative system or a combination of different systems is technically feasible in the areas with a spatial energy plan.

4. Content, procedure and legal consequences

The areas hatched in orange and those outlined in orange are accurate down to the individual parcel based on the current plot boundaries (digital cadastral map, Federal Office of Metrology and Surveying [BEV]). The traffic areas within the boundaries are not subject to the Ordinance. This depiction is based on the official base map of Vienna (Municipal Department 41: Surveying and Mapping) and the digital cadastral map.

With the Spatial Energy Plan Ordinance, the City of Vienna is making use of the legal authorisation as per § 2b(2) Vienna BO. Implementation will be in accordance with the provisions of the Vienna BO.

The procedure for the Spatial Energy Plan Ordinance must be carried out as per § 2b(5) Vienna BO. § 2(1 and 5 to 9) apply accordingly, i.e. the procedure is similar to the zoning and development plan procedure.

Once the City Council passes a resolution to adopt a plan, the resolution is promulgated in the Official Journal of the City of Vienna. After promulgation, anyone may request a copy of the resolution and the supplemental plans.

Transitional provisions:

In accordance with § 5, this Ordinance shall come into force three months after its promulgation. Pursuant to § 6, it shall not apply to any building permit procedures that are pending at the time of its entry into force in order to ensure planning certainty for parties submitting documents.

II. Specific part

5. Area description

5.1. Area under consideration: district

The seventeenth district is also referred to as “Hernals”. It is 1139.6 hectares in size and occupies just under 3 % of Vienna’s urban area. It is the tenth largest municipal district in Vienna. Hernals consists of the cadastral communities of Dornbach, Hernals and Neuwaldegg. In the east, Hernals is bordered by the belt, to the west it runs into the Wienerwald. The northern border runs in step-like shape starting at Jörgerstraße to Antonigasse and continuing south of Gersthof and Pötzleinsdorf to Schafberg.

Hernals reproduces the characteristics of the Vienna West districts. With a highly dense eastern part attached to the Hernalser Gürtel and a green and loosely-built residential area running out into the Wienerwald, which still shows traces of a farming landscape transformed into an urban settlement area. With villa areas and many allotment gardens up to the foothills of the Vienna Woods, it therefore resembles its neighbouring districts.

At the start of the 19th century, the district was a village with 100 houses, mainly farmed. The early industrial phase began with location-based businesses, whereby Hernals developed into an industrial location with a strong mix of small and medium-sized businesses in the course of the 19th century. Meanwhile, Dornbach and Neuwaldegg remained loosely-built villas with farms.

In the mid-17th century, the Josef Manner Comp. AG (chocolate factory) had their production site in the 17th district with urban building stock. Other defining elements include the Jörgerbad, the Vienna Hernals cemetery, the Wiener Sportklub sports park with the famous Friedshofstribüne, the Vienna Postal Sports Centre, the Krankenhaus Göttlicher Hospital, the Marswiese and the Schwarzenberg Park.

The built-up areas in the district account for 407.4 ha. About 94 % of these are used for residential construction and about 3 % for social and technical infrastructure. About 11 % of the total area of the district is occupied by traffic. 602.3 hectares, i.e. about 53 % of the district, are used as grassland. More than three-quarters of these are accounted for by forest areas and about one-tenth in meadows.

5.2. District heating infrastructure and designation of the areas

Overview:

The 17th district is accessed by two primary lines coming from the belt. One of the primary lines extends to the boundary of the 16th district near the Kongresspark. Along this route there are some secondary networks, but also primary spur lines into the surrounding areas. However, some densely-built areas have not yet been developed with district heating. District heating infrastructure is not available in the less densely-constructed areas.

Areas:

The method detailed in Chapter 3 was used to identify 16 densification zones. These densification zones are characterised by their well-developed district heating infrastructure. Over the long term this will enable a high connection density, and thus also infrastructure unbundling.

The areas north of 17/001/1 are not suitable for designation as an area of the Energy Space Plan due to the lack of infrastructure.

In the areas west and south of 17/002/1, the free capacities of the area transformers (GUFO) are currently very low, so these are not suitable for inclusion.

The lines in area 17/007/1 are already very busy, so a nationwide uptake of the surrounding areas is not possible.

The area between 17/015/1 and 17/006/1 is not suitable as an area of the Energy Space Plan due to the low available capacities of the GUFO.

Other areas between the compaction areas cannot be included as part of the Energy Space Plan due to the lack of district heating infrastructure. West of Vollbadgasse there is no district heating infrastructure in the rest of the district up to the city border

5.2.1. Areas

17/001/1

Borders: The area runs on the northern side of the road along Ottakringer Straße between Steinergasse in the west and Hernalser Gürtel in the east and includes the buildings of the first and part of the second rows of houses. In the eastern part of the area, between Hernalser Gürtel and Veronikagasse, the row of houses south of Ottakringer Straße is also included.

Current situation: The inner-density, predominantly Wilhelminian block perimeter development with the character of a shopping street regularly alternates with post-war buildings. The structural height has a frequently-occurring striking variation in the number of floors. For example, 3-storey buildings are directly adjacent to 6 or 7-storey buildings.

Developments: The “Project Apfelbaum” (Ottakringer Straße 44) is currently being implemented. Apart from this, we are not aware of any current urban developments.

17/002/1

Borders: The area follows the Haslingergasse road between Weißgasse in the west and Steinergasse in the east. Along Kalvarienberggasse, the area runs from Geblergasse in the north to Haslingergasse in the south, with offshoots as far as Ottakringer Straße.

Current situation: The area is characterised by a compacted block edge development. Along Haslingergasse there is a mixture of different building periods, in which Wilhelminian style buildings and post-war buildings alternate. The building heights vary mainly between 3 and 4 floors. The situation is similar along Kalvarienberggasse, with the proportion of the early buildings predominant.

Developments: We are not aware of any current urban developments.

17/003/1

Borders: The area includes the buildings on the northern side of the Geblergasse between Ortlieb- and Frauengasse as well as a small area east of Ortliebgasse. Furthermore, the area between Frauengasse and Taubergasse includes the buildings on both sides and west of Taubergasse up to Rosensteingasse the buildings on the southern side of the street.

Current situation: In the western part of the area, the buildings along Geblergasse are mainly new buildings with up to 4 floors. This includes the residential complex from the 1980s with up to 6 floors, which is located on the western foothills. Further east are 2 to 3-storey buildings from the Gründerzeit (time of rapid industrial expansion), some even older. Central in the area is a building which includes the national sports hall

Parhamerplatz, a groceries market and a parking garage. To the west of it is the 4-storey, modernised Gründerzeit building of the Parhamergymnasium.

Developments: We are not aware of any current urban developments.

17/004/1

Borders: The area covers the eastern side of the Wichtelgasse between Lobenhauerngasse in the north and Wilhelminenstraße in the south, as well as the building block north of Geblergasse between Wattgasse in the west and Wichtelgasse in the east.

Current situation: The entire area consists of partly-modernised building blocks with predominantly 4 to 6 floors. The south-facing building comprises the headquarters of Josef Manner & Comp. AG. In the western part of the area, there are various social facilities.

Developments: We are not aware of any current urban developments.

17/005/1

Borders: To the north, the area is bordered by the Elterleinplatz and the Hernals main road. The eastern border runs in the middle of the building block between Kalvarienberggasse and Bergsteiggasse at the Steinergasse level. In the south, Geblergasse and to the west the planned extension of Hormayrgasse. The boundary of the area runs step-shaped along the Ortliebgasse park.

Current situation: In the southeastern part of the area is the 3-storey building of the Hernals Federal Gymnasium from the post-war period. The building of the Kalvarienberg Federal Schools to the west dates back to the early founding period and also has 3 floors. In the centre of the area is the Hernals Catholic Church (St. Bartholomäus). The other buildings in the area are mainly buildings from the Wilhelminian period in perimeter block development with 3 to 5 storeys.

Developments: We are not aware of any current urban developments.

17/006/1

Borders: The area extends from Hormayrgasse / Elterleinplatz along Rötzergasse towards the east. Along Pezzlgasse, the development between Jörgerbadgasse and Syringgasse is included on both sides, with an offshoot to the south along Bergsteiggasse to Jörgerstraße. The eastern border is formed by Ranftlgasse at the height of Beheimgasse.

Current situation: This is an area with a predominance of buildings from the Wilhelminian period. The dense perimeter block development has residential buildings with mostly 4 to 5 storeys. In the centre of the area is the Pezzlpark and to the east, along Syringgasse, is the modern 2-storey building of the Engelmann artificial ice rink, with sports facilities on its roof. In the south of the area at the corner of Jörgerstraße / Bergsteiggasse is the Jörgerbad public swimming pool. In the west of the area at Elterleinplatz stands a densely built massive residential block with predominantly 6 floors from the 1980s, which is directly adjacent to the Magistrate District Office for the 9th and 17th district.

Developments: In the area of the Elterleinplatz is the terminus of the metro line 5, currently under construction.

17/007/1

Borders: To the west, the Wattgasse forms a border. The area ends in the northwest with the curved Roggendorfgasse. In the north, it protrudes between Gschwandner and Rosensteingasse almost as far as Blumengasse. To the east, the area follows the course of

Rötzergasse to Hormayrgasse. To the south, the Hernalser Hauptstraße forms the border, with exceptions along Hormayr, Lackner, Rosenstein, Comenius and Nesselgasse.

Current situation: The western part of the area is dominated by post-war buildings, as well as an open terraced courtyard built during the interwar period. Along Rötzergasse to the east of Gschwandnergasse there are largely buildings constructed in the Wilhelminian period, with the exception of the Christine-Nöstlinger-Hof from the post-war period. The municipal apartment buildings at Comeniusgasse 2 and Pezzlgasse 71-73 also date from the post-war period. In the centre of the area, the HBLVA Rosensteingasse (chemical industry) is located in a distinctive Gründerzeit building.

Developments: On the periphery of the postal sports centre, constructional development is to be expected in the medium to long term.

17/008/1

Borders: In the northeast of the area, Richthausenstraße forms a border, to the east Wattgasse. The southwest is limited by the Hernals main road, and in the northwest the area extends to Gilmgasse.

Current situation: The area has a mixture of Wilhelminian and post-war perimeter block development with predominantly 4 to 5 storeys as well as post-war, flat hall buildings. A striking building in the area is the representative Hernalser Bahnhofsbau (Hernals Station Building) of the Wiener Linien tram depot on Hernalser Hauptstraße. In the centre of the area is a hardware store, in the northwest, the Hernals rescue station.

Developments: We are not aware of any current urban developments.

17/009/1

Borders: The area includes rows of houses on the northern side of the Sautergasse between Seitenberggasse to the west and Wichtelgasse to the east. The southern side of the road is also enclosed between Wichtelgasse and Wattgasse. Along Wichtelgasse and Redtenbachergasse, the area reaches both sides as far as Hernalser Hauptstraße in the north.

Current situation: The streets along Sautergasse are largely built on the edge of a Wilhelminian style block, mostly with 4 storeys, and there are a few post-war buildings that blend into the structure. In the northwest of the area there is a magistrate building, in the eastern part, the Kabühnett cabaret stage.

Developments: We are not aware of any current urban developments.

17/010/1

Borders: The area is limited to the north-east by Hernalser Hauptstraße, with the buildings between Kainzgasse and Beringgasse up to Balderichgasse being predominantly omitted. To the east, the area is bordered by the Julius-Meinl-Gasse and Beringgasse. The southern border runs along Liebknechtgasse, Urbangasse and Lascygasse. The western border is mainly formed by the Güpferlingstraße and the Sandleitengasse.

Current situation: The building fabric of the predominant residential area is mixed. Buildings from the Wilhelminian and post-war periods alternate with buildings from the 1980s and 1990s and new buildings. To the east, there are two urban residential complexes: The “Wiedenhoferhof” from the interwar period is a closed, 5-storey perimeter block development with an additional wing in the middle. The north following residential complex in Balderichgasse 23-29 dates back to the 1950s. In the northwest of the area is the 5-storey “Eiflerhof” from the interwar period.

Developments: We are not aware of any current urban developments.

17/011/1

Borders: The area is bordered to the north by Dr. Josef Resch Square and the Halirschgasse. Gräffergasse runs to the southeast, and Hernalser Hauptstraße, partially set back, to the southwest. To the west, the area extends slightly beyond Beringgasse.

Current situation: The building fabric of the residential area is mixed and consists of a dense building block with mostly 4 floors and small courtyards, which alternates with inter-war and post-war buildings. To the east stands the church building of the Holyhof on a triangular base. It originates from the interwar period and has 4 to 5 storeys. In the west, the Türkenritthof urban residential complex from the interwar period is integrated into the block edge development.

Developments: We are not aware of any current urban developments.

17/012/1

Borders: The small area consists of a section of houses that covers the southern side of the Alszeile between Kainzgasse and Josef-Moser-Gasse, including both sides of the Josef-Moser-Gasse.

Current situation: The area consists of a ridge-shaped row of houses from the 60s and 70s along the Alszeile. At the corner of Josef-Moser-Gasse stands the Herz-Jesu-Sühnekirche, a Roman Catholic parish church, dating from 1933.

Developments: We are not aware of any current urban developments.

17/013/1

Borders: To the north and west, the tracks of the suburban line run in an arc, separating the area from the Hernals cemetery. To the east, Lidlgasse acts as a border, to the south the Richthausenstraße.

Current situation: The site is home to the Hernals waste collection site and storage areas for cleaning depots; accordingly, there are large-scale warehouses, workshop and administration buildings (building fabric from the Wilhelminian period) as well as car parks and storage areas for removal and delivery.

Developments: We are not aware of any current urban developments.

17/014/1

Borders: In the north of the area lies Wielemansgasse, the eastern border is at the level of Alsegger Straße and the west at the level of Ruhrhofergasse. In the south, the extension of Lazargasse provides the area border.

Current situation: In the area with dense vegetation, the former vacant orthopaedic hospital Gersthof is located. It is a detached, villa-like building from the interwar period with up to 5 floors.

Developments: The former Gersthof hospital will be reused (educational institution) in the medium term.

17/015/1

Borders: In the northeast of the area is the district border with Kreuzgasse and Antonigasse. To the east lies Rosensteingasse. The southern edge is formed by the sports facilities on the site of the Postal Sports Centre. To the northwest runs the suburban railway line.

Current situation: In the area, there are four loosely-arranged buildings from the later post-war period. To the northwest, two long, multi-storey existing buildings are loosely arranged in a slightly jagged pattern. In the southwest, there is a one-storey sports hall (bowling). In the northeast, there is an existing building with 4 to 7 floors that dominates urban planning. The building of the Post-Academy in the southeast is 3-storey and also freestanding. Within the area, there are sealed open spaces, which are used as parking spaces.

Developments: On the periphery of the postal sports centre, constructional development is to be expected in the medium to long term.

17/016/1

Borders: The area runs along both sides of Schumanngasse between Rosensteingasse and Leitermayergasse, whereby properties bordering Leitermayergasse on both sides are not included. To the north it occasionally reaches the Antonigasse, occasionally to the south to the Leopold-Ernst-Gasse.

Current situation: The area is mainly characterised by an internally-compacted block edge development. The residential buildings vary between 2 and 5 floors. There are isolated buildings from the post-war period in between.

Developments: We are not aware of any current urban developments.

Thus, the designation encompasses areas that meet the preconditions as per § 2b(2) Vienna BO. District heating infrastructure is available or can be made available and at least one other high-efficiency alternative system (e.g. heat pumps) can be used.

The Spatial Energy Plan is established for the parts of the 17th district .

After completion of the procedure pursuant to § 2 of the Building Code for Vienna, the application contained in the enclosure could be submitted to the decision-making body.

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Yours sincerely,
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