



REDUCING  
HOUSING  
INEQUALITIES

# National report on the regulatory system of environmental and energy policies: Austria

**An extract from Deliverable 3.2, *'National reports on the regulatory system of environmental and energy policies'*, of the ReHousIn project**

August 2025

# FOREWORD

This report is an extract from Deliverable 3.2, National report on the regulatory system of environmental and energy policies’, of the ReHousIn project, which examines the economic mechanisms, norms, and institutional and contextual factors that shape the Environmental and Energy Policies (EEPs) in nine European countries.

The full version of the deliverable is available [here](#).

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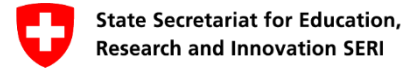
This document has been prepared in the framework of the European project [ReHousIn](#) – “Contextualized pathways to reduce housing inequalities in the green and digital transition”.

The ReHousIn project aims to spark innovative policy solutions towards inclusionary and quality housing. To achieve this, it investigates the complex relationship between green transition initiatives and housing inequalities in European urban and rural contexts, and develops innovative policy recommendations for better and context-sensitive integration between environmentally sustainable interventions and socially inclusive housing.

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# NATIONAL REPORT ON THE REGULATORY SYSTEM OF EEPs in AUSTRIA

## 1 Executive Summary

This report analyses Austria's regulatory and institutional frameworks for environmental and energy policies (EEPs) in the domains of housing retrofitting, nature-based solutions (NBS), and densification. It investigates how these policies are governed across Austria's multi-level federal system, how they have developed and what are the most important actors and policy tools. Furthermore, environmental outcomes, as well as how they intersect with housing policy and social equity concerns form this analysis.

Austria's governance system is characterised by a strong federal structure. The national government sets strategic goals, transposes EU directives, and manages key funding programmes (e.g., NEKP, Energy Efficiency Act). Federal states hold legislative power over housing subsidies, building standards, spatial planning, and nature conservation. Hence, at the federal state level, territorial differences exist in the design and formulation of housing, retrofitting, nature-based solutions and densification. Municipalities, though institutionally weaker, play a critical role in land-use regulation and the delivery of densification and greening projects.

Retrofitting has evolved from a technical efficiency focus to a broader strategy of climate mitigation and energy cost reduction, driven by EU directives, national decarbonisation goals, and recent energy price shocks. Policies mostly rely on market-based instruments, with multiple subsidy programmes supporting energy-efficient renovations and heating system transitions. However, renovation rates remain far below climate neutrality targets, largely due to legal constraints in multi-owner buildings and governance fragmentation. Although financial incentives (especially focussed on owner-occupiers of single-family houses and multi-unit-building owners) dominate, implementation remains fragmented. Even though recent initiatives address energy poverty and support vulnerable households, substantial gaps remain in the rental sector.

NBS policy has expanded beyond biodiversity protection to include climate adaptation, urban cooling, and public health. The latest National Adaptation Strategy (adopted in April 2024) reflects this broadened scope. Nonetheless, implementation is uneven: while larger cities like Vienna leverage zoning tools and building code reforms, smaller municipalities struggle with limited capacity and funding. Coordination gaps between environmental and social planning persist, and concerns over displacement due to greening are currently acknowledged as limited.

Densification has transitioned from an anti-sprawl environmental measure to a core urban strategy aimed at improving land-use efficiency and housing supply. Densification is pursued to reduce land consumption and improve infrastructure efficiency. However, national land protection efforts have faltered due to political resistance at the federal states level. While

zoning for affordable housing in form of new, compact developments has been implemented in large cities, other municipalities are more reliant on market-driven development.

Across all three domains, however, governance fragmentation, challenges to vertical coordination, and limited regulatory integration hinder policy coherence and equity. Financial incentives remain the primary policy tool, with legal instruments and planning mandates underused. The report highlights key trade-offs between climate goals and housing affordability, particularly for renters and low-income households.

## 1 Introduction and methodology

This national report investigates actors and policy instruments used in environmental and energy policies (EEPs) within the multi-level governance setting of Austria. As with the other national reports of the ReHousIn project, the study focuses on the governance of three key policy areas: housing retrofitting, nature-based solutions (NBS), and urban densification and examines how these policy areas relate to (social) housing policies and housing inequalities. Given Austria's federal state design, we highlighted Vienna's special role as both a municipality and a federal state in our analysis by adding a small section to the assessment of each policy area.

Methodologically, the report builds primarily upon an extensive desk research that includes the collection of legal texts, national policy documents in the form of strategic plans or coalition agreements. Key national-level sources include the National Energy and Climate Plan (NEKP), the Environmental Subsidy Act, the Energy Efficiency Act (EEffG), the national Climate Adaptation Strategy and the Austrian Spatial Development Strategy. Additional documents are public reports, evaluations, and grey literature from relevant institutions and academic literature.

The documents were reviewed and screened by following the themes given by the guidelines of the WP lead. For all three policy areas, these broad themes were: a) policy cycle: emergence of the issue and policy decisions and how these evolved in response to European Union directives, b) the implementation process, c) size and role of the market, d) the multi-level governance process, and e) achievements, assessments, and challenges. A key aim of the document review and screening was to identify policy objectives, institutional actors, including the use of policy instruments, and governance processes cutting across levels. Documents were classified according to policy area (housing retrofitting, Nature-based Solutions, and densification) and level of governance. In a federalist country like Austria, a multi-level governance approach is important and structured the analysis. Along these classifications, documents were screened for policy instruments (e.g., regulatory, financial, informational) and policy goals, with particular attention to the actors governing and/or to be governed at different levels. Attention has also been paid to how the distributed responsibilities across the EU, federal, Länder, and municipal levels, their vertical coordination and horizontal integration shape the relationships between (social) housing – or more generally housing affordability – objectives and environmental objectives.

Based on this initial review and screening, a national policy lab was conducted as part of the ReHousIn project on 25 April 2025. The policy lab hosted 16 participants with representatives of social and private housing providers, representatives of tenant support services, representatives from national ministries (housing, social affairs, environment), representatives from regional administrations and independent experts. The Lab was designed to bring together stakeholders from national, regional, and municipal authorities, alongside actors from the public, limited-profit, and private housing sectors, civil society organisations, and academia. Efforts were made to ensure a diverse mix of expertise and institutional perspectives relevant to housing and climate policy. Discussions focused on how the tension between climate measures and housing affordability is perceived across different governance levels, what challenges exist in aligning environmental and social goals at different policy tiers, but also across cities and municipalities of varying sizes, and what measures are currently being discussed or implemented to bridge these objectives.

In addition to insights gained from the policy lab and extensive desk research, a series of interviews was conducted. While the data obtained from the first two tasks provided a sufficient and in-depth understanding of the actors and policy instruments used in EEPs at the national level and within Vienna's multi-level governance process, a gap was identified at the small- to mid-sized municipal level. This is especially crucial, since municipalities play a crucial role in local implementation, especially in land-use, zoning and densification. For this reason, the interviews focused specifically on questions related to EEPs at this local level and their interlinkages with the EU and national levels. A total of five interviews were conducted in June and July 2025. The interviewees ranged from politicians of small- to mid-sized municipalities (in their role as local zoning authorities) to administrative personnel from these municipalities, as well as representatives from regional management.<sup>1</sup>

It should be noted that this analysis found an increasing policy convergence between greening and densification. As the report demonstrates across sections, nature-based solutions and densification are not only co-located in urban policy agendas but are often addressed through shared planning instruments and objectives, such as reducing land take, mitigating urban heat, and increasing liveability. Highlighting this interdependency is crucial for understanding current environmental policy in Austria and should be considered a cross-cutting theme throughout the report.

While the report aims to provide a comprehensive account of Austria's regulatory and institutional landscape up until early 2025, the analysis does not capture policy shifts associated with the formation of Austria's new government, which has operated since March 2025. After the 2019 coalition of the Austrian People's Party and the Green Party, the new coalition comprised the Austrian People's Party (ÖVP), the Austrian Social-Democratic Party (SPÖ) and the NEOS (The New Austria and Liberal Forum), which saw some restructuring in the administration. Most importantly, after an era where the Green Party concentrated climate policy efforts in one ministry, climate-related agendas are situated with the Federal Ministry of

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<sup>1</sup> List of interviews conducted: Interview #1 politician of small/mid-sized municipality, 24.6.2025, Gmunden (duration 0:30); Interview #2 administrative personnel of small/mid-sized municipality, 24.6.2025, Gmunden (duration 1:07); Interview #3 administrative personnel of regional management, 15.7.2025, Linz (duration 1:02); Interview #4 administrative personnel of small/mid-sized municipality, 15.7.2025, Gmunden (duration 0:57); Interview #5 politician personnel of small/mid-sized municipality, 15.7.2025, Gmunden (duration 0:55).



Agriculture and Forestry, Climate and Environmental Protection, Regions and Water Management under the lead of the Austrian People's Party.

Facing an ongoing economic recession (since about 2023<sup>2</sup>) and a potential Excessive Deficit Procedure through the Commission following a general government deficit of 4.7% of the GDP in 2024, the new government has already initiated budget cuts for 2025 and 2026. While these cuts are widespread, many of them will affect climate mitigation and adaptation policies, such as cuts in the renovation wave program amongst others<sup>3</sup>.

Thus, while the report captures the policy landscape at the time of writing, certain aspects—such as ongoing subsidy reforms or new planning requirements—may change in the short term. In addition, the availability and detail of documents, but also in policies, vary significantly by federal state and municipality, limiting consistent comparisons across Austria. In parts, smaller municipalities and some Länder lack public evaluations or implementation reports, especially regarding NBS and densification measures.

### 3 General governance system

Austria's governance system is shaped by its formal federal republic state structure, which comprises three levels: national (federal), 9 federal states (Länder), and about 2,100 municipalities. Regulated constitutionally, the federalist principle of Austria divides responsibilities between the national and the federal states (Art. 10-15 B-VG)<sup>4</sup>. The divided responsibilities also entail distributed and shared legislative and executive powers with a complex fiscal revenue-sharing mechanism. While the federation retains exclusive authority/responsibility over areas such as taxation, defence, and foreign affairs, the Länder hold autonomous legislative power in fields not explicitly reserved for the nation (Art. 15, the so-called residual competence). Formally, the federal states have seldom legislation over building regulations, housing promotion (subsidies), matters of spatial and regional planning and development, conservation of nature and landscape protection, amongst others. Given that Austria's nine federal states hold substantial autonomy, especially in housing, spatial planning, and nature conservation, makes them pivotal actors in implementing national strategies and adapting them to regional contexts. Municipalities are responsible for providing local services of general interest, which include municipal infrastructure like primary education, roads, water supply, waste disposal, and leisure and cultural facilities. Based on Austria's social housing tradition, municipalities also provide municipal housing.

Despite the division of power and responsibilities, Austria's federalist system is characterised by a complex financial revenue-sharing mechanism. While most fiscal revenue, including income and value-added tax, is collected at the national level, it is then re-distributed through a complex revenue-sharing mechanism to federal states and municipalities, which the latter find difficult to influence. Because only very limited taxation authority lies with subnational governments, their fiscal autonomy is restricted, which reinforces and highlights federal

<sup>2</sup> <https://www.wifo.ac.at/en/news/austria-is-in-its-third-year-of-recession/>

<sup>3</sup> <https://www.derstandard.at/story/3000000268893/wo-spart-die-regierung-wo-gibt-sie-mehr-geld-aus-die-wichtigsten-bereiche-im-ueberblick>

<sup>4</sup> <https://www.parlament.gv.at/en/explore/political-system/the-federal-state-of-austria/index.html>

control. The federal government can shape federal state policies through indirect financial levers, despite the possibility of influencing regional law through framework legislation. In sum, this often blurs the lines between shared and exclusive competences. This extends to municipalities, which are typically regarded as junior partners in Austria's governance system, both institutionally and financially, with constrained influence compared to Länder and the federation.

This multi-level governance configuration results in the need for coordination of regulatory and financial policies across all policy levels in the formulation and implementation of housing and environmental policies in the domains of retrofitting, nature-based solutions (NBS), and urban densification. Despite established coordination mechanisms like Article 15a agreements, federalism hinders rather than enables efficient climate mitigation policy in Austria, while there is tentative evidence that the current governance set-up might not be so hindering in adaptation policies (Brad et al. 2023, Steurer et al. 2020, Steuer and Clar 2017). Climate policy, therefore, is rather fragmented and incremental. According to the report of Brad et al. (2023), this fragmentation is rooted in conflicting interests between the federal government and federal states, but also territorial disparities in capacity and resources. Especially in smaller municipalities, capacities and resources are limited. Furthermore, the climate policy landscape in Austria relies heavily on “soft” instruments such as voluntary measures, market-based tools, and advisory services, rather than effective legislative policies and binding planning instruments (Brad et al., 2025).

The following provides a short summary of the governance system for housing and three selected energy and environmental policies, housing retrofits, nature-based solutions and densification – including a summary table below (Table AT1).

**Housing.** In housing, the national government regulates core frameworks like the Condominium Act, Tenancy Law, and the Limited-Profit Housing Act, of which the latter plays a critical role in Austria's affordable housing system. However, direct competencies in housing subsidies were fully transferred to the federal states in 1989 (Friesenecker and Litschauer 2022). The 2017 fiscal equalisation reform converted housing subsidy taxes into a pure federal state levy, based on half a per cent of the wage bill paid by employers and employees (Amann et al. 2023). The earmarking of these funds, which was already abolished in the 2000s, is not part of the federal state levy either. Federal states can use these revenues for whatever purposes. Hence, the federal states legislate and administer housing subsidies for newly built subsidised housing (often provided by limited-profit housing associations), but usually also include subsidies for supporting retrofitting and housing allowances. Each federal state has its own Housing Subsidy Act or equivalent, setting out subsidy criteria and technical requirements, including energy efficiency. Federal states, therefore, became crucial actors in housing provision. Federal states are also responsible for framework legislation in spatial planning, for instance, introducing zoning categories for subsidised housing. Municipalities, as the most localised governance level, are responsible for spatial development plans, zoning regulations, and building permits. Their actions have direct implications for all three environmental policy areas.

**Retrofitting.** At the national level, the federal government is primarily responsible for setting strategic policy frameworks, passing federal legislation, and allocating financial resources.

Several federal ministries develop national strategies and funding instruments, such as the National Energy and Climate Plan (NEKP), the Environmental Subsidy Act, and the Energy Efficiency Act (EEffG). Federal law also transposes EU directives, such as the Energy Performance of Buildings Directive (EPBD), into national regulatory frameworks. Recently, the national level has developed numerous financial schemes like the “Sanierungsoffensive” which provides subsidies for thermal renovations; “Raus aus Öl und Gas” that promotes the replacement of fossil fuel heating systems; and “Sauber Heizen für Alle” which targets low-income households. However, as noted above, budget cuts with the new government might impact these programs substantially. These publicly funded financial tools, which operate through market mechanisms by incentivizing private investments in renovation and heating system upgrades, are complemented by information-based tools, like klima:aktiv, a consulting and good-practice network.

Federal states, on the contrary, are responsible for applying EU energy efficiency regulations in building codes and defining the conditions under which subsidies are granted. Nonetheless, through Article 15a agreements of the Federal Constitutional Law, the national level continues to shape minimum environmental standards and coordinates with federal states on energy efficiency. The OIB (Austrian Institute of Construction Engineering) coordinates technical standards, but implementation depends on each state's legal frameworks and budget priorities. The ambition and stringency of implementation vary widely across states. For example, Vienna, Lower Austria, Salzburg and Tyrol have more demanding standards in their subsidy schemes (aligned with or exceeding OIB-Guideline 6), while other federal states might not. Municipalities influence outcomes through local enforcement of building codes, and – often in bigger municipalities and cities – provide district heating networks, and technical advisory services necessary for the decarbonisation of heating systems.

**Nature-based Solutions.** The federal role regarding Nature-based Solutions (NBS) is less regulatory and more strategic and supportive. The Austrian National Adaptation Strategy (NAS) serves as the main policy document, though it is non-binding. Federal ministries support implementation through stakeholder dialogues (e.g., KLAR! regions), knowledge production through research funding, and the administration of EU-financed funds such as the Biodiversity Fund.

The federal states are the legislative authorities for spatial planning and nature conservation. Hence, they have to translate the goals of the National Adaptation Strategy into their own adaptation plans and conservation laws. For instance, states like Vienna have integrated adaptation and NBS objectives into urban development plans and zoning regulations. Funding for NBS projects often originates at the federal state level, municipal level or comes from a combination of state, municipal, and EU sources. Municipalities are the principal implementers. They are responsible for maintaining green and open spaces, regulating tree planting, and adapting local infrastructure. Zoning plans can include specific mandates for façade greening, permeable surfaces, or minimum green space quotas. Especially, bigger cities like Vienna and Linz have recently updated their zoning and building codes to mandate greener buildings and integrate sponge city principles.

**Densification.** As with NBS, in the densification policy area, the federal level's role is indirect, mainly through national spatial development concepts, stipulating building cultural guidelines

(*Baukultur*) and broader sustainability objectives. However, densification decisions are primarily governed at the federal state and municipal levels through spatial planning laws and zoning.

Planning laws at the federal state level govern land-use allocation and development guidelines. Federal states establish the legal framework for zoning, designate priority development zones, and may introduce incentives for infill development. However, the application of these instruments is typically delegated to municipalities. Therefore, municipalities lead the implementation of densification, albeit with constraints. Through zoning plans and development controls, they manage infill development, mixed-use zoning, and brownfield redevelopment. While densification supports climate goals by reducing land consumption, it often conflicts with local political interests and public opposition. Municipalities must balance housing supply, environmental protection, and community resistance.

	Housing	Housing retrofitting	NBS	Densification
National level	Mainly Legislation (Tenancy Law, Limited-Profit Housing Act, Condominium Act)	Climate mitigation strategies National retrofitting and heating system changeout subsidies Transposition of EU Directives Knowledge production, networking and awareness raising instruments	National Adaptation Strategy (NAS) awareness campaign and research funding Networking efforts and support Limited regulatory role except for waterways	National Spatial Development Concept Indirect influence through sustainability targets Financial infill and densification incentives
Federal state level (Länder)	Main responsibility for housing subsidies and regulation via regional Housing Subsidy Acts  Spatial Planning and building code frameworks	Provides and manages housing subsidies for retrofitting  Enforces building standards (OIB-guidelines)  Regional climate strategies	Legislation and implementation of spatial planning and nature conservation laws  Regional adaptation strategies and subsidy frameworks for NBS.	Legislation and implementation of spatial planning and nature conservation laws  Densification programmes and subsidies
Municipal level	Defines local zoning and development plans  Negotiates building projects and provides building permits	Executes municipal retrofitting projects	Main implementation level for NBS  Maintains green infrastructure	Defines zoning and development plans  Governs infill development  Aligns (urban) greening with densification  Balances competing land uses

Table AT1. Multilevel governance of housing, energy retrofitting, NBS and densification in Austria

## 4 Housing retrofitting

### 1.1 The policy cycle: emergence of the issue and policy decisions

Since the 1990s, Austria's energy and housing policy has gradually shifted from a focus on energy savings and fuel switching toward climate-oriented renovations and decarbonization, largely driven by **EU accession (1995)** and subsequent EU directives. Key shifts include the adoption of the **Environmental Subsidy Act (1993)** and later the **Federal Climate Strategy (2002)**, which aimed to integrate climate goals into housing subsidies and building standards. The **EU's Energy Performance of Buildings Directive (EPBD)** prompted coordination through **15a agreements** and the development of **nationwide building standards (OIB)**, though implementation remained fragmented due to Austria's federal structure. More recently, the **NEKP (2024)** and **EEffG** reflect a stronger commitment to retrofitting, energy efficiency, and addressing energy poverty, particularly under the influence of the EU Green Deal and rising energy prices.

Reviewing the origins, Austria's energy and housing policies connected to retrofitting go back to the global oil crisis of the 1970s, which resulted in Austria's membership in the International Energy Agency (IEA) in 1974 and its requirements for systematic energy programmes and energy reserves. In 1975, the federal government presented its first **Energy Plan (Energieplan)**. For the building sector, this energy plan and its subsequent amendments focused on a shift in energy sources for heating systems from oil to gas and coal, and more efficient heat energy usage through improved building insulation and heating system maintenance. In the oil crisis context, Austrian citizens were incentivised to lower heating energy consumption through the promotion of centralised heating systems over individual ones, along with consumption-based (instead of flat-rate) billing and financial incentives for efficient energy use. The comprehensive **Energy Report** of 1984, based on then-consolidated energy organisations (such as the **Energieverwertungsagentur EVA**, today: **Austrian Energy Agency**) and scientific findings, defined key energy policy goals: supply security, economic efficiency, and social and environmental compatibility. This expansion of policy objectives was a response to growing environmental awareness and public protests, such as the 1978 referendum against nuclear energy and the 1984 protests against hydroelectric power plants.

As the legal basis of energy policy was not clearly assigned to either the federal government or the nine federal states in the Federal Constitutional Law (Bundesverfassungsgesetz), agreements according to Article 15a (Art. 15a B-VG agreements) regulate until today the competences and implementation procedures on energy between the state and the federal states. For housing subsidies, all competencies have been with the federal states since 1988/89. Since the use of housing subsidies was entirely given to the federal states, a 15a agreement between the federal states and the federal government specifies common environmental quality standards for housing subsidies. In 1980, an essential step towards nationwide energy policy coordination was the **15a-Agreement on Energy Savings**



(Vereinbarung über die Einsparung von Energie, BGBl. 351/1980) between the federal government and federal states, mandating reductions in heating energy consumption through insulation and modern heating systems. Federal-level policy included adjustments to the Tenancy Law (MRG, Mietrechtsgesetz), the Limited-Profit-Housing Act (Wohnungsgemeinnützigkeitsgesetz), and the Condominium Act (WEG, Wohnungseigentumsgesetz). A key measure in terms of implementation was the **Federal Housing Renovation Act** (WSG, Wohnhaussanierungsgesetz) in 1984, which set the legal basis for subsidies of housing renovations (incl. thermal refurbishment), and for the federal states to later adopt their own housing renovation acts and renovation subsidies schemes. Despite the 15a agreement and federal standardized minimum thermal transmittance limit (k-value), by the early 1990s Austria lacked a uniform national standard, with varying building code ambitions depending on the federal states' political priorities on energy and the more and more prominent climate issue (Lang & Energieverwertungsagentur, 1985: 82). While especially energy savings related to building sector and household energy consumption dominated the energy discourse until the early 1990s, Austria's 1995 EU accession and its preparatory phase shifted the discourse. European requirements for energy market liberalization and sustainable energy supply became more relevant.

In 1993, the **Austrian Environmental Subsidy Act** (Umweltförderungsgesetz) was adopted to align with EU environmental regulations in preparation for its EU accession and to respond to global climate agreements, including early discussions on greenhouse gas reductions (that later led to the Kyoto Protocol in 1997). Until today, the act serves as a key legal framework for environmental subsidies and funding programs aimed at reducing pollution, increasing energy efficiency, and promoting sustainable infrastructure. Through the influence of EU policies and the application of renewable energy resources, the long-standing neo-mercantilist tradition of Austrian energy policy underwent an incremental modification (Wenz, 2022). However, challenges remained, particularly regarding implementation speed and coordination between the federal states and the national government (Steurer & Clar, 2015). In the decade following the EU accession and the Kyoto Protocol, Austria was amongst the worst climate policy performers in Europe and could only offset the Kyoto target gap (emission reduction between 2008–2012 by 13% compared to 1990 levels) with cheap **purchases of emission certificates** (Steurer & Clar, 2015).

However, in 2002, the federal government was still optimistic about meeting the Kyoto targets and adopted the **Federal Climate Strategy** (Klimastrategie). For the building sector, the strategy foresaw emission cuts of 27% until 2010 compared to 1990 levels, through reforming housing subsidies schemes at the federal state level. The traditional social policies were to be extended beyond subsidising home ownership to include subsidies for thermal refurbishment, efficient heating systems, and climate-friendly energy sources in households (Steurer & Clar, 2015). The implementation of the strategy failed substantially due to a lack of commitment of the federal states (and binding 15a Agreements). As a result, the Federal Environment Ministry itself actively introduced the **klima:aktiv programme** to promote voluntary quality standards and climate-friendly technologies in the areas of the building sector, energy consumption, renewable energies and mobility, but also to carry out informational campaigns for citizens. The programme additionally facilitated lighthouse projects and the training of building professionals and businesses on climate-friendly options. These national activities

complemented energy and building policies by the federal states, and were therefore tolerated by federal state governments.

Nonetheless, the building standards of the federal states failed to meet the requirements of the EU directive on the **Energy Performance of Buildings (EPBD)** and the EU opened infringement proceedings in 2006 against Austria. In reaction, both national and federal state policymakers concluded a federal 15a Agreement (BGBl. II Nr. 19/2006) that aimed to improve the thermal quality of new buildings and promote thermal refurbishments via adapted housing subsidies schemes at the federal state level. Additionally, the national government transposed parts of the EPBD with a **federal law mandating energy certificates** (Energieausweis-Vorlage-Gesetz/EAVG 2006). Via the Austrian Institute of Construction Engineering (OIB), a coordination platform for building standards, the federal states agreed to update their minimum standards for new buildings and the retrofitting of existing buildings in compliance with the EU directive. Despite these efforts, the results were poor, as thermal standards lagged behind the status quo of new buildings and the housing subsidies schemes had only minimal effects on refurbishment rates (Steurer & Clar, 2015).

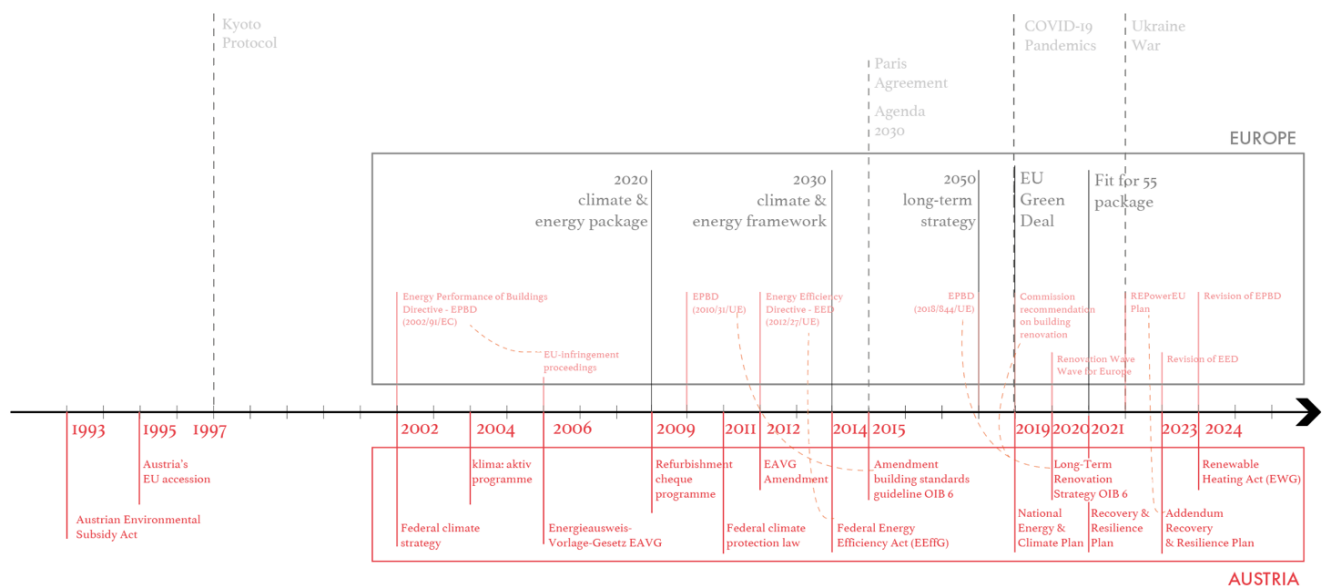


Figure AT1. Timeline of policies, initiatives and strategies regarding energy refurbishments in Austria

Also, the **Federal Climate Protection Law** (Klimaschutzgesetz), passed in 2011 after 3 years of negotiations, was seriously flawed: “The fact that the federal government intervened unilaterally in a provincial domain led not to less emissions but to a ‘federal zero-sum game’ of climate change mitigation” (Steurer & Clar, 2015: 93). In the upcoming years, the law was

set to be amended through working groups. For the building sector, the target was thermal retrofits through provincial housing subsidy schemes, the (re-)introduction of a federal retrofits cheque, and amendments to the residential law – all based on new negotiations on a 15a agreement. In the meanwhile, the federal government transposed the updated **EPBD** (2010/31/EU) with the federal law on energy certificates in 2012. For the other requirements of the directive, the federal states agreed to update the **OIB 6 guideline on building standards**. In accordance with the **EU Energy Efficiency Directive 2012/27/EU (EED I)** Austria implemented the **Federal Energy Efficiency Act** (EEffG, BGBl. I No. 72/2014) in 2014 with the objective of increasing energy efficiency and a maximum final energy consumption of 1050 petajoules (PJ) in 2020. However, for the years 2014–2020 this goal was not achieved (NEKP, 2024: 44).

In addition, based on the **Agenda 2030** and Sustainable Development Goals (SDGs) the federal states adopted their own climate mitigation (and adaptation) strategies, which also included thermal retrofits. For instance, Vienna in the “Smart City Strategie Wien” or Salzburg through the „Klima- und Energiestrategie SALZBURG 2050“. The federal states, responsible for the implementation of the **EPBD 2018/844**, also elaborated the **Long-term Renovation Strategy** following the commission recommendation on building renovation through the adoption of nation-wide building standards in the **OIB-guideline 6** in 2020.

A new federal government starting in 2020, for the first time included the Green Party, foresaw in the government programme a renovation wave with investment incentives for refurbishment, urban densification and a focus on sustainable and energy-efficient heating, cooling, construction, and renovation. Interrupted by the COVID-19 pandemic, Austria’s **Recovery and Resilience Plan (NRRP)** was introduced before a National Energy and Climate Plan in line with the government programme was completed. The Recovery and Resilience Plan did not cover social housing specifically, but the building sector as a whole with a renovation wave supporting the replacement of oil and gas heating systems with renewable technology and thermal renovation of dwellings to reduce the energy costs of low-income households (Housing Europe 2022). Also, the NRRP foresaw the fight against energy poverty. Following Council approval of Austria’s plan in July 2021, Austria’s recovery and resilience plan was updated in November 2023 also to introduce a **REPowerEU** chapter.

In reaction to the *Energy Union and Climate Action* framework (Regulation (EU) 2018/1999) and the **EU Green Deal**, Austria submitted the **National Energy and Climate Plan** (NEKP, Nationaler Energie- und Klimaplan) in December 2024 to the EC. The main aspects of the NEKP in terms of the building sector is the decarbonization through the transition to climate-friendly heating systems and the thermal renovation of building hulls. The budget allocations and subsidies schemes are implemented in a renovation wave programme (**Sanierungsoffensive**, see also section 1.2). The NEKP also states the aim of achieving the energy renovation of 3% of the housing stock annually. This is also set out in the government coalition programme (2020–2024) and should amongst other measures be reached through further development of housing subsidies in line with climate protection goals, prioritizing refurbishment over new construction, the use of ecological building materials based on renewable raw materials, etc. The NEKP also includes goals to tackle the issue of rising **energy poverty**, however, the EC criticised in the first draft of the NEKP (2019) the lack of more concrete measures for energy poverty. The discussion around energy poverty has



become particularly relevant due to the sharp increases in household energy prices since 2022 where many households have experienced a decline in real disposable income to cover energy costs, while at the same time, household energy prices have risen significantly. In reaction to this, the final version of the NEKP therefore not only includes more details on the energy poverty issue but also the aim to install a national coordination platform (Coordination platform to fight against energy poverty: Koordinierungsstelle zur Bekämpfung von Energiearmut, kea) (see Table AT2) and an extension of the group of beneficiaries of subsidies for low-income and energy-poor households (**Wohnschirm Energie**, see also section 1.2).

Apart from the NEKP, other EU directives such as the EED II / Fit for 55 Initiative are in large part being implemented through the **Energy Efficiency Act** (EEffG, Bundes-Energieeffizienzgesetz), which establishes a framework for the rapid implementation of additional energy efficiency measures for businesses and households while also providing additional funding. The law serves to implement EU legal requirements and energy savings obligations. The **Renewable Heat Act** (Erneuerbare-Wärme-Gesetz) introduces a phased approach to transitioning from fossil fuel-based systems to climate-friendly alternatives. Even though the act only includes a ban on fossil heating systems in new buildings, it strongly discourages their use because of decommissioning rules by 2035/2040 (Braungardt et al. 2023).

In general, the policies listed above are not based on an official definition of an energetic retrofitting rate, e.g. deep or partial renovations. Nevertheless, these terms have been used in several government documents and laws, particularly in the **climate and energy strategies** of 2002, 2007, 2010, and 2018; in the **OIB Guidelines** of 2007, 2011, 2015, and 2019; in the **Long-Term Renovation Strategy** coordinated by the OIB in 2020; in the 2023 updated **National Energy and Climate Plan (NEKP)**; as well as in the regional housing subsidy regulations and the underlying Article 15a-agreements on climate protection in residential construction (Amann et al. 2023). In this sense, it becomes apparent that EU-requirements to install such national policies push for declaring these targets, even though not based on unified definitions of what an energetic retrofit includes.

Policy	Energy renovation target	Governance level	Specifically for social housing
<b>National climate and energy strategies (2002-2018)</b>	Aim to rise renovation rate, but no commitment to specific target	national level	No
<b>National Energy and Climate Plan (NEKP, Nationaler Energie- und Klimaplan)</b>	Annual retrofit of 3% of the housing stock as a retrofitting target  General aim: decarbonization through the transition to climate-friendly heating systems and the thermal renovation of building hulls	national level	No
<b>National Recovery and Resilience Plan Austria (NRRP)</b>	No commitment to specific target for a renovation rate	national level	No

Policy	Energy renovation target	Governance level	Specifically for social housing
	Only targeted investments and milestones through setting tangible targets for heating system replacements and deep refurbishment subsidies		
<b>Energy Efficiency Act (EEffG, Bundes-Energieeffizienzgesetz)</b>	<p>No commitment to specific target for a renovation rate</p> <p>The EEffG focuses primarily on improving energy efficiency across sectors energy audits, energy management systems, and efficiency obligations for energy suppliers and large consumers, setting frameworks for energy efficiency improvement obligations and reporting requirements and requiring public institutions to implement energy-saving measures.</p>	national level	No
<b>Long-term Renovation Strategy / OIB-guideline 6</b>	<p>No commitment to specific target for renovation rate</p> <p>The National OIB-guideline aims at nation-wide building standards and outlines requirements for heat demand, end-energy and primary-energy use, summer thermal protection, building envelope U-values, and mandates high-efficiency systems and renewables</p>	national level	No
<b>Housing Subsidy Act</b>	<p>No specific target for renovation rate</p> <p>Housing Subsidy Acts support energy-efficient renovations through subsidies and incentives, which include specific technical requirements and targets related to thermal insulation and energy efficiency for subsidized projects. (the align with o rare stricter than OIB 6).</p>	federal state level (all 9 have their own Housing Subsidy Acts or equivalent regulations)	Yes

Table AT3. Austrian policies on specific energy renovation targets and dedicated targets for social housing. Source: own elaboration.

## 1.2 The implementation process

In Austria energy efficiency measures are being implemented through the so-called national **Environmental Funding in Austria** (UFI, Umweltförderung im Inland) for private individuals, businesses, associations, and municipalities. Since its foundation in 1993, the budget allocated to has risen significantly for retrofitting measures such as thermal refurbishments and change of heating systems (see fig. 2). While at the beginning of the 2010s around 45,000 deep refurbishments (1.3% of main residences per year) were subsidised across Austria every year, by 2017, this figure dropped to a third and has since remained at around 15,000 deeply refurbished residential units (Amann et al. 2023). Also, subsidized heating system replacements dropped sharply until 2018 in Austria but have recently rebounded to 53,000 in the year 2023 (Amann et al. 2023). The decrease in deep refurbishment might be due to the limited capacities of the construction industry for refurbishments because of the new-build boom with favourable interest rates in the 2010s. Additionally, renovations – especially deep

refurbishments – are highly price-sensitive and as there was no immediate necessity, project developers might have waited for more favourable conditions (such as new subsidy schemes) or legal frameworks with regulatory easing to enforce decarbonization measures (such as the Renewable Heat Act) (Amann et al. 2023). In this sense, funding for individual thermal renovation measures declined until 2023, but are foreseen to rise according to budget allocation of the **National Energy and Climate Plan**. The updated National Energy and Climate Plan foresees an annual allocation of an additional €190 million (to the total budget of €620.5 million) from 2023 until 2030 for environmental measures such as energy efficiency, biodiversity, circular economy etc. Since 2022, this substantial budgetary expansion of existing funding programs, particularly focused on thermal-energy refurbishments and the introduction of new funding initiatives, including support for low-income households, industrial transformation, district heating decarbonization, and the Energy Efficiency Fund (NEKP, 2024: 186).

In 2022, considering subsidized and non-subsidized as well as deep and partial individual renovation measures amounted to just under 1.5% of the housing stock (main residences) and the renovation rate has thus stagnated at more or less the same low level since 2015 (Amann et al. 2023). The subsidized renovation rate applicable to all sectors has increased significantly from 0.6% to 0.9% since 2018, while a declining trend can be observed in the non-subsidized sector (Amann et al. 2023). Subsidies for deep renovations have continued to decline until 2023, whereas subsidized individual component renovations increased up to 2022 due to the boom in heating system replacements (Amann et al. 2023). Calculations show, that in order to reach the decarbonisation of the building stock by 2040, a refurbishment rate of 2.8% would be necessary (Amann et al. 2023). Amann et al. (2023) state that while the need for deep refurbishments is particularly high in the private rental sector and municipal housing, it is comparatively low in the limited-profit (rental) sector. Single-family homes (mostly owner occupied) hold particular significance in increasing the refurbishment rate due to their large number. In general, the Austrian approach for increasing refurbishment rate relies on subsidy schemes, which apply to all sectors, however as stated above, the private rental sector and municipal housing are in more urgent need of increasing the refurbishment rate of the building stock.

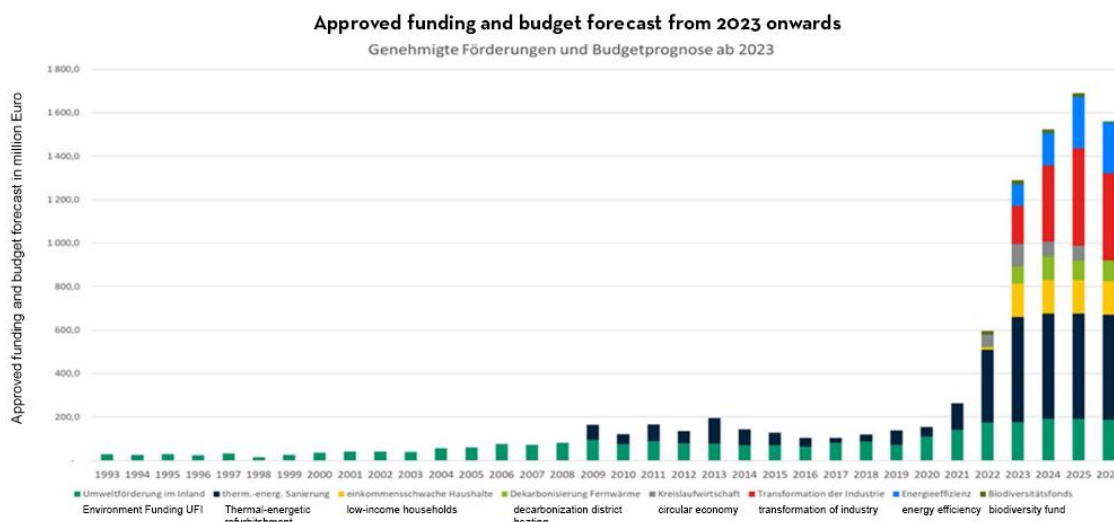


Figure AT2: Development of Environmental Funding in Austria (UFI)<sup>5</sup> since 1993 (including approved extensions until 2026). Source: Austrian Climate Ministry (NEKP 2024, p. 185).

The refurbishment subsidies programme **Sanierungsscheck** initiated in 2009 with a budget of €61 million only moderately increased the refurbishment rate of residential buildings, because federal states reduced their budget for renovations at the same time (Steurer & Clar, 2015). In contrast, the federal environment ministry introduced the renovation wave programme **Sanierungsoffensive 2023/2024**, where funds for subsidies for thermal refurbishments and the transition to climate-friendly heating systems were increased from €2.445 billion for the period 2023 to 2027 by an additional €1.2 billion for the years 2024 to 2026 (NEKP 2024: 304). The renovation wave includes three major aspects in terms of retrofitting and housing affordability:

- **Phase-Out of Oil and Gas (Raus aus Öl und Gas):** Financial support for replacing fossil-fuel heating systems (oil, gas, coal, but also single electric heating systems) in private homes with eco-friendly alternatives. Priority is given to connecting buildings to efficient district heating. If that's not possible, subsidies are provided for switching to woodchip heating or heat pumps. From this financial tool mostly home-owners benefited, due to difficulties of implementation in condominiums or multi-household residential buildings (both private or social rental).
- **Renovation Bonus (Sanierungsbonus):** Funding for thermal renovations in residential buildings over 15 years old. Eligible projects include full energy-efficient refurbishments, window replacements, and green roofs/facades in multi-story buildings or semi-detached buildings. The funding for a deep renovation is up to €300/m<sup>2</sup> floor space, additional funding with up to €525/m<sup>2</sup> if renewable insulation materials are used. The financial tool addresses multi-unit residential buildings both in ownership or rental including limited-profit housing.
- **Climate-Resilient Buildings for Vulnerable Groups:** Since 2022, 100% funding for thermal renovations and climate-friendly heating upgrades in buildings over 20 years old that house low-income or vulnerable individuals. Non-profit or religious

<sup>5</sup> The Umweltförderung im Inland UFI (Environmental Funding in Austria) is one of Austria's key funding instruments for investments in the climate and environmental sectors. Until 2026, a total of €620.5 million is available for this funding instrument for investments in accordance with §23 of the Environmental Funding Act (UFG).

organizations, and municipalities operating such housing can apply for funding, which means that this financial tool is directed at vulnerable population groups.

In addition to these schemes, programmes have been introduced that react to the rising energy costs and subsequent energy poverty, especially focusing on households in vulnerable situations. Energy poverty in Austria manifests where socio-economically vulnerable households face difficulties affording adequate heating and energy services. According to Statistik Austria (2022), approximately 2% of Austrian households reported being unable to heat their dwellings adequately in 2021, while another 3.2% experienced disproportionately high energy costs relative to their modest incomes. These conditions are exacerbated by disproportionate energy cost burdens: low-income households allocate approximately 8.5% of their income to housing-related energy (compared to 5.3% for middle-income and 3.2% for high-income groups), with those officially “at risk of poverty” spending up to 11.4%, and energy-poor households an alarming 22.7% (Statistik Austria, 2024). The recent "Faktencheck Energiearmut" (Klima- und Energiefonds, 2025) further underscores that such disparities have deepened recently, highlighting the urgent need for continued policy intervention, such as targeted one-stop advisory services and EPBD-aligned energy efficiency measures to alleviate energy poverty (Klima- und Energiefonds, 2025). Amongst the programmes and subsidies schemes dealing with energy poverty, that are initiated on the federal level and then adapted for implementation by the Federal States, are the following:

- **Clean heating for all** (Sauber heizen für alle): covers up to 100% of the investment costs for boiler replacement in households in the lowest income third (Klima- und Energiefonds, 2025). It is directed at both owner-occupied and renting households.
- **Wohnschirm Energie**: To prevent or mitigate electricity and gas cut-offs, the Wohnschirm Energie program (funded by the Federal Ministry of Social Affairs) offers free counseling, mediation between energy providers and households (owners or renters) and financial support. In 2023, the Wohnschirm Energie provided financial assistance to around 57,000 households (Klima- und Energiefonds, 2025).

With the updated version of the National Energy and Climate Plan submitted to the EC in December 2024, a legal basis for additional budget was established, supporting the Climate-Resilient Buildings for Vulnerable Groups Subsidies, totalling €1.6 billion until 2030. Furthermore, the **Austrian Environmental Subsidy Act** established the **Energy Efficiency Programme** with a total of €1.52 billion until 2030 to meet energy efficiency targets and energy-saving obligations. Within the programme, especial funding priority is given to **thermal refurbishments of the limited-profit housing sector** (Thermische Gebäudesanierung für gemeinnützige Bauvereinigungen).

This focus goes back to the so-called ‘refurbishment scheme’ of the Austrian limited-profit housing sector – an example that seeks to ensure long-term affordability and energy-efficient housing is the (Amann and Mundt 2021). The scheme is based on the sector’s strict regulation on the national level. Rent is controlled according to the cost-based rent principle, which means that rents are set in such a way that it covers the maintenance of the buildings and allow only for a limited amount of profit (Friesenecker and Litschauer, 2021). Based on this principle, the collection of a maintenance and improvement contributions (Erhaltungs- und Verbesserungsbeitrag - EVB) is key for retrofitting the buildings in a socially fair way. These mandatory contributions depend on the building age in such a way that contributions are lower

in new buildings and higher in older ones, but are regulated so that they do not exceed a certain amount. According to Amann and Mundt (2021), regulation stipulates that these funds are used only for the house in question and are only spent for defined maintenance works and deep retrofits. As such, limited-profit housing providers adopt long-term strategies to maintain their buildings and preserve the value of their properties whilst still providing affordable housing which might be even further supported by housing subsidies (Amann and Mundt, 2021).

Additionally, to this focus on the limited-profit housing sector, as part of the Austrian **eco-social tax reform** (a national carbon pricing system adopted in 2022), private individuals (owners) have the possibility to claim tax deductions for costs resulting of switching to climate-friendly heating systems and thermal refurbishments. The tax allowance amounts to €400 per year for heating system replacements and €800 per year for thermal refurbishment (over five years), or ten years if both measures are implemented simultaneously (NEKP 2024: 305). For the effects of a CO<sub>2</sub> tax on housing, Müller et al. (2024) see a landlord-tenant dilemma with the danger of higher energy expenses for renters while landlords receive no incentive for improving the energy performance.

Category	Tool Name	Level	Description	Responsible Authority
Financial Tools (direct subsidy)	Sanierungsoffensive 2023/2024	National	Increased funding for retrofits and heating upgrades; additional €1.2 billion for 2024–2026, targeted broadly at owner-occupied housing, building owners, landlords or condominium associations (to a limited extend), but also at municipalities and public entities for district heating extension.	Federal Ministry for Climate Action
Financial Tools (direct subsidy)	Raus aus Öl und Gas	National	Subsidies for replacing fossil fuel heating systems with eco-friendly options, prioritizing district heating. Targeted at private homeowners (due to easier implementation), limited applicability in condominiums and multi-unit rental buildings (technical & legal challenges)	Federal Government / Klima- und Energiefonds
Financial Tools (direct subsidy)	Sanierungsbonus	National	Up to €300/m <sup>2</sup> (or €525/m <sup>2</sup> for renewable materials) for thermal retrofits in older buildings. Targeted at owners, persons with building rights or tenants of single-family homes, two-family homes or terraced houses or owners (incl. LPHAs) and condominium	Federal Government



			associations for multi-unit residential buildings	
Financial Tools (direct subsidy)	Climate-Resilient Buildings for Vulnerable Groups	National/Sub-nat.	Full funding for retrofits in vulnerable group housing; €1.6 billion until 2030. Targeted at housing with low-income households operated by non-profit or religious organizations or municipalities	Federal Government / Federal States / Municipalities
Financial Tools (direct subsidy)	Clean Heating for All (Sauber heizen für alle)	National/Sub-nat.	Covers 100% of boiler replacement costs for low-income households.	Klima- und Energiefonds
Financial Tools (direct subsidy)	Wohnschirm Energie	National/Sub-nat.	Free counselling and financial aid to prevent gas/electric cutoffs; helped ~57,000 households in 2023. Targeted at vulnerable or low-income households	Federal Ministry of Social Affairs / Federal States
Financial Tools (fiscal incentive)	Eco-social Tax Reform (Carbon Tax Deductions)	National	Tax deductions for retrofit-related costs (€400–800/year for up to 10 years).	Ministry of Finance / Tax Authority
Regulatory Tools	Environmental Subsidy Act – Energy Efficiency Programme	National	€1.52 billion to meet energy-saving obligations, focusing on limited-profit housing retrofits.	Federal Environment Ministry
Regulatory Tools	Limited-Profit Housing Act	National	Regulates cost-based rents and mandatory improvement contributions, ensuring funding for socially fair retrofits.	National Legislation / Housing Authorities
Support & Information	One-Stop Advisory Services	National/Sub-nat.	Tailored support services for energy-poor households to access retrofitting assistance and energy advice.	Klima- und Energiefonds / Federal States
Other Tools	Energy Poverty Monitoring	National	Analytical tool highlighting disparities and guiding intervention design.	Klima- und Energiefonds / Coordination platform to fight against energy poverty kea

Table AT4. Tools for fostering the implementation of Retrofitting in Austria. Source: own elaboration.

#### 4.2.1 Vienna's strategies for retrofitting

In Vienna, the use of housing subsidies for retrofitting is organised via the “Soft Urban Renewal” (Sanfte Stadterneuerung) programme. The origins of this programme date back to the 1970s with the aim to subsidise the renovation of pre-WWII private rental units while at the same time minimising negative impacts for the existing tenants (see Franz, 2015, p. 175ff). If private landlords use public loans for renewal within this programme, they must comply with

certain regulations, e.g. they are not allowed to convert rental flats into condominiums and must observe a rent freeze for the duration of the subsidies - usually for 15 years. Managed by the “wohnfonds\_wien” which distributes renewal subsidies in the form of loans and non-repayable grants, the programme includes several types of renewal and retrofitting. On the one hand, singular measures, e.g. dwelling improvements, improvements for liveability (shading systems, greening, etc.), but also subsidies for adding attics are subsidized. Most common, however, are the so-called base renewal (Sockelsanierung) where renewal of the building but also the dwellings are done either with tenant’s present upon their agreement, or their relocation including a financial compensation or the denial of tenants in having their apartments renewed (see Hatz, 2021 for more details). A so-called total renewal, on the other side, is done in vacant buildings and can include the demolition, new-construction or addition of storeys. In the years prior to the global financial crisis of 2008, subsidies granted to private owners, hence, the effectiveness and popularity of the instrument decreased. According to Gruber and Franz (2019, p. 390), reasons can be found in the high administrative efforts of subsidized renewals vis-à-vis an increased inflow of international investments capital and low interest rates.

According to Hatz (2021), political priorities also shifted towards environmental and climate protection efforts and subsidized energetic retrofits (Thewosan – Thermisch-energetische Wohnhaussanierung), which since its introduction in 2000 has become more important. The funding regulation stipulates that a full energetic retrofit requires the improvement of at least 3 parts of the building hull and/or heating system: replacing windows and outer doors, insulation of roof or top floor ceiling, façades, basement ceiling, or improvements in relation to the heating and hot water provision (Wohnfonds\_Wien, 2024). Furthermore, they must comply with minimum requirements regarding heating and energetic standards according to the housing renovation ordinance which have been introduced in 2008 (Sanierungsverordnung). In contrast to deep renovations including the exchange of heating systems, energetic retrofits such as thermal insulation were to a large degree applied to municipal housing estates because retrofitting the building hull can be applied in occupied buildings as well (Hatz, 2021). A report of the Austrian Court of Audit, however, identified a lagging behind of retrofitting activities in recent years. Based on the assumption that a 30-year renovation cycle is the most cost-efficient, around 7,000 units should be retrofitted every year, while in between 2013 and 2023 only about 45% were undergoing retrofits or were being planned to be retrofitted (Rechnungshof Österreich, 2021). However, according to that report, Wiener Wohnen introduced a retrofitting strategy in which it identified 9% of its stock be in an insufficient energetic and building condition and to become the primary target for retrofitting.

### 1.3 Size and role of the market

Examining the role of the market in advancing energy-efficient renovation in Austria key analytical dimensions include the connection of policy instruments and economic incentives, and the influence of energy prices, as well as private finance mobilization, innovation support, and structural constraints affecting market capacity. As outlined above, economic incentives through public subsidies are considered one of the key policy instruments to ensure and implement high environmental standards in housing. Since construction businesses and other businesses in the realm of refurbishment and decarbonization in the building sector benefit



from thermal refurbishment subsidies, the Austrian Economic Chambers have supported respective policies repeatedly (Steurer & Clar, 2015). However, the federal structures have proved to slow down or even hinder the implementation of energy-efficiency or retrofitting measures and Steurer & Clar (2015) state that especially for the period until 2014, market forces in the sense of energy prizes rather than public policies were the main drivers behind emission reductions in the building sector. As an example, figure 3 shows the development of gas and electricity prices semi-annually in Austria from 2007 onwards. A key observation is the sharp increase in both gas and electricity prices starting from 2021, which coincides with the onset of the global energy crisis.

In terms of private sector involvement, Austria's Environment and Finance Ministry introduced the Green Finance Agenda (based on the Paris Agreement), which aims to encourage the private sector to participate in funding climate-friendly projects, including retrofitting and heating system transitions, through creating funding mechanisms where government incentives are combined with private loans, low-interest green mortgages, or energy efficiency investment funds. While the Austrian Green Finance Agenda does not directly fund programmes, it plays a critical role in securing and directing financial resources, ensuring private sector involvement, regulatory alignment, and efficient carbon pricing revenue allocation.

Additionally, Austria's Recovery and Resilience Plan defines green investments in enterprises with a 14% investment premium granted to businesses which invest in the priority areas of the green transition (such as thermal renovations of buildings, heating optimisation and other energy saving measures, etc.). In terms of research and innovation, the Austrian Climate and Energy Fund and the Austrian Research Promotion Agency (FFG) fund private companies' innovative project developments to decarbonize the building sector. Despite these efforts to support the market, a lack of qualified energy and construction sector professionals is a key barrier to scale up refurbishments and retrofitting projects in the housing sector, alongside the high costs of labour.

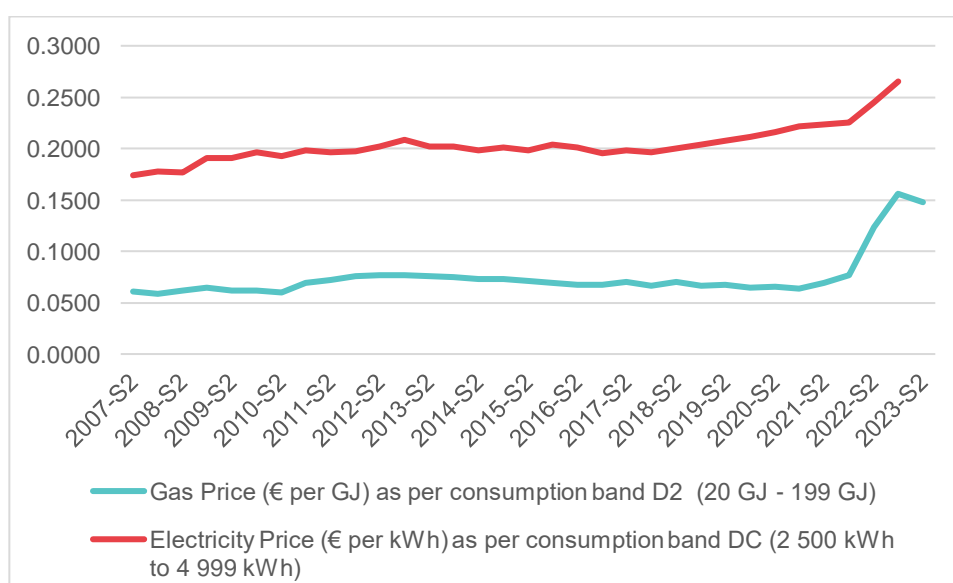


Figure AT3. Development of semi-annual gas and electricity prices, Austria. Source: compiled by authors, data from EUROSTAT-Statistical Office of the European Communities

## 1.4 The multilevel governance process

Austria's federal structure significantly shapes its housing and energy-efficiency policies, as governance is divided between the federal government, the nine federal states, and municipalities. While the federal level sets overarching climate targets, such as achieving climate neutrality by 2040, implementation largely falls under provincial jurisdiction. Housing policy, including building regulations and energy standards, is primarily the responsibility of the federal states, leading to regional differences in retrofitting incentives, construction standards, and heating system regulations. The provincial governors are responsible for issuing the permits for the emission of greenhouse gases and may also entrust the district administrative authority (*Bezirksverwaltungsbehörde*) with implementation measures for certain types of installations. Municipalities further influence energy efficiency by enforcing local building codes, zoning laws and managing district heating networks. The already mentioned agreements according to Article 15a of the Federal Constitutional Law are essential to regulate the competences and implementation procedures on energy between the state and the federal states, while for housing subsidies all competences lie within the federal states field of action. Main actors for retrofitting and housing policy on a federal level are the Federal Ministry for Environment and Energy (mainly responsible for reaching the Kyoto target), and the Federal Economics Ministry (mainly responsible for the building sector), Ministry of Social Affairs (mainly responsible for subject subsidies e.g. in housing). Various provincial units are responsible for different aspects of building policies and energy standards, housing subsidies schemes, etc. Additionally, the economic Chambers and the Federation of Industries play a key role in shaping Austria's energy and building sector policies. The complex scheme of subsidies and refurbishment programmes is managed by a number of public institutions, such as the Klima- und Energiefonds, Austrian Energy Agency, or Kommunalkredit Public Consulting.

In terms of the federal budget the Austrian Environment Ministry is responsible for allocating funding to building refurbishments and heating transition programmes through the Austrian Environmental and Climate Protection Fund (UFI). Via the EU Recovery and Resilience Facility (RRF) a €3.5 billion grant is allocated to building decarbonization and heating system replacement, while the Climate-Resilient Buildings for Vulnerable Groups programme is fully funded through EU sources. Revenues from CO<sub>2</sub> pricing (via the eco-social tax reform) are invested in subsidies for Phase-Out of Oil and Gas and Renovation Bonus. The federal states provide co-financing or complementary funding programmes, especially for subsidized housing schemes or also district heating expansion.

Name	Type	Level	Roles
Austrian Energy Agency (AEA, Österreichische Energieagentur)	Public	National	Austrian Energy Agency executes the climate protection initiative klima:aktiv. Federal Government, all federal states, leading companies in the energy industry and the transport sector, interest groups, and scientific organisations are members of this agency

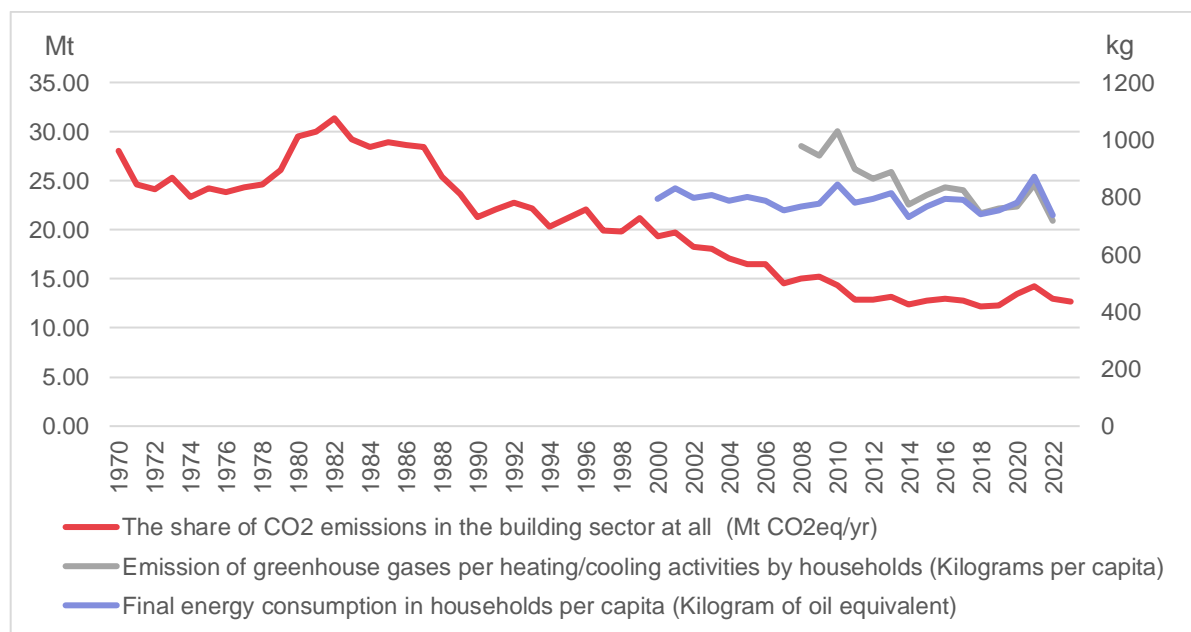
Klima- und Energiefonds	Public	National	Promotion of climate protection projects and sustainable energy supply through subsidies and project calls
Austrian Research Promotion Agency (FFG)	Public	National	national funding institution for industry-related research and development in Austria, also in the sector of energy efficiency
Kommunalkredit Public Consulting	Private	National / International	Implementation of subsidies distribution
Umweltbundesamt	Public	National / International	Important environmental expert organisation and leading international environmental consultants, experts provide the basis for decision making with politics, administration, business, science, and civil society at local, regional and international levels
Austrian Institute of Construction Engineering (OIB)		National	Responsible <i>harmonising the construction engineering regulations in Austria, such as the OIB6 Long Term Renovation Strategy</i>
<i>Austrian Federation of Limited-Profit Housing Associations</i> GBV	Private	National	Organization of the limited profit-housing associations in Austria, important actors in implementing decarbonization and retrofit measures in the subsidized housing stock
wohnfonds_wien	public	federal state	Responsible for subsidies of urban renewal and retrofitting in Vienna
MA25 – Municipal Department Technical Urban Renewal of the City of Vienna	public	federal state	Municipal department responsible for the implementation of the programme WieNeu+ (refurbishment & energy saving)
MA50 – Municipal Department Housing Promotion and Arbitration Board for Legal Housing Matters	public	federal state	Distribution of housing allowances and energy cost support
Energy consulting services (Klima- und Innovationsagentur Wien (UIV Urban Innovation Vienna GmbH, Hauskunft, Energiesparverband Oberösterreich, Energieagentur Tirol, Netzwerk Energieberatung Kärnten,...)	Public	federal states	Consultation services for renewable energies, refurbishment and retrofitting
Coordination platform to fight against energy poverty (Koordinierungsstelle zur Bekämpfung von Energiearmut, kea)			The kea (situated with the klima- und energiefonds) develops and coordinates measures and recommendations to combat energy poverty in Austria and provides information for households, energy suppliers, local authorities and relevant institutions and organisations. The tasks and budgetary resources of the kea are regulated in the national Energy Efficiency Act.

Oesterreichs Energie	Private	National	Umbrella organization representing Austrian energy companies, advocating for the energy sector, renewable energy transition, and security of supply
Building industry, building technology companies (Strabag, Scheuch technology, VASKO+PARTNER INGENIEURE, architecture- and engineering offices,...)	Private	National / local	<i>Implementation of energy refurbishments, including thermal insulation, windows, and renewable energy installation</i>
<i>Consulting firms and networks of certified consultants on energy efficiency (Energieberatung "DIE UMWELBERATUNG", En2-Consulting,...)</i>	Private	National / local	<i>Advisory services to improve energy efficiency in homes and businesses. Support for energy-efficient renovations, including insulation, heating systems, and renewable energy solutions</i>

Table AT5. Actors involved in the policy cycle of energy retrofitting in Austria. Source: own elaboration.

## 1.5 Achievements, assessments, and challenges

Overall, the residential sector in Austria accounts for 10.1% of the total of Austria's CO<sub>2</sub> emissions (IEA, 2022). In general, the development of CO<sub>2</sub> emissions in the building sector in Austria shows a significant decline since the 1990s, while household energy consumption per capita remains stable over the last 20 years. Overall, this trend indicates improvements in energy efficiency, suggesting that any rise in total energy use has been offset by gains in efficiency of the housing sector or a shift toward less carbon-intensive energy sources for household use. Despite these reductions in the building sector, Austria's per capita CO<sub>2</sub> emissions remain slightly above the European Union average since in 2023, per capita emissions were 7.8 tonnes of CO<sub>2</sub> equivalent (tCO<sub>2</sub>e), compared to the EU average of 7.2 tCO<sub>2</sub>e (European Parliament, 2024).



*Figure AT3. Development of Emissions in the housing sector and households, Austria. Sources: compiled by authors, data from: EDGAR-Emissions Database for Global Atmospheric Research, EUROSTAT-Statistical Office of the European Communities*

In general housing subsidies are considered one of the key policy instruments to ensure and implement high environmental standards in housing (IIBW & FV Steine-Keramik, 2022). This characterises the Austrian way in which rather than implementing stricter regulations, economic incentives are granted. As stated above, housing subsidies have been increasingly coupled with demanding ecological standards, e.g. for thermal refurbishment of the building hull. In this light, the 15a agreements between the federal government and the federal states that also influence housing, are important for building regulations. Since the use of housing subsidies was entirely given to the federal states, a 15a agreement between the federal states and the federal government specifies common environmental quality standards for housing subsidies (followed by an earlier agreement on the reduction of emissions) (Amann and Mundt, 2021). Here, the influence of EU regulation becomes apparent as directives regarding the energy performance of buildings had to be translated into national law and via these agreements has been handed down to the federal states.

EU requirements for the creation of climate and energy strategies were also influential, when it comes to attempts of defining refurbishment rates. However, as stated in section 1.2. the figure of deep renovations dropped to a third since the early 2000s and has since remained stable at this low stage (Amann et al. 2023). Even though subsidized heating system replacements were in decline until 2018, they are recently rebounding not at least due to a higher budget allocation during the government period of 2020–2024.

Refurbishment rate 2009-2022 subsidized / non-subsidized

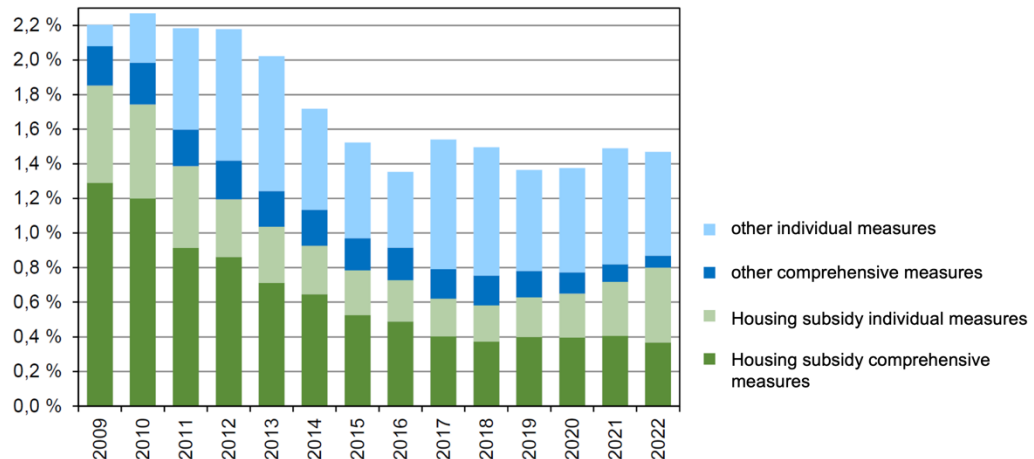


Figure AT4. Deep renovations (share per year in relation to main residences). Translation by authors.  
Source: Amann et al. 2023, p. 39.

At more specific look at the policy renovation targets and implementation of these in the nine federal states shows that despite the efforts and requirements on energy efficiency (such as in the OIB-guidelines and beyond), the nine federal states show varying and low degrees of success in achieving renovation targets through their housing subsidy frameworks, with a strong emphasis on energy efficiency and renewable integration. Vienna leads with stringent requirements aligned with or exceeding the OIB-guideline 6, linking subsidy amounts to energy savings and mandating renewable heating systems for substantial renovations / deep energy retrofits. Lower Austria similarly enforces rigorous U-value thresholds and prioritizes comprehensive renovations, requiring the replacement of fossil-fuel boilers with renewables, which supports the move towards decarbonization, but does not meet the aim to rise renovations beyond the current level. Styria's focus on "Klimahaus" certification promotes high energy standards beyond legal minima, tying subsidies to measurable energy savings. Tyrol mandates compliance with OIB-Richtlinie 6 or better and promotes renewable heating alongside deep renovation packages, encouraging holistic improvements rather than partial fixes. Salzburg stands out for its stricter insulation requirements and higher subsidy levels for Passive House or equivalent standards, strongly incentivizing top-tier energy performance. Collectively, this overview shows the fragmented approaches within Austria's federal structure to boost renovation rates and energy efficiency, though actual progress in raising the energy rate has not been substantial in the last years.

Currently one of the main challenges is in changing the heating systems. This is not only valid for Austria as a nation, but for Vienna in particular, because around 500.000 units are still powered by gas heating systems. This amounts to nearly one half of the total dwelling stock (Magistrat der Stadt Wien, 2022). Again, this is to be subsidised, hence, economic incentives are the main policy instruments, but are also coupled with large informational campaigns – fuelled by the energy crisis of 2022/2023. Consequently, a varied system of subsidies at the national level emerged among longer ongoing funding initiatives. Among such initiatives are Phase-Out of Oil and Gas ("Raus aus Öl und Gas") or Clean Heating for All ("Sauber Heizen für Alle"), which focus on low-income households and subsidize the change of the heating system with 100%. Although specific funding programmes have been developed for multi-

storey / multi-ownership buildings, most national subsidies are still targeted at single family houses.

This also reflects the different impacts that housing retrofitting policies may have across diverse urban and territorial contexts. In rural areas, low-income homeowners and private landlords often struggle with the financial burden of meeting new efficiency standards, further deepening spatial inequalities. In this sense, older generations are more negatively affected than younger generations due to their more restricted access to bank loans for renovations. However, in general in more rural areas, middle-income homeowners in low-density buildings like semi-detached houses or single-family houses benefit more from funding schemes for decarbonization and thermal insulation, because renovation decisions do not have to be negotiated with building co-owners and also, because these homeowners can more easily afford the up-front payment of renovations as well as the own-funds ratio. The higher share of the rental sector in urban areas accounts for different impacts, especially when it comes to cost-burdens and energy-consumption of tenants. While retrofitting promises lower energy costs due to more efficient heating systems and thermal insulation, certain heating systems (especially district-heating) go along with rising costs for renters. Particularly in private rental markets across all city sizes, low-income tenants and long-term residents (Altmietter) with relatively low rents are disproportionately affected, facing disproportionate rent increases upon retrofit and heating system exchanges.

The high share of the rental sector in Austria, which accounts for 43,2% of Austrian households, also means significant influence of effects of a CO<sub>2</sub> tax and a resulting landlord-tenant dilemma (Müller et al. 2024). As the tax reform includes a CO<sub>2</sub> price on fossil fuels, including natural gas, heating with gas (as prevailing heating system in the urban rental sector) gets more expensive over time. With a higher share of low-income households living in rented apartments, stringent measures like a retrofitting obligation are needed to compensate for negative effects of this decarbonisation target (Müller et al. 2024). In this sense, clear measures of retrofitting obligations for the large rental sector are missing.

While a refurbishment-friendly rental law or the consideration of climate mitigation in spatial planning emerged occasionally in policy documents, they have never been implemented systematically (Steurer & Clar, 2015). In terms of the actual implementation of retrofitting measures, the exchange of gas heating systems situated inside apartments poses significant challenges (e.g. restrictions to access rented apartments) in the framework of the existing Rental Law. Multi-ownership buildings – of which some are rented out – face difficult processes to reach the required majority amongst owners for retrofitting initiatives or heating systems shifts towards district heating or other renewable solutions. The Law of Condominiums (WEG) therefore inhibits sustainable transformations.

In terms of the federal structure, sectoral approaches, such as EU directives and federal agreements, have proven more effective in Austria than broad, multi-sectoral strategies for climate policy implementation. While the amended Climate Protection Law (2008) had the potential to serve as the first effective cross-sectoral climate policy instrument—particularly due to its sector-based implementation structure—its non-binding nature rendered it ineffective, aligning it with previous federal policy shortcomings. The change in climate discourse and EU directives over the past years eventually led to a refined National Energy



and Climate Plan, however, measures such as the Renewable Heat Act and the Energy Efficiency Act fall short in reaching their goals of CO<sub>2</sub>-reductions and current rate of building retrofitting. Furthermore, Austria's federal system has not facilitated climate change mitigation but rather complicated it by introducing an additional vertical layer of governance to an already complex horizontal integration challenge (Steurer & Clar, 2015).

Impact Area	Potential Impacts
<b>Retrofitting / object-based housing subsidies on renovation rate</b>	Austria's main policy tool to increase the renovation rate is economic incentives. Housing subsidies are tied to environmental standards like OIB-guideline 6. The 15a agreements between federal and state governments help standardize criteria and manage budgets but leave room for fragmentation and result in least common denominator. Subsidies have helped advance refurbishment but have not significantly raised the renovation rate. Simplifying funding access (considered as the most important tool within the Austrian context) and minimizing bureaucracy is seen as a key measure.
<b>Retrofitting on vulnerable groups and social housing and subject-based subsidies</b>	While retrofitting promises lower energy costs due to more efficient heating systems and thermal insulation, certain heating systems (especially district-heating) go along with rising costs for renters and owner-occupied units. National programmes (e.g., "Raus aus Öl und Gas", "Sauber Heizen für Alle") provide full subsidies for low-income households to reduce energy costs. The combination of object-based housing subsidies (targeted at buildings) with subject-based subsidies (targeted at tenants and homeowners) is therefore seen as a key measure to support vulnerable and low-income households.
<b>Retrofitting on rental sector and multi-ownership buildings</b>	The rental sector is highly exposed to landlord-tenant dilemma and cost-sharing issues. Retrofit upscaling is limited by the Rental Law and the Law of Condominiums (WEG), which complicate decisions in shared ownership buildings. This limits decarbonization of large parts of the housing stock. Communication strategies with tenants and homeowners are essential to tackle this issue.
<b>Institutional and governance schemes on retrofitting</b>	Austria's federalism hinders coherent climate action. Federal states vary in ambition as does the knowledge and capacity level of public institutions. Fragmentation across sectors and jurisdictions limits strategic implementation. The non-binding nature of national climate laws has weakened enforcement. Sectoral EU mandates (e.g., EPBD) have been more effective than domestic cross-sectoral efforts.

Table AT6. Potential Impacts of Retrofitting implementation on housing inequalities in Austria. Source: own elaboration.

## 2 Nature-Based Solutions

### 5.1 The policy cycle: emergence of the issue and policy decisions

The **2002 non-binding Austrian sustainability strategy** marks a first milestone for Nature-based Solutions (NBS) (BMLFUW 2002). The strategy refers to events such as Rio's (1992) Agenda 21 and is framed as a contribution to the European Union's Lisbon strategy acknowledging the focus on environmental protection – amongst the other dimensions of sustainability. The strategy frames the loss of landscape diversity and biodiversity as a threat to the interests of future generations and their development opportunities. A major key objective is the nationwide protection of species and habitats, as well as natural and cultural



landscapes. Given Austria's accession to the EU in 1995, the implementation of **nature conservation** area such as Natura 2000 sites following the Habitats Directive (1992) including management plans was the primary aim in this period. A second objective, focused on prioritizing **ecological restoration of rivers** and floodplain management over what the strategy terms hard engineering solutions. Finally, a third focus is preventing soil take and sprawl in housing and infrastructure (which will be dealt in the next section on densification). In 2010 the strategy was updated by stating that the 2002 strategy is still accurate. Hence, no crucial changes were introduced and the 2010 strategy was also not adopted by the Council of Ministers (BMLFUW 2010).

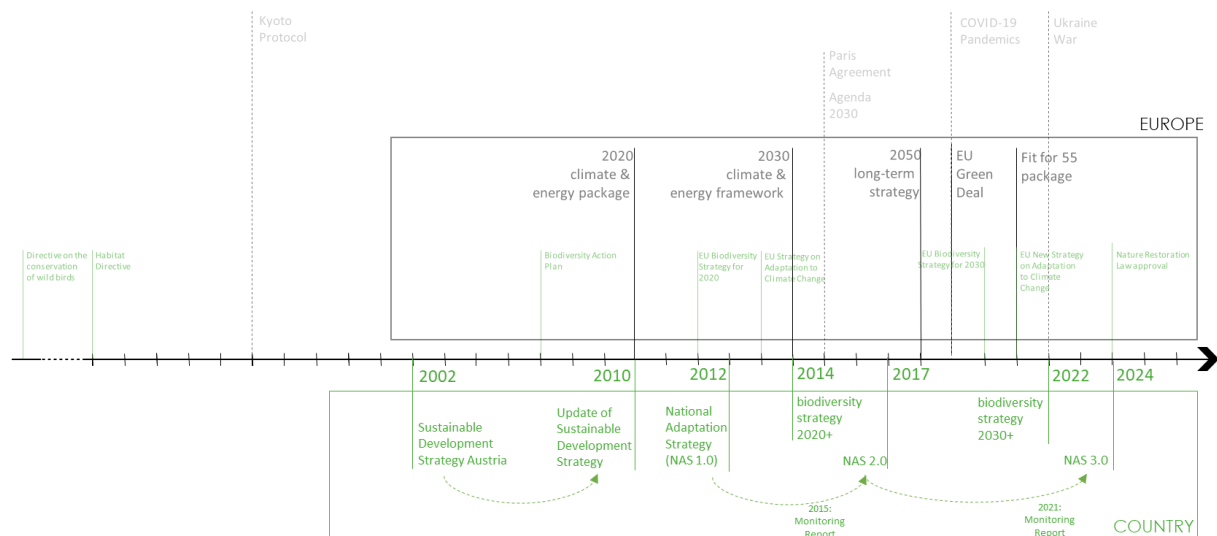


Figure AT5: Timeline of main policies and strategies fostering NBS in Austria

A second crucial milestone regarding NBS is the adoption of **the 2012 'Austrian Strategy for Adaptation to Climate Change' (NAS 1.0) of non-binding character** by the "Council of Ministers", which was also endorsed by the Provincial Governors' Conference in **2013** (BMNT 2017, BMK 2024a). Endorsement by the federal states is key because nearly all competences for implementing NBS is with the nine federal states of Austria (more details in section 2.4). The NAS is related to Austria's obligation in developing a national climate change adaptation strategy outlined in the United Nations Framework Convention on Climate Change (UNFCCC 2007) following COP13, which Austria has ratified, as well as in Article 10(b) of the Kyoto Protocol, which entered into force in 2005. The process of developing the strategy started in 2007. Initial recommendations from a scientific perspective were developed through a broad participatory process involving around 100 organizations (including ministries, federal states, interest groups, environmental and other organizations) into aims and recommendations for action organised around 14 action fields. The Strategy was updated in 2017 (NAS 2.0) and 2024 (NAS 3.0) following qualitative evaluation reports as demanded by the European Union (BMLFUW 2015, BMNT 2017, BMK 2021, BMK 2024a). While no substantial changes have been made between 2012 and 2017, the role of green and blue infrastructure was

strengthened in the 2024 version, including a more detailed description of the ecosystem services they provide in terms of flooding and cooling.

The latest update relates clearly to the European Climate Law, adopted in 2021 (Regulation (EU) 2021/1119), which establishes a binding framework for EU-wide climate neutrality by 2050 and climate change adaptation. In doing so, nature-based Solutions (NBS) are mentioned for the first time explicitly. Nevertheless, amongst grey adaptation measures (e.g. technical) and soft measures (e.g. knowledge creation & awareness raising), already the 2012/2017 strategies mentioned green and blue infrastructure as well as green and open spaces in urban areas primarily aiming at creating ventilation corridors that bring in fresh and could air as one of their key ecosystem functions (see Table AT3). From a spatial planning perspective, the preventive preservation of a network of open and green spaces, including a strengthening of their nature-based functions, e.g., cooling functions, rainwater retention, was addressed more clearly and explicitly as an objective. This also included the preservation of green and blue infrastructure within and outside of settlement areas. The strengthening of this aim also resonates strongly with a renewed strengthening of the objective to further reduce land take and sprawl in the action field of Spatial Planning (see also Section 3 on densification).

Furthermore, according to the strategy of 2024, synergies between climate change adaptation and biodiversity protection should be enhanced through nature-based solutions as well as their integration with public health issues, such as urban heat. For both the NAS3.0 and the Austrian Biodiversity Strategy 2014/2022 (BMLFUW 2014, BMK 2022), the implementation of the renaturation and extension of near-nature green and blue spaces in densely built-up settlement areas is to reduce climate change impacts, such as heat and floods, but also increasingly contributes to biodiversity.

To summarize, the most important action fields and (qualitative) objectives for NBS in the context of housing are (BMK 2024a, own translation and synthesis):

Action Field of NAS	Overarching objectives of NAS 3.0
Construction & Housing sector	Ensuring housing quality through adaptation measures for buildings and their surroundings, including nature-based solutions (NBS) for water retention and cooling.
Protection from Natural Hazards	Strengthening the precautionary principle through land-use planning, individual preparedness, and behavioral adaptation to reduce the negative impacts of climate change-related natural hazards
Spatial Planning:	Safeguarding fresh air and cold air formation areas, ventilation corridors, and "green" and "blue infrastructure" within urban areas. Enhancing the protection of ecologically significant open spaces (e.g., large unfragmented natural areas, habitat corridors, and biotope networks) while minimizing further habitat fragmentation.
Cities – Urban Open and Green Spaces	Preserving urban quality of life under changing climate conditions by maintaining and enhancing the diverse functions of urban open and green spaces.

*Table AT7. Action Fields of the 2024 Austrian National Adaptation Strategy (NAS). Source: own elaboration based on (BMK 2024a).*

Climate change adaptation in the NAS is understood as cross-sectional issue. As such, the recommendations and aims are mirrored in other important federal strategies, e.g., the Austrian Spatial Development Concept, the Austrian Strategy for Sustainable Development, Austria's Integrated Climate Strategy, and the Austrian Biodiversity Strategy – all of which are non-binding. A main example, which translates the aims and actions from the European strategies into national ones, is the Austrian Biodiversity Strategy 2014/2022 (BMLFUW 2014, BMK 2022). Selected main aims in relation to NBS are: 1) Effective protection and connectivity of all ecologically valuable habitats (e.g. 30% of the country's land area is legally protected under nature conservation regulations; the connectivity of protected areas through habitat corridors is ensured). 2) Restoration of ecosystems critical for biodiversity and climate protection (e.g. Forests, floodplains, etc.); 3) Significant reduction in land consumption and fragmentation (to 2.5 ha, more details in Section 3).

## 5.2 The implementation process

The choice of tools and structures of implementation reflects the federal state design of Austria. The Austrian adaptation strategy states that the implementation of the recommended actions must take place within the existing responsibilities of all levels of government (federal, state, and municipal). Furthermore, they must be financed within the available budgetary frameworks of the federal, federal state, and municipal governments through priority setting and budget reallocations in line with climate policy objectives. The main responsibilities for the implementation of NBS are with the federal state level and the local, municipal level.

Hence, the choice of tools on the federal level is mostly restricted to formulating and monitoring the (non-binding) climate change adaptation strategies (NAS) and information-based tools, in general terms. One strand is focusing on awareness raising and producing information-material, often through funded applied research (see Table 4). Awareness raising, networking and consulting lower policy levels are another strand of information-based tools used by the federal level. A major instrument are stakeholder dialogues with federal states or regions, also through the introduction of climate change adaptation model regions (KLAR!) in 2016<sup>6</sup>. One sectoral policy, however, the federal level is responsible for, are waterways. Hence, for NBS in the form of river restoration the federal level has competences over legislation and co-finances implementation projects with the federal states. Furthermore, the federal level supports the federal states in fulfilling their nationwide and international nature conservation responsibilities (e.g., Natura 2000, national parks). In 2022, the Biodiversity Fund was endowed with a total of 80 million euros, financed through national resources and NextGenerationEU (RRF) funds.

Based on the efforts at the national level to formulate climate change adaptation strategies, all nine federal states in Austria implemented their own adaptations strategies. Besides, that the choice of tools for implementing NBS on the federal state level is related to two main responsibilities: a) legislation over spatial planning, while implementation of spatial planning is in the hands of municipalities; b) legislation and implementation of nature conservation.

<sup>6</sup> <https://www.klimawandelanpassung.at/kwa-politik/kwa-oesterreich/kwa-umsetzung-strat>

Additionally, regional and local development concepts allow regions<sup>7</sup> and municipalities to integrate NBS into sectoral plans, such as Vienna's Green and Open Spaces Concept within its Urban Development Plans. Zoning and development plans can further specify NBS implementation, including regulations on tree planting, green facades, and green roofs, as done in Vienna. The extent to which these tools are applied depends on the local context, with some municipalities leveraging them more actively than others. Especially, smaller municipalities lack the capacity and administrative resources for coordination efforts, therefore limiting their ability for climate change adaptation (see also Brad et al. 2025)

Funding for NBS typically comes from public resources, with financing often involving a mix of federal-state and municipal budgets, supplemented by national and European subsidies. Some federal states also offer targeted subsidies for private owners (e.g., green roofs in Vienna) or municipalities (e.g., greening public buildings in Upper Austria), reflecting the varying degrees of NBS support across different governance levels.

Tool	Structures of Implementation	Governance Level	Time Horizon
Monitoring	Federal level issues monitoring reports on climate change adaptation.	Federal	Every 5 years
Climate Change Adaptation Model Regions Program (KLAR!) <sup>8</sup>	Initiated in 2016, the funding program supports regions and municipalities with two aims: a) to raise awareness for climate change adaptation and b) implement actions at local and regional levels (e.g. NBS). Regions are supported by subsidies and by experts in developing an adaptation concept, followed by the implementation of at least 10 measures. A continuation phase monitors and continues adaptation measures.	Federal	since 2016
Networking	The federal level (BMK), the federal states and the Climate and Energy Fund initiated and steer a 'climate change adaptation network' to foster knowledge transfer and support decision makers. Different annual working groups prepare information material and share them amongst practitioners in annual yearly network events.	National	Since 2021
Consulting	Education of administrative members from the federal states as climate adaptation consultants for regions and municipalities.  Specification of contact persons at federal states that serve as consultants for lower policy levels.	National	Since 2017
Awareness Raising and Research	The federal level (BMK), in cooperation with other actors, supports the development and dissemination of informational materials, brochures, guidelines, best practice documents, and more. These materials are often funded and produced through applied research projects	National	Since 2007

<sup>7</sup> in the Austrian setting understood as an intermediary level between the federal states and municipalities, usually composed of multiple municipalities with the aim to coordinate spatial development.

<sup>8</sup> <https://klar-anpassungsregionen.at/service/english-summary>

Tool	Structures of Implementation	Governance Level	Time Horizon
	within the Austrian Climate Research Programme (ACRP).		
Regional and local adaptation plans	All federal states have climate change adaptation plans (as of 2024). Most of the Federal states (5) have integrated climate protection and adaptation plans. <sup>9</sup> Upper Austria since 2023 and in Vienna climate change adaptation is integrated into umbrella strategies, but has been mainstreamed since 2022 (c.f. Magistrat der Stadt Wien 2022).	Subnational	n.a.
Spatial Planning Laws	Federal states are formally responsible for spatial planning. Spatial Planning Laws are key instruments. These planning laws usually defining guidelines, objectives and instruments binding for regional and local spatial planning. Their orientation towards integrating NBS is very differentiated.	Subnational	n.a.
Nature Conservation Laws	Federal states are responsible for nature conservation: both in terms of legislation and implementation. Besides European protection categories (e.g. Natura 200) or international (National Parks), also several other categories and areas may be defined by national conservation acts.	Subnational	n.a.
Federal-state, Regional and Local Development Concepts	Federal states and municipalities have the possibility to issue regional and local development concepts. Also, sectoral plans, e.g. for green and open spaces or floodplains, may be used. Vienna, for instance, issued a concept on Green and Open Spaces as part of the Urban Development Plans (2014) issued every ten years.	Subnational	n.a.
Zoning Plans and Development Plans	When changes to plans are made they follow specified steps, such as basic research and considerations of overarching planning and environmental protection procedures. When the change of plan is issued, statements by citizens can be submitted. After the deliberation of statements, a resolution is made by the municipal government and (dis-)approved by the federal state authorities. Zoning and development plans can be used to specify the implementation of NBS. Vienna, for instance, uses zoning plans to prescribe details about tree planting in streets or the demanding green facades and green roofs.	Subnational	n.a.
Public Resources and Subsidies	Usually NBS are financed through public resources. Often in form of a mix of sources from federal states and municipalities – often with support of federal and European subsidies (e.g. for river restoration).  Some federal states also provide subsidies to private owners (e.g. for green roofs, facades and	All Levels	n.a.

<sup>9</sup> <https://www.klimawandelanpassung.at/kwa-politik/kwa-bundeslaender>

Tool	Structures of Implementation	Governance Level	Time Horizon
	de-sealing for private owners in Vienna <sup>10</sup> ) or to municipalities for greening public buildings, as in Upper Austria <sup>11</sup> ).		
Biodiversity Fund	The national biodiversity fund is the main funding tool of the biodiversity strategy. A funding rate of 100% is granted to organizations (e.g. NGOs) and public authorities. Usually public authorities and legal entities that manage biosphere, nature- and national parks in Austria are main recipients of this funds. Private persons and companies are eligible receiving funding rates of 70-90%. The fund provides 30 Mio. €. <sup>12</sup>	EU / Subnational	2022-2026
RRF – Biodiversity Fund	Additional subsidies are financed through the RRF – Biodiversity Fund (NextGenerationEU). Funding conditions are the same as with the national biodiversity fund. EU sources provide a budget of 50 Mio. €. <sup>13</sup>	EU / Subnational	2022-2026

Table AT8. Tools for fostering the implementation of NBS in Austria. Source: own elaboration.

### 5.2.1 NBS implementation in Vienna

Vienna has a long-standing tradition in nature protection and the provision of public parks (see Brenner et al. 2022). The introduction of new zoning categories on nature protection in the 1990s effectively imposed a building ban that makes rezoning for other purposes highly challenging. Also, the planning of new development areas since the 1990s, put an emphasis on providing green spaces based on guidelines from the administration. The recent decade has been marked by the increasing effects of heat waves, leading to a strategic shift of cities towards focusing on the greening public spaces in densely build-up, historic housing stock while keeping the other two pillars of green space development (Brenner et al. 2022, Friesenecker et al. 2024a).

The implementation of climate adaptation strategies in Vienna builds on (1) strategic documents binding for the work for the public administrative units, (2) adapting legal regulations, and (3) adapting financial support. Based on a set of strategic documents a shared policy framework, which are binding to public authorities, has led to a diverse set of concepts, guidelines, policy instruments at the level administrative units that accelerate NBS implementation. Notable documents include the Vienna Street Greenery Concept (2012<sup>14</sup>), Surface Drainage Guidelines (2018<sup>15</sup>), Green Facades Guideline (2019<sup>16</sup>), and the COOLing

<sup>10</sup> <https://www.gbsterm.at/news/mehr-unterstuetzung-fuer-gebaeudebegruenungen-in-wien/>

<sup>11</sup> <https://www.land-oberoesterreich.gv.at/236810.htm>

<sup>12</sup> <https://transparenzportal.gv.at/tdb/tp/leistung/1060474.html> ; <https://www.biodiversitaetsfonds.com/#faq>

<sup>13</sup> <https://transparenzportal.gv.at/tdb/tp/situation/npo/klima-und-umwelt-energie-und-bauen/umwelt-klima-natur-und-artenschutz/1059187.html>

<sup>14</sup> <https://www.wien.gv.at/umwelt/parks/pdf/strassengruen-leitbild-2012.pdf>

<sup>15</sup>

[https://wien.arching.at/fileadmin/user\\_upload/redakteure\\_wnb/D\\_Service/D\\_1\\_1\\_Baurecht/Richtlinien/oberflaechenentwaesserung-leitfaden.pdf](https://wien.arching.at/fileadmin/user_upload/redakteure_wnb/D_Service/D_1_1_Baurecht/Richtlinien/oberflaechenentwaesserung-leitfaden.pdf)

<sup>16</sup> <https://www.wien.gv.at/umweltschutz/raum/fassadenbegruenung.html>



Fibel (2023<sup>17</sup>). These efforts have fostered a "common understanding" of key NBS measures across city administration. In sum, the core strategies include street trees with automated irrigation, de-sealing surfaces, water features (e.g., fountains, fog showers), green facades and roofs.

Second, legal regulations in the building code (Bauordnung) has been a second key tool for implementation. In 2024, amendments to the Building Code have strengthened requirements for green infrastructure, including streamlined approval for green facades, an increase in street trees, and mandates for de-sealing surfaces<sup>18</sup>. For instance, two-thirds of landscaped areas must remain unsealed and contain soil-bound greenery (Section 79 (6) BO2024). Façade greening is now permit-free for the first three stories (Section 62a(1)(14) BO2024), and tree planting regulations have been tightened, requiring one tree per 200 m<sup>2</sup> of landscaped land (previously 250 m<sup>2</sup>) (Section 79 (7) BO). New parking space regulations (as of 2023) further promote urban greening by reducing required parking spots in public transport-accessible areas, freeing space for 2–3 additional street trees per 3,000 m<sup>2</sup> residential building. However, these changes in legislation are immediately binding for property owners unless modifications or new developments are undertaken.

Third, financial support has been recently adapted as well. In Vienna, 23<sup>rd</sup> district governments are responsible for managing, providing and expanding green spaces, including tree planting in street greening. Since 2018, Vienna's 23 districts have received dedicated funding to preserve, adapt, and expand green spaces<sup>19</sup>. A 2021 funding reform increased financial allocations to districts, linking funds to green space maintenance needs, prioritizing climate-stressed areas such as those requiring additional tree watering. The budget for new green infrastructure was further expanded, but districts maintain control over fund allocation. Additionally, the "Lebenswerte Klimamusterstadt" (Livable Climate Model City) program, launched in 2021, provides €20 million annually for district greening projects, totaling €100 million by 2025. Projects receive 40–80% co-funding, depending on factors like soil de-sealing, greenery proportion, and use of sponge city principles. Surface sealing levels are particularly considered due to their direct impact on urban heat stress (Friesenecker et al. 2024b).

### 5.3 Size and role of the market

Austria's market framework for NBS is primarily public sector-driven, in which federal-states and municipal governments play the dominant role in funding, regulating, and implementing nature-based solutions. When it comes to nature conservation areas operation and coordination is often done by non-profit public enterprises. Financing is largely publicly funded, with NBS supported by federal-state and municipal budgets, as well as EU subsidies (e.g., RRF, Biodiversity Fund).

Purely market-based NBS interventions are limited, as implementation depends primarily on public policies, regulations, and subsidies rather than private-sector investments or profit-driven incentives. While some financial incentives exist for private actors, such as subsidies

<sup>17</sup> <https://www.wien.gv.at/kontakte/ma42/publikationen.html>

<sup>18</sup> <https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=LrW&Gesetzesnummer=20000006>

<sup>19</sup> <https://www.wien.gv.at/bezirke/dezentralisierung/budget/>

for green roofs and façade greening in Vienna, these measures remain supplementary to state-led initiatives.

## 5.4 The multilevel governance process

As already written in the previous section on instruments, the Austrian adaptation strategy clearly outlines that the implementation of NBS must take place within the existing responsibilities of the federal, state, and municipal levels. Additionally, existing federal, federal state, and municipal budgets need to finance NBS especially through priority setting and budget reallocations to meet climate adaptation objectives. The main role of the federal level, with two main federal ministries BMK and BML as shown in **Error! Reference source not found.**), is therefore ensure a broad ‘consensus’ base that leads to the implementation of NBS at local levels. The coordinate and steer across this vertical dimension information-based tools, e.g. strategies and awareness raising methods, subsidies and setting regulatory framework conditions are used. A key approach therein is stakeholder involvement, mainly for developing strategies. According to the NAS (BMK 2024a), stakeholders were engaged through online surveys, written feedback on policy drafts, and participation in advisory committees. The process actively involved national and sub-national government officials, while also incorporating input from the private sector, interest groups, researchers, and the general public<sup>20</sup>. The role of federal ministries is complemented by public enterprises, like Umweltbundesamt and KPC as shown in **Error! Reference source not found.**, by managing funds and subsidies and knowledge creation.

The implementation of NBS requires collaboration among a wide range of public – usually at the Bundesland and municipal level – and private sector actors depending also on land and property ownership. While Vienna is both a federal state and municipality coordination between vertical levels is easier. For other federal states coordination efforts between the municipal level and province level is considered particularly challenging. Yet, as highlighted in the monitoring reports and the NAS (BMK 2021; BMK 2024a), the necessary coordination and cooperation between the various sectors and policy levels is only taking place to a limited extent. Furthermore, the report stated that the impacts of climate change are still insufficiently considered in relevant planning and decision-making process.

In Austria, the responsibility for planning, designing, and maintaining open and green spaces lies with the municipal administrations. From a horizontal multi-level perspective, one major issue is the disparity in knowledge and awareness across different municipalities regarding the importance of green and open spaces (BMK 2021). Many cities and local governments still harbor reservations about implementing greening measures, such as rooftop or façade greening, often due to concerns about maintenance costs and long-term management. Hence, policy implementation at the local level varies considerably.

However, bigger cities like Linz or Vienna, for example, released local adaptation programs which have important consequences for the horizontal coordination of actors (Magistrat Linz – Planung, Technik und Umwelt 2023), Magistrat der Stadt Wien (2022), Stadt Wien 2024).

<sup>20</sup> see also: [https://climate.ec.europa.eu/document/download/75ad3c4f-cb89-400e-8be4-56ab24690681\\_en?filename=summary\\_fiche\\_at\\_en.pdf](https://climate.ec.europa.eu/document/download/75ad3c4f-cb89-400e-8be4-56ab24690681_en?filename=summary_fiche_at_en.pdf)



These programs usually detail a) needs of coordination between administrative units (e.g. transport, health, etc.) and b) the integration of adaptation objectives into urban planning procedures to govern NBS implementation in public and open space, but also at property- and building level where greening is the responsibility of the property owner. Though due to varying degrees, municipalities started to amend their zoning and development plans with respect to adaptation demanding more green features. However, the integration of climate adaptation strategies into urban development is still in its early stages, with conflicting land-use demands posing additional hurdles (BMK 2019). Adapted zoning and development plans usually demand compulsory greening of the building stock (e.g. green roofs/facades), outlining the ration of street trees vs. parking lots in public spaces, the shares of non-sealed areas on properties, etc (as outlined in Vienna building code reform above, but also Linz introduced a reform<sup>21</sup>). Providing subsidies for green roofs and facades in bigger cities are another main approach to govern the implementation of NBS at the building level, sometimes they are deployed by the federal state level and in bigger cities also by municipalities<sup>22</sup>.

Name	Type	Level	Roles
Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK)	Public	National	<p>Most important responsibilities are the development, coordination, monitoring of national strategies, e.g. jurisdictional competences (e.g. climate law) and providing subsidies</p> <p>Resorts falling under this ministry are traditionally energy, mobility and technology (e.g. research). Environment and Climate has been often with the agriculture and forestry ministry. In 2020, with the coalition between the People's Party (ÖVP) and the Green Party, climate and environment agendas were merged.</p> <p>Depending on the coalition, resorts dealing with these themes have been usually in the hands of the Social-Democratic Party (SPÖ), the Freedom Party (FPÖ) or the Green Party (2020-2024)</p>
Federal Minister for Agriculture, Forestry, Regions and Water Management (BML)	Public	National	<p>This ministry is important for water-based NBS-based policies as it has competences in legislation over forest and water-related issues (including flood risk management). As such it also issues subsidies for the renaturation of water ways.</p> <p>This ministry is traditionally run by the people's party.</p>
Environment Agency Austria (Umweltbundesamt)	Public Enterprise	National	<p>In relation to NBS and climate change adaptation the Environment Agency Austria is involved in coordination and knowledge transfer, e.g. the provision of basic information on climate adaption through a website,</p> <p>The most significant expert institution for environmental matters in Austria and a leading environmental advisor in Europe. The institution develops foundations for decision-making at the local, regional, national, European, and international levels engaging in dialogue with policymakers, public administration, businesses, academia, and civil society.</p>

<sup>21</sup> [https://www.linz.at/images/files/Amtsblatt202023\\_Bebauungsplanaenderung\\_Ediktal\\_VO\\_2.pdf](https://www.linz.at/images/files/Amtsblatt202023_Bebauungsplanaenderung_Ediktal_VO_2.pdf)

<sup>22</sup> <https://gruenstattgrau.at/wissen/foerderungen/>

Name	Type	Level	Roles
Climate and Energy Fund	Public Enterprise	National	The fund handles and manages the KLAR! regions, but also handles subsidies for companies, municipalities, research and private persons. It also organizes activities within the Austrian network of climate change adaptation.
KPC	Public Enterprise	National	The “Kommunal Credit Public Consulting“ (KPC) handles environmental and adaptation subsidies, e.g. NextGen Funds for Biodiversity and Densification.
Spatial Planning Departments	Public	Federal State	Responsibility for developing spatial planning programs at the federal and regional levels. This includes strategies, action fields, development plans, etc. These have binding character for local spatial planning (municipalities).
Nature Conservation Departments	Public	Federal State	The nature conservation departments of the federal states have the responsibility to coordinate und manage nature protection areas.
Municipalities	Public	Local	Responsible for local spatial planning, mainly for local development concepts, zoning and development plans.
Austrian Association of Cities and Towns	Public	National-Local	The principal task is to represent the interests of local government in negotiations over the sharing of budgetary funds and taxing rights between the federal government, the federal states and local authorities (revenue sharing).
Social Partners	Public	All Levels	Depending on whether on the
Environmental NGOs	Civil Society	All Levels	Environmental NGOs in Austria often take the role of opposing (transport) infrastructure and housing developments, advocating for nature conservation and pushing local governments to take urban greening seriously and comprehensively (e.g. Naturschutzbund, WWF, Greenpeace, System Change not Climate Change, Fridays for Futures)
Property and Building Owners	Private	Local	Implementing and managing building and property-level NBS.
Planning offices	Private	Local	Designing NBS projects in urban and rural settings.
Community based support and organizations (Citizen based)	Civil Society	Local	Supportive measures that e.g. fosters the watering of plants (as done by the urban renewal offices in Vienna). Community-based organization – in relation to NBS – often limit to communal gardening efforts.

Table AT9. Actors involved in NBS governance in Austria. Source: own elaboration.

## 5.5 Achievements, assessments, and challenges

The national adaptation strategies acknowledge that measures – such as NBS – have to consider the social consequences and, therefore, adaptation should also avoid negative impacts, especially for those who are vulnerable to flooding's and urban heat (BMK 2024a). The strategy frames social vulnerabilities in relation to impacts of the climate change and that these different vulnerabilities need to be considered when designing climate policies. On the contrary, another national study commissioned by the Federal Ministry for Social Policy and Health reports that social policies do not aligned with climate change criteria (BMSGPK 2021:

103). Hence, despite a common agreement amongst Austrian policy maker that integration of climate and social policies are key, the coordination and integration is still lagging behind on the level of implementation, e.g. in laws or funding schemes. Hence, social and spatial inequalities should be considered more effectively in adaptation planning, while spatial planning must integrate climate change adaptation more consistently (BMSGPK 2021, Reinwald et al. 2024).

When it comes to NBS, knowledge on the potential relation to, and evidence of potential impacts on housing inequalities is so far limited. For Vienna, Brenner et al. (2022) have shown that uneven patterns in the availability of urban green spaces (UGS) per inhabitants have remained stable and limited. Most of the neighbourhoods are characterised by an adequate availability of green. Nevertheless, Friesenecker et al. (2024b) highlight that especially central areas lack large green spaces providing cooling functions, which is a major factor in Vienna's heat island effect. Furthermore, Neier (2024) provides robust evidence that minorities (non-Austrians) are more segregated from urban vegetation than Austrians. Friesenecker et al. (2024a) highlight that NBS are currently not considered as a risk for displacement amongst policymakers, mostly because of the robust social housing provision and still existing rent regulation. However, they show that less effective rent regulation in the private rental segment enhances risks of gentrification, while greening in central areas – either in public spaces or at the building level – remains isolated and fragmented. Enhancing NBS in these areas, therefore, might increase the risks of displacement for vulnerable groups.

Impact Area	Potential Impacts
NBS on public land	With regard to NBS – such as tree planting in streetscapes or greening squares and at the building level – currently only limited impacts on the local housing market are observed. Nevertheless, socio-spatial inequalities in availability and, depending on the housing segment, differentiated risks of displacement exist. Based on Friesenecker et al. (2024) and Friesenecker et al. (2025), for Vienna, higher displacement risks based on NBS emerge in the private rental segment where rent control is not in effect or has been subject to increasing deregulation of rent control (applying to buildings built before 1945) and an allowance for time-limited contracts (e.g. 3-5 years). Here, landlords might increase rents because of improved liveability through green measures, while the effect of public on greening is currently still limited. On the contrary, buildings owned by limited profit housing associations and by the municipality (municipal) housing (and their regulation of rent setting) do not allow for charging higher rents based on locational qualities such as public green. However, increased greening and more heatwaves might enhance housing inequalities in the future.
NBS on buildings and properties	Less is known about how building or property-level NBS impacts rents and house prices. It is assumed that the implementation of building or property-level NBS (green roofs and facades, trees, bushes, grassland) increases rents and utility costs due to maintenance of green, such as watering). Private developers are – in most cases – more reluctant to implement NBS, but if stricter demands for the implementation of NBS by the public sector emerge, trade-offs are to be expected. In Austria, a distinction between the private and social housing providers is essential. Even in social housing rent payments might increase due to higher utility costs.

*Table AT10: Potential Impacts of NBS implementation on housing inequalities in Austria. Source: own elaboration.*

### 3     Densification

#### 6.1 The policy cycle: emergence of the issue and policy decisions

In relation to densification, Austria is facing a growing challenge due to urban sprawl and the increasing sealing of green spaces, which not only disrupt ecosystems but also impose significant financial burdens on infrastructure development. On average, in the year 2002 25 hectares of land were irreversibly sealed every day for construction and the expansion of transport infrastructure (BMLFUW 2002: 70), by 2023 the amount has been reduced to a still high number of 11,5 hectares per day (EC Country Report Austria 2023). According to Getzner & Kadi (2019) increasing land prices and therefore resulting scarcity of land and the higher efficiency of the land use (resulting from population density and urbanization) contributed to the reduction of land consumption. Although land consumption slowed down at a moderate speed soil sealing continues to be a major environmental policy challenge in Austria.

A major driver of the issue of sealed surface is the persistent demand for single-family homes in suburban areas, which requires large amounts of land and generates high traffic volumes. Austria has one of the highest per capita numbers in Europe of road kilometres and supermarket surface (EC Country Report Austria 2023). This sprawling development pattern contradicts the principles of sustainable urban planning and exacerbates environmental and economic pressures. At the same time, rural areas remain underutilized, with many regions experiencing structural weaknesses and population decline, further deepening disparities between urban and rural areas. In response to these challenges, densification strategies are becoming increasingly critical, aiming to optimize land use, reduce infrastructure costs, and promote more sustainable urban growth.

Different strategies and guidelines along the past three decades focussed on soil sealing as Austria's major environmental policy challenge with one of the earlier milestones for sustainable land use being the **Austrian Strategy for Sustainable Development** (NSTRAT) adopted in 2002 (BMLFUW (2002)). The 2002 Austrian Strategy for Sustainable Development of the federal state is – though legally not binding – a key event not only for nature-based solutions but also in Austria's recent land use policy. The strategy, influenced by Rio (1992) and its sustainable development, is also a direct response to the strategic aims of the EU formulated in Lisbon in 2000. The Austrian Strategy for Sustainable Development was adopted by the federal government in April 2002, being previously developed by a working group consisting of around 40 representatives from ministries, federal states, and municipalities, as well as social partners, interest groups, and NGO platforms. The process was accompanied and moderated by a professional team.

The NSTRAT features the “Key Objective 13 – Responsible Use of Land and Regional Development”, which sought to reinforce Local and Regional Agenda 21 processes and aimed at a reduction in the increase of permanently sealed surfaces to a maximum of one tenth of the current growth rate by the year 2010. Additionally, the NSTRAT (BMLFUW 2002: 71) states that “With more density of construction, a higher intensity and efficiency of surface use is to be made possible and **optimal exploitation of the use potentials in areas already built up** is to be guaranteed.” The strategy additionally outlines the preference for “space-saving housing

construction” and prevention of further sealing of surfaces, while at the same time sustainable housing through subsidies is to be promoted. Also, NSTRAT featured monitoring land use as a key indicator for reaching the Key Objective 12 “Preserving the Diversity of Species and Landscapes”, however also stating that these indicators partly still had to be developed or/and data on those was not collected regularly. The NSTRAT 2002 further developed into the **Austrian Strategy for Sustainable Development 2010** (ÖSTRAT, BMLFUW 2010), which refined NSTRAT goals, integrating new challenges such as climate change, resource efficiency, and stronger policy coordination at national and EU levels. At the same time the new, legally non-binding strategy emphasized more in depth on implementation, **monitoring of land development**, and alignment with international sustainability frameworks such as the **EU SDS (2010)** and the **EU Climate and Energy Package**.

A second milestone in tackling land use and soil sealing in Austria was the **Bodencharta 2014** (Land Charter 2014<sup>23</sup>), which is a reference to the **European Soil Charter** of 1972 and resulted as a reaction to the inadequate and ineffective policy response on continuing excessive land consumption after the release of the NSTRAT in 2002. On initiative of the think tank Ökosozielles Form, ten institutions amongst others the Climate Alliance, Federal Ministry of Agriculture and Environment, Austrian Association of Municipalities, Austrian Hail Insurance, Chamber of Agriculture Austria endorsed the charter, which advocates for compact urban development, mixed-use zoning, and the revitalization of brownfield sites to optimize land use while preserving natural landscapes and agricultural areas.

In 2017, the **Baukulturelle Leitlinien des Bundes** (Architectural Guidelines of the Federal State) were adopted in 2017 by the Austrian federal government and aimed at providing a framework for guiding sustainable and high-quality urban development in Austria (Bundeskanzleramt 2017). The guidelines were developed by various experts, architects, urban planners, and stakeholders in the fields of architecture, urban design and the Austrian Federal Ministry for Sustainability and Tourism (BMNT). Amongst the recommendations for the promotion of architectural culture and awareness building in Austrian society, the guidelines emphasized the importance of densification in the context of a growing (urban) population. The guidelines advocate for the compact development of urban areas, encouraging the efficient use of land through the revitalization of existing buildings and the creation of mixed-use spaces that combine residential, commercial, and public functions. In terms of densification, the guidelines stress the need to avoid urban sprawl by promoting infill development and constructing multi-story buildings that integrate well with the surrounding environment. The guidelines also outline the importance of a balance between increased density and maintaining a high quality of life for residents, prioritizing green spaces, public transport, and pedestrian-friendly environments.

As a third milestone in 2021, the **Austrian Spatial Development Concept ÖREK 2030** was introduced, which serves as a set of guidelines followed by all institutions represented in the Austrian Conference on Spatial Planning (Österreichische Raumordnungskonferenz, ÖROK). However, by its nature the concept only works as a recommendation and serves as a voluntary agreement. Amongst the spatial objectives of ÖREK 2030 the following is stated in terms of densification: “Austria's cities and towns should be developed in a compact manner

<sup>23</sup> [https://www.unserboden.at/files/bodencharta\\_2014.pdf](https://www.unserboden.at/files/bodencharta_2014.pdf)



encouraging mixed uses. In order to protect valuable soil and the climate, distances must be shortened, surface areas revitalised and unsealed, town and city centres regenerated with high quality urban densification” (ÖREK, 2021: 11). In reference to the **EU Roadmap for a Resource Efficient Europe**, the aim 2 of ÖREK “Reducing land consumption and soil sealing” stresses key measures such as stabilising land consumption at 2.5 ha per year with differentiated specifications for the various spatial types, a standardised evaluation of discontinued land uses in Austria, development of regionalised calculation of building land demand, the trading system for land use certificates between municipalities and the acceleration of the (re-)activation of multifunctional urban and town centres.

A more recent milestone, is the **government coalition programme (2020–2024)** of the People’s Party and the Green Party with the main objective of reduction of land use and soil sealing and the subsequently developed aims in the **National Energy and Climate Plan** (NEKP, Nationaler Energie- und Klimaplan). However, the envisioned nationwide **Land Protection Strategy** (Bodenschutzstrategie), in collaboration with the federal states to establish legally binding principles for reducing land consumption and improving soil quality, failed in various incidents due to a lack of collaboration efforts between the federal and provincial governments in committing to a quantitatively defined maximum of land take (in ha per day). The adoption of the strategy was hindered by inconsistent commitment and varying levels of implementation across the federal states, with some regions prioritizing economic development or urban expansion over soil protection, which contributed to the overall lack of policy success (BMK 2024b).

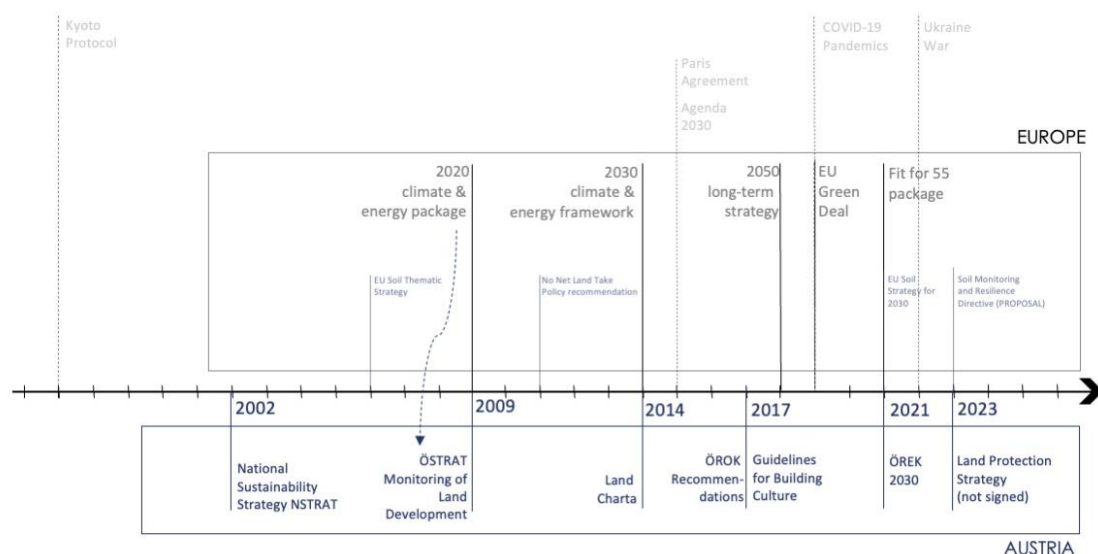


Figure AT6: Timeline of policies, initiatives and strategies on densification and land-use in Austria.

### 3.1 The implementation process

One of the measures to implement strategies and objectives described in the **Austrian Spatial Development Concept ÖREK 2030** or the **government programme 2020–2024** are cross-municipal and regional implementation of land use planning with high-quality (re)densification



and space-efficient internal development by utilising the legally binding development plan and building regulation instruments. Additional, planning procedures and decisions are meant to consider natural soil functions and high-quality soils to be safeguarded in order to maintain the adaptive capacity of natural systems (the so-called ‘climate proofing’ of spatial plans).

Through the recent information-based tool of **Brownfield Dialogues** (Brachflächen Dialoge), funding for brownfield conversion was made available for municipalities, individuals and businesses. The Brownfield Dialogue was initiated by the Ministry of Environment (BMK) and serves as a platform for knowledge exchange amongst stakeholders. The Federal ministry is also responsible to manage subsidies aiming at reducing land consumption (**Flächenrecycling Klimafitte Ortskerne**). For municipalities, associations of municipalities or other landowners (natural or legal persons), development concepts for reuse of brownfield development in settlement areas are supported with a grant rate of 75% up to a maximum of 60,000 euros. For the same stakeholders, funds can also be used for examining the subsoil – e.g. for potential contamination – and the existing building substance (75% up to a maximum of 50,000 euros), as well as for planning related to potential difficulties that may arise from the location in city/town centres (50% up to a maximum of 15,000 euros). The funding scheme of Klimafitte Ortskerne - Flächenrecycling is financed by the EU **Recovery and Resilience Facility** (RRF) as detailed in the **Austrian National Recovery and Resilience Plan** and budgeted with a total of €8 million for the years 2022 to 2025 and administered by Kommunalkredit Public Consulting (KPC).

Additionally, funding targeted at municipalities and cities for **local and town centre promotion** (Orts- und Stadtkernförderung), based on the CAP Common Agricultural Policy Strategy Plan 2023–2027, is available through the **European Agricultural Fund for Rural Development** (EAFRD) and supports investments in regions for revitalizing, renovating, or repurposing vacant, misused, or underutilized buildings and public spaces. The subsidies depend on restrictions such as public relevance or heritage value of the (vacant) buildings or sites and are granted to municipalities and only in exceptions (heritage value) to private legal entities or persons

Also, **ÖREK** recommends a number of tools and measures to tackle land use consumption. For brownfield activation, formal instruments of local spatial planning may be used as well as fees and charges, vacancy registers and vacancy management, together with subsidies. To reach the objective of maximum 2.5 ha/day soil sealing and to foster space-efficient internal development of settlements, ÖROK recommends effectively using a mix of cross-regional and local spatial planning instruments (zoning plans, development plans und building codes), funding and incentive systems (federal states / municipalities funding for urban renovation, e.g. Ortskernbelebung tailored for public institutions such as municipalities and cities), and monitoring. Especially for densification and multi-functional city cores (Klimafitte Ortskerne), informal and formal instruments of cross-regional and local spatial planning (regional and local adaptation plans, Spatial Planning Acts) are recommended to be combined with concepts and subsidies (including housing subsidies through Housing Subsidy Acts), built environment education, master plans, participation procedures and vacancy monitoring.

Housing Subsidy Acts in Austria can be an additional instrument to promote densification by linking density requirements to funding – a way to foster the production of affordable housing

in densification areas. In this case, the federal states' Housing Subsidy Acts would e.g. require certain measures from housing developers in favour of obtaining object-subsidies when building subsidized housing that go hand in hand with low land-consumption and soil sealing as well as higher building densities. At the same time, sophisticated housing subsidy instruments, such as developer competitions (Bauträgerwettbewerbe) in Vienna, enable the balancing of densification efforts—driven by high land prices—with the need for high spatial residential quality (e.g., access to green and social infrastructure). In combination with special categories of Zoning Plans, such as Vienna's **zoning category of Subsidised Housing**<sup>24</sup>, these instruments allow for targeted implementation of affordable housing and densification at the same time.

Tool	Structures of Implementation	Governance level	Time Horizon
Monitoring	ÖROK monitors land use developments <sup>25</sup> .	national/subnational	Every 3 years since 2022
Networking, Funding	The federal level (BMK), Brachflächendialog Brownfield Dialogue	national	Since 2021
Consulting	Education of administrative members from the federal states as climate adaptation consultants for regions and municipalities.  Specification of contact persons at federal states.	subnational	Since 2017
Awareness Raising and Research	The federal level (BMK), in cooperation with other actors, supports the development and dissemination of informational materials, brochures, guidelines, best practice documents, and more. The materials are often funded and produced through applied research projects within the Austrian Climate Research Programme (ACRP).	national	Since 2007
Regional and local adaptation plans	All federal states have climate change adaptation plans (as of 2024). Most of the Federal states (5) have integrated climate protection and adaptation plans.	subnational	n.a.
Spatial Planning Acts	Regulations on regional and local spatial planning: e.g also zoning categories for social or subsidized housing	subnational	n.a.

<sup>24</sup> The zoning category of Vienna's building plan "Subsidised Housing" is applied in cases of zoning category change, 2/3 of residential floor space in these areas have to be realised as subsidised housing projects with a max. land price per m<sup>2</sup> floor space limited by law to € 188/m<sup>2</sup>.

<sup>25</sup> <https://www.oerok.gv.at/monitoring-flaecheninanspruchnahme>

Tool	Structures of Implementation	Governance level	Time Horizon
Housing Subsidy Acts	A possible measure to steer densification through funding requirements.	subnational	n.a.
Federal-state, Regional and Local Development Concepts	Federal states and municipalities have the possibility to issue regional and local development concepts regulating land uses that affect densification (e.g. prohibiting commercial centres at outskirts).	subnational	n.a.
Zoning Plans, Development plans und Building Codes	Details, for instance, nature protection or green areas. When changes to plans are made they follow specified steps, such as basic research and considerations of overarching planning and environmental protection procedures. When issued statements can be submitted by citizens. After the deliberation of statements, a resolution is made by the municipal government and (dis-)approved by the federal state authorities. These plans can be used to support densification and prevent urban sprawl (e.g. by preventing the zoning of commercial estates at the outskirts of municipalities).	subnational	n.a.
Public Subsidies	Some federal states provide subsidies for the retrofitting existing, underused stock or aim at strengthening the central areas of smaller towns and cities (see also below).	subnational	n.a.
EAFRD	Local and town centre promotion (Orts- und Stadtkernförderung), based on the CAP Common Agricultural Policy Strategy Plan 2023–2027, supports investments in revitalizing, renovating, or repurposing vacant, misused, or underutilized buildings and public spaces.	national/subnational	2023-2027
RRF	Klimafitte Ortskerne - Flächenrecycling	national	2022-2025

Table AT11. Tools for fostering densification in Austria. Source: own elaboration based on ÖROK (2002)

### 6.2.1 Densification in Vienna

In Vienna, originally the densification of already built-up central areas aimed to ease the pressures of population growth. These urban areas are largely dominated by private rental housing of the pre-war area which are subject to rent regulation under the national tenancy

law. Due to the rapid increase in population (around 450,000 since 1990) and increasing housing prizes in the private housing market, the construction of affordable housing has been a primary goal of the City Government in recent decades. Hence, to ensure the production of affordable housing, the key mechanism used is the continuous construction of new apartments across the city (Friesenecker and Litschauer, 2022). Although, the City tries to (re-)use brownfield sites, increasing land prices has forced the city to construct new affordable housing on greenfield sites as well (Friesenecker and Litschauer, 2022). For large greenfield site developments, the administration regulates the construction of new green spaces via land zoning, developer competitions and general urban planning guidelines, e.g. how large parks shall be, which features green spaces should have, etc. The Viennese administration has strategically supported the construction of limited-profit housing units since the 1990s through a policy mix of: a) developer competitions (Bauträgerwettbewerbe), b) housing subsidies and c) an active land policy in place since the mid-1980s. In brief, developer competitions are not competitions that favour cheap bidders, but are competitions on high construction quality in combination with providing low rents therefore favouring limited-profit housing associations (see Friesenecker and Litschauer, 2022 for more details).

Assessing the spatiality of new urban developments since 2005, most of these new large-residential building areas have been developed on the outskirts of the city or on previous brownfield areas distributed across the city. For example, outskirt projects included developments for more than 25,000 citizens are located mainly in the Seestadt (22th district), Oberlaa (10th district) or in southern parts of Vienna (23th district). Most of these areas were developed at previous sites with other green space uses – such as gardens or former air-field sites. Usually, a proportion of the land has been owned by the city itself allowing for the subsidized production of affordable housing. Therefore, the land price was below the usual market-price and the production of large amounts of subsidized, affordable housing through limited profit housing associations is the main aim for these areas.

At the same time, Viennese housing projects also include the use of large brownfield projects within the city centre. This usually occurred at different previous railways and train stations, such as Nordbahngelände (2nd district), Nordwestbahngelände (20th district) or Sonnwendviertel (10th district), or previous industrial production facilities. These areas are usually characterised by a mixed approach to housing including subsidized social housing by limited-profit housing associations, but also freely financed housing and ownership models.

In sum, the Viennese housing policy include a strong focus to build new and more residential buildings within existing urban areas. The largest advantages of the Viennese housing policy are to provide a strong instrument for integrating social and ecological aspects under the banner of liveability. While the new residential developments include the main effort to provide a minimum limit of green space for the new citizens, this came at the trade-off to improve the overall green space within the city, especially in areas, where historically dense urban built-up structures lead to problems with urban heat waves and biodiversity loss. Viennese policy shows a potential to counteract the increasing socio-spatial inequalities, which can be observed in most urban areas across the globe.

### 3.2 Size and role of the market

Policy changes concerning tenures and building standards in the last two decades increased the influence of private market actors and influenced the affordability of densification measures. For example, under the conservative/right-wing ÖVP-FPÖ government (2000–2007) detached and semi-detached dwellings mostly constructed by private housing developers were excluded from the Tenancy Law regulation, implying that neither rent regulation nor regulation of contracts (like protection against dismissal) applied in 2001. Furthermore, this amendment to the tenancy law also excluded attic conversions – one of the measures of densification in urban areas –, thereby effectively abolishing rent controls. This exclusion was extended to other conversions and extensions in 2006 (Friesenecker and Kazepov, 2021). In practice, this means that if a ground floor apartment is newly built, or new living space is created by an attic conversion, these dwellings do not fall under the regulation of the Tenancy Law, while the old, existing stock within this building continues to be subject to rent-setting and other tenant protection regulations. Hence, these reforms made it nearly impossible to build affordable housing into already existing residential areas and affordable densification was not an option. Furthermore, the demolition of existing pre-war buildings, usually of lower height, and the construction of newly built private rental or homeownership units were increasingly reported (see Kadi and Matznetter, 2022; Musil et al., 2022 for instance).

Looking at trends of housing segmentation and its relation of density within different degrees of urbanisation, a steady decline in ownership from around 30% dropping to about 24% characterises densely populated areas. Notably, it also seems that in intermediate areas (suburbs and towns), the share of tenants becomes more important, especially after the GFC in which professional developers became important key actors in these areas as well. In rural, thinly populated areas, ownership rates remain stable with only minor shifts between declining shares of tenants and expanding shares of accommodations provided for free. Austria's urban and intermediate areas are characterised by a clear trend towards more densified housing supply. The expansion of apartment buildings with more than 10 dwellings in densely populated areas and intermediate regions reflect a clear shift towards high-density living in cities. This effect is most likely driven by population growth, environmental ambitions in land use, and already existing space constraints within city boundaries. As a result, detached houses and semi-detached houses (usually related to private market activity) play an increasingly minor role in urban areas, with their shares remaining marginal over time.

In Vienna, additionally a shift in the stakeholder setting and actors involved in the development of housing in large brownfield projects is visible. Former highly active limited-profit housing associations (LPHA) as major developers of these sites were replaced by private developers and banks for developing large scale urban brownfields in areas such as Nordbahnhof or Sonnwendviertel Ost. While apartments in these urban development areas are still labelled by developers as affordable, they are not bound to the rent caps and quality requirements of the Housing Subsidy Act. This shift in the stakeholder setting is based on rising land prices on the one hand, and, on the other hand, on the favourable financial environment which spurred significant investment in the real estate sector in the past decade in Europe. To counteract these trends, the City of Vienna introduced a new zoning category “Subsidized Housing” in 2018 (see section 3.2.).

## 6.4 The multilevel governance process

Since the early 1970s, a predominant cooperative system with the federal state system relying on coordination and cooperation between policy fields and regional authorities has developed due to a lacking legal framework for spatial planning. Instead of introducing separate legislation, these coordination and cooperation mechanisms take place on various spatial levels between the federal government and the federal states and was shaped by social partnership. Today, regional policy today takes place within a complex multi-level governance system that integrates various actors, coordination processes, strategies, and instruments for development promotion, from the EU down to the local level. For densification strategies and planning instruments, all three planning levels, federal, provincial and municipal are key. Equal to energy policies and retrofitting measures, 15a agreements (Art. 15a BVG-Vereinbarung) are essential instruments to define roles and tasks between the federal state and the federal states as well as the concrete implementation procedures for densification programmes at municipal level.

The complex multi-level governance system integrates diverse groups of actors, coordination processes, strategies, and development of instruments from the EU level down to the small regional level. Spatial aspects, such as densification measures, are addressed in the Austrian Spatial Development Concept (ÖREK), as well as in the subsequent ÖREK Partnerships. However, many sectoral strategies scarcely integrate spatial or regional components explicitly. Strategic coordination is carried out in sessions of the Austrian Spatial Development Conference (ÖROK, Österreichischen Raumordnungskonferenz), along the ÖREK Partnerships for implementation or in panels such as the „dialogue of the federal states“ (Bundesländerdialog). ÖROK is especially important as it serves as a platform for informal cooperation between the federal state, federal states, municipalities, other parties and social partners. This platform compensates for the lack of formal legal coordination procedures in matters of spatial policies in Austria. Planning bodies and competences include authorities and outsourced legal entities of the federal government, the federal states as planning authorities responsible for regional planning, regional associations (such as in Salzburg, Upper Austria, Tyrol) where provincial governments formally issue binding spatial plans where applicable, and eventually municipalities as competent planning bodies for local spatial plans (see **Error! Reference source not found.**).



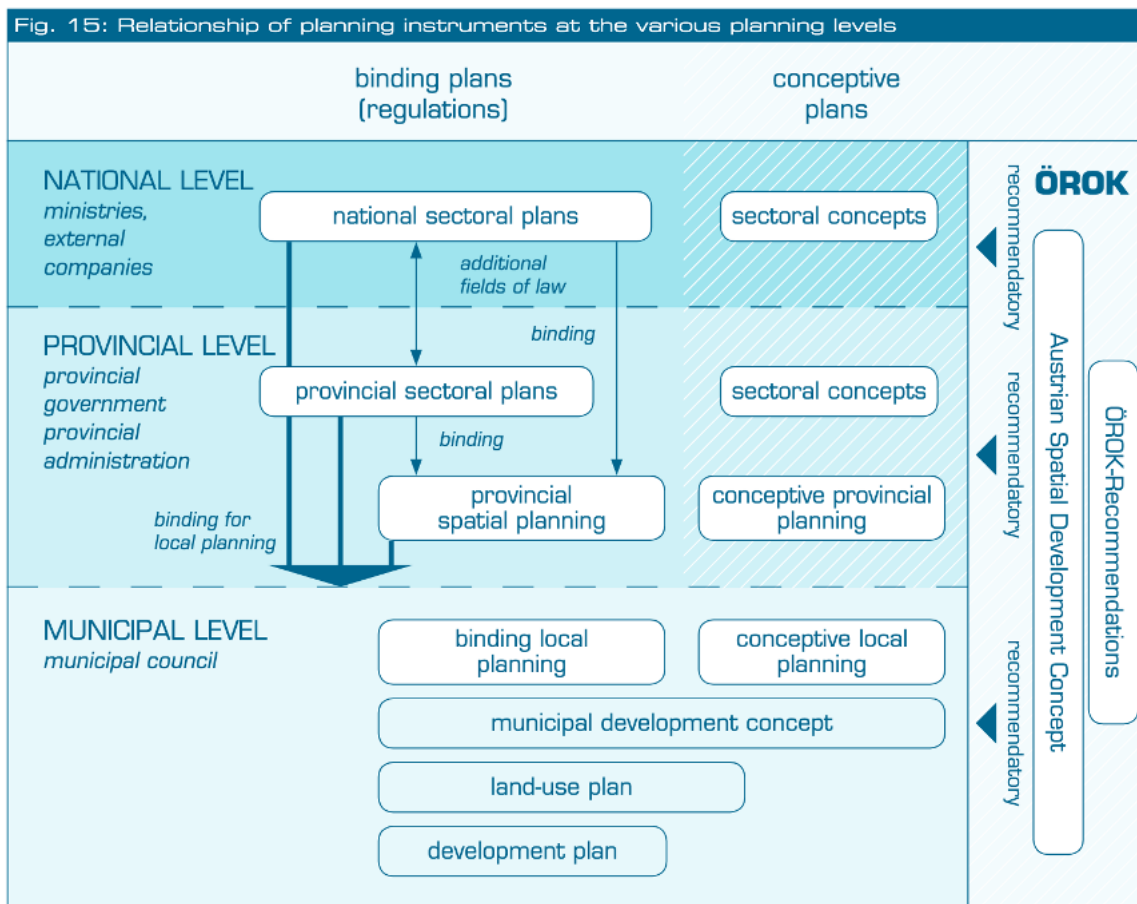


Figure AT7. Competences and planning bodies in Austria. Source: Schindelegger & Kanonier in Gruber, M. et al. 2018: 77

In terms of densification measures, municipalities have a key role that is connected to their function in spatial planning, which is anchored in constitutional law: The Municipalities, only active in administration (and not legislation), are responsible for local spatial planning within their own territories, in accordance with federal and state laws. Planning decisions such as densification measures are therefore in the sphere of municipalities with a comprehensive planning authority. The three main instruments are as follows: The local development concept, as a strategic planning instrument, is followed by the zoning plan as the central regulatory instrument, which is then followed by the land development plan (Bebauungsplan). The provincial government has only an advisory role for these three instruments. The zoning plan is a key instrument of local land-use planning, which is generally established as an independent planning tool within local spatial planning (exceptions exist in the federal states of Upper Austria, where the local development concept is part of the zoning plan and, in Vienna, where zoning and development plan (Bebauungsplan) are represented in one plan). The land-use regulations established by the zoning plan do not interfere with existing rights but only allow for a possible change in land use as specified by the plan. The zoning designations in the zoning plan have a normative effect for future decisions, are highly contested and not always strictly followed in practice. However, the ÖROK (Gruber, M. et al. 2018: 105) states that “public interests defined in the zoning plans are relatively clear and well-

established through decades of practice – and also by the corrections made by the high courts.”

Name	Type	Level	Roles
Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK)	Public	National	Most important responsibilities in relation to densification are the development, coordination, monitoring of the national adaptation strategy.
Federal Minister for Agriculture, Forestry, Regions and Water Management	Public	National	This ministry is important for water-based NBS-based policies as it has competences in legislation over water-related issues (including flood risk management). As such it also issues subsidies for the renaturation of water ways.  This ministry is traditionally run by the people's party since 2020.
Federal Ministry for Arts, Culture, Civil Service and Sport	Public	National	Within the Ministry Department IV/B/4 is responsible for supporting architects, architecture and building culture mediators, associations, other institutions, and initiatives in the field of architecture. Based on their works reports and guidelines on building culture have been released and adopted by the government.
Environment Agency Austria (EEA, Umweltbundesamt)	Public Enterprise	National	The most significant expert institution for environmental matters in Austria and a leading environmental advisor in Europe. The institution develops foundations for decision-making at the local, regional, national, European, and international levels engaging in dialogue with policymakers, public administration, businesses, academia, and civil society.
Austrian Conference on Spatial Planning (ÖROK)	Public Enterprise	National	Although ÖROK has no formal competences in planning, it prepares the Austrian Spatial Development Concept, organises expert working groups, knowledge transfer and issues recommendation. It's main working ethos is to establish a broad consensus amongst actors involved in planning to support a coordinated spatial development.
KPC	Public Enterprise	National	The “Kommunal Credit Public Consulting” (KPC) handles environmental and adaptation subsidies, e.g. NextGen Funds for Biodiversity and Densification.
Federal State Governments	Public	Federal State	Responsible for legislation, e.g. spatial planning laws defining regional and local instruments (e.g. zoning categories) and setting out objectives; and nature protection laws defining protection schemes and objectives. Vienna has one law (Vienna Building Code), not differentiating between the federal state level and the local (municipal) level.
Spatial Planning Departments	Public	Federal State	Responsibility for developing spatial planning programs at the federal and regional levels. This includes strategies, action fields, development plans, etc. These have binding character for local spatial planning (municipalities).

Name	Type	Level	Roles
Municipalities	Public	Local	Municipalities are key actors in spatial planning. They are responsible for local zoning and development plans, but can also issue local development concepts.
Austrian Association of Cities and Towns	Public	National-Local	The principal task is to represent the interests of local government in negotiations over the sharing of budgetary funds and taxing rights between the federal government, the federal states and local authorities (revenue sharing).
Architects & Planners	Public	Local	
Property Owners	Civil Society	Local	
Private Investors and Developers	Private	Local	
Social Housing Provider and Developer	Public/Private	Local	
Social Partners	Civil Society	All Levels	
Environmental NGOs	Civil Society	All Levels	WWF, Greenpeace, System Change not Climate Change, Fridays for Futures
Stadtmarketing	Public/Private	Local	

Table AT12. Actors involved in densification, Austria. Source: own elaboration.

### 3.3 Assessments, achievements and challenges

While rising land prices and greater land-use efficiency due to urbanization help to reduce land consumption, for Austria it is essential to highlight the urgent need for more effective policies like brownfield development, land mobilization strategies, higher land taxes, and urban agreements to achieve sustainable land use (Getzner & Kadi 2019). The challenges in the implementation and execution of these instruments and policies stem from Austria's federal structure, which is characterized by significant resistance, particularly from the federal states. One example for this resistance is visible in the difficulty to legislate maximum limits for land consumption. This issue is reflected in the failure to adopt the federal government's **Land Protection Strategy**, which was ultimately hindered by disagreements between the federal government and the federal states. The current policies of spatial planning in Austria also hinder effective implementation due to the conflicting role of municipalities in terms of land use and tax revenues from new constructions. Even though public interests defined in the zoning plans are relatively clear and well-established, they are not strictly followed in practice and regularly require interventions by the high courts.

In terms of housing affordability in relation to densification it is important to note the increased influence of private market actors. Market dynamics such as rising land prices on the one hand, and, the favourable financial environment, on the other hand, spurred significant investments by the real estate sector in the past decade. It also shifted the housing production to the disadvantage of limited-profit housing associations and towards profit-oriented housing

developers. To counteract these trends, the municipality of Vienna introduced a new zoning category, but recent brownfield developments and new constructions are dominated by private developers producing high-priced free market rental and ownership units (Plank et al. 2022). Other measures such as vacancy monitoring and vacancy taxes are also implemented in urban agglomerations and touristic regions such as Salzburg or Tyrol, with medium success rates due to the high level of personnel resources required for implementation. However, measures as these are not implemented nation-wide and highly depend on the local governments.

Impact Area	Potential Impacts
<b>Federal structure and governance fragmentation</b>	Austria's complex federal system limits effective implementation of densification strategies. Disagreements between federal and state governments (e.g. on the Land Protection Strategy) undermine coherent land use policy and enforceable land consumption limits.
<b>Municipal land use incentives and planning contradictions</b>	Municipalities are incentivized to approve new developments due to tax revenues, leading to inconsistent application of zoning laws. Despite clear public interest goals in planning documents, practical implementation often deviates, requiring court intervention.
<b>Market-driven urban development and affordability</b>	High land prices and favourable financing conditions have increased the influence of private developers especially in urban areas, leading to a shift from limited-profit housing associations to profit-driven housing production. This has exacerbated affordability issues and reduced the share of limited-profit housing associations.
<b>Zoning and land mobilization tools</b>	Recent zoning law reforms, such as in Vienna, aim at protecting affordable housing through land use designations (applicable to all types of rezoning, also brownfield conversions). However, in other federal states and municipalities brownfield developments remain largely dominated by private actors limiting affordability.
<b>Vacancy management</b>	Instruments like vacancy monitoring and vacancy taxes are in place in some regions (e.g., Salzburg, Tyrol) but their enforcement and control is labour-intensive and not implemented nationwide due to the restricted fees, that can be applied. Their success varies greatly by local government commitment and administrative capacity.

*Table AT13. Potential Impacts of densification on housing inequalities in Austria. Source: own elaboration.*

## 4 Summary and discussion of results

As this report has shown, over the past decades, Austria has developed a wide range of environmental and energy policies (EEPs) aimed at retrofitting buildings, which nowadays shifted towards decarbonizing heat systems, fostering urban densification and limiting urban sprawl, while more recently also implementing nature-based solutions (NBS) in response to climate change gained importance. While each policy field shows varying levels of maturity and integration, they are shaped by a common set of challenges: federal fragmentation, uneven implementation capacities, and weak integration with housing equity objectives. This section summarises key developments in each policy domain and highlights the associated governance mechanisms and trade-offs.

### 7.1 Changes in Environmental and Energy Policies and their Governance Implications

Housing retrofitting policy in Austria has evolved from a predominantly technical focus on energy efficiency toward a broader strategic orientation centred on climate mitigation and the decarbonisation of heating and energy cost reduction. This shift was initially shaped by European Union directives, and increasingly by national decarbonisation commitments and lately by recurring energy price shocks and high inflation. At the federal level, the actor constellation has expanded from federal energy ministries to forming advisory networks (e.g. klima:aktiv) and intermediary agencies (e.g. Klima- und Energiefonds). Through decentralisation of housing subsidies, the federal state authorities in 1989 became a very important actor in steering housing retrofits, especially in relation to social and affordable housing. While financial incentives remain the dominant policy instrument—channelled through national and housing subsidies of the federal states—the governance structure remains fragmented. Regulatory mandates are limited, and implementation is hindered by ownership structures and administrative challenges, especially in the condominium and rental sectors. As a result, retrofitting remains a strategically ambitious yet structurally constrained policy field.

The strategic orientation of NBS policy in Austria has broadened significantly, moving from a focus on biodiversity and landscape protection (through green infrastructure) to a more integrated framing that encompasses climate adaptation, urban resilience, and public health. This evolution is reflected in successive iterations of the National Adaptation Strategy (NAS), most notably NAS 3.0 (2024), which prioritises urban cooling, flood management, and ecosystem restoration through NBS. Implementation, however, is predominantly local and territorially uneven. While federal ministries and federal states shape strategic direction and distribute (little) support (e.g. through the Biodiversity Fund), municipalities are central to land-use decisions. They, however, largely need to stem investments within existing budgets, which are tight in smaller municipalities. Larger cities, especially Vienna as a federal state and a municipality, can steer NBS through a wider range of policy instruments, including planning guidelines, subsidy schemes, and regulatory provisions in building codes. Nonetheless, gaps in intergovernmental coordination and limited municipal capacity restrict the institutionalisation of NBS across the Austria.

Densification has shifted from being primarily an environmental concern about soil sealing and sprawl to a multifaceted urban policy objective encompassing sustainability, infrastructure efficiency, and housing supply. Its strategic relevance has grown in response to rising land costs, demographic pressures, and national climate targets. Municipalities, particularly Vienna, have taken a lead role through zoning reforms, integration of greening standards, and public–private development frameworks. However, liberalised tenancy legislation and the growing dominance of private developers have increasingly decoupled densification from social affordability goals. National guidance exists but is only loosely integrated with implementation mechanisms. Policy instruments include spatial planning laws, zoning tools, and incentive structures, but affordability-oriented regulation remains underdeveloped. As a result, densification is both politically supported and socially contested depending on the local context.

## 7.2 Trade-offs between EEPs and Housing Inequalities

Austria's retrofitting programs, especially in the last government period, are extensive and relatively well-funded. These efforts have contributed to measurable reductions in emissions from the residential sector since the 1990s, reflecting improvements in energy efficiency and a gradual shift to less carbon-intensive energy sources. However, renovation rates remain below climate neutrality targets, with deep renovations stagnating at around 1% annually, far below the rate required to meet 2040 decarbonisation targets. A key strength of the Austrian model lies in its potential use of housing subsidies as a vehicle for (social) housing retrofits.

However, housing retrofit policies exhibit significant distributional asymmetries. Subsidy structures tend to favour owner-occupiers and detached housing, marginalising tenants (specifically in the private sector in buildings with no rent-protection) and residents of multi-owner buildings. Legal frameworks do not adequately resolve the landlord–tenant dilemma or collective decision-making barriers in condominiums. Moreover, retrofits in private rental housing often lead to rent increases, diluting energy cost savings and exacerbating affordability pressures. Though some subject-based measures and targeted programmes like “Sauber Heizen für Alle” have been introduced, retrofitting remains challenged by administrative complexity, institutional fragmentation, and sectoral silos, rather reproducing existing social and tenure-based inequalities.

Regarding NBS, the Austrian Strategy for Adaptation to Climate Change (NAS), although lacking legal force, has guided actions across federal and state levels since 2012. The evolution of NAS has progressively emphasised the multifunctional benefits of green and blue infrastructure, and of Nature-based Solutions in NAS 3.0 in 2024. Despite these strategic advances, the implementation of NBS remains inconsistent. Territorial disparities based on the dominance of federal states in land-use and environmental legislation have slowed systemic uptake.

Social concerns have received increased attention in recent strategy updates, acknowledging the need to shield vulnerable populations from climate risks such as flooding and heat. Nevertheless, national social policies are still inadequately aligned with climate adaptation needs, and coordination between environmental and social planning remains weak. At the



urban level, evidence from Vienna reveals spatial disparities in green space availability, with central, dense neighbourhoods particularly underserved. In combination with the predominance of decommodified rental housing in these neighbourhoods, studies have highlighted potential socio-spatial displacement risks. Nevertheless, policy actors (such as politicians, civil servants, public planning entities,...) and stakeholders (such as planning experts, LPHA, real estate developers,...) consider risks of displacement through greening currently as limited.

Densification policies in Austria are strongly influenced by the interplay of spatial planning, land-use pressures, and market forces. While urbanisation trends and land scarcity have encouraged greater land-use efficiency, institutional and political resistance—particularly from Länder governments—has slowed down national efforts to enforce limits on land consumption. A key example is the failure of the federal Land Protection Strategy due to lack of consensus among governance levels. Municipalities play a central role in densification through zoning and development planning, but they face contradictory incentives: fiscal dependence on new construction revenues undermines sustainable land-use goals. As such, spatial planning instruments, although well-established, are frequently bypassed in practice, requiring court interventions to uphold planning standards.

From a housing inequality perspective, densification goes hand in hand with an increased dominance of commodified housing provision. Rising land values and a favourable financing environment have enabled private actors to outpace limited-profit housing associations, diminishing the production of housing that is more affordable. Although Vienna, for instance, has implemented progressive tools—such as new zoning categories for affordable housing—other cities lag behind, with brownfield developments often prioritising private and commercial housing developers. Furthermore, efforts to regulate vacancy and speculative use of housing stock have had limited success due to high enforcement costs and uneven implementation.

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