REDUCING
HOUSING
INEQUALITIES

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

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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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 NORWAY

1 Executive Summary

This national report explores the evolution and governance of environmental and energy policies (EEPs) in Norway, with a specific focus on their intersections with housing policies. It is part of the ReHousIn project, which investigates how green and digital transitions affect housing inequalities across European contexts. Focusing on three major policy domains—retrofitting, densification, and nature-based solutions (NBS)—the report assesses policy frameworks, implementation mechanisms, and potential social impacts, particularly in relation to housing affordability and inclusion.

The analysis draws on a combination of desk research, six in-depth interviews with public and private stakeholders, and a Policy Lab. The report highlights significant variation in how the three domains have evolved and are governed, revealing uneven institutional maturity, fragmented multilevel coordination, and weak integration with housing policy objectives.

Energy retrofitting is the least developed among the three domains. Despite Norway's participation in EU climate frameworks, national retrofitting policy remains weak and fragmented. Most support relies on voluntary financial incentives provided by Enova and Husbanken, with limited redistributive capacity. Grants typically cover residual parts of the costs, making retrofitting accessible mainly to middle- and high-income households. No legal obligation currently exists for energy retrofitting of private housing, and the adoption of relevant EU directives remains uncertain following recent political developments.

NBS have gained increasing relevance in Norwegian spatial planning, particularly after the adoption of the 2018 and 2024 national planning guidelines. These promote ecosystem-based approaches for climate adaptation and flood management. However, NBS implementation remains uneven across municipalities due to territorial disparities in technical capacity, financial resources, and administrative coordination. There is also a lack of formal mechanisms to prevent green gentrification, as green infrastructure can raise property values and reduce housing affordability in central areas.

Densification emerges as the most institutionalised strategy, developed well before the influence of EU directives and embedded in national planning law since the 1980s. It is strongly supported by national sustainability goals and urban development policies but is heavily shaped by private market dynamics. Municipalities retain planning authority, yet their bargaining power has diminished due to declining public land ownership. Consequently—also due to their typical implementation in centrally located, high-value areas—densification interventions are often associated with limited housing affordability, particularly in high-demand urban contexts such as Oslo.

The report identifies major governance challenges, including siloed policy design, limited horizontal coordination between environmental and housing strategies, and deepening

territorial inequalities. Affordability and equity concerns are largely absent from current EEP frameworks, particularly in retrofitting. Vulnerable groups—such as tenants, first-time buyers, and those in rural municipalities—face the greatest barriers to benefiting from the green transition.

2 Introduction and methodology

This national report explores frameworks, actors, and the multi-level governance of environmental and energy policies in Norway, with a particular focus on housing retrofitting, densification, and nature-based solutions (NBS). Prepared within the framework of the *ReHousIn* project, the report further examines how climate and energy transition policies might impact housing inequalities.

As Norway intensifies efforts to reduce emissions and improve energy efficiency, the built environment has become a central arena for intervention. Retrofitting existing buildings, promoting compact urban development, and integrating NBS into planning processes have emerged as key strategies to meet environmental goals. Yet, the social impacts of these transitions remain underexplored. This report addresses this gap by critically assessing the governance structures, financial mechanisms, and regulatory frameworks that shape these interventions, while paying close attention to their effects on housing affordability, accessibility, and social equity.

This report is based on a qualitative research approach that includes policy document analysis, a policy lab and key informant interviews conducted with public and private actors. These methods allowed for an in-depth understanding of policy gaps in the Norwegian framework, particularly the synergies and tensions between environmental, energy, and housing policies, and their potential implications for housing inequalities.

Document Analysis. The analysis of environmental and energy policies in Norway began with extensive desk research, centered on a close examination of key policy documents related to the three selected policy areas. This included a detailed review of regulatory frameworks—such as planning regulations and building standards—as well as strategic documents like Climate Action Plans and Energy Efficiency Action Plans. Particular attention was given to both overarching policy goals and the concrete instruments used for implementation.

Policy Lab. A policy lab was held in Oslo in April 2025, bringing together key stakeholders from public agencies, housing associations, and energy and environmental institutions. The lab was designed as a participatory and exploratory setting to foster dialogue across policy domains that are often siloed in practice. Its aim was to interrogate how environmental and energy goals interact with housing inequalities, particularly in relation to disadvantaged groups. The lab facilitated collective reflection on emerging trade-offs, institutional constraints, and possibilities for more integrated approaches. It served both as a methodological tool and a knowledge-sharing platform, grounding the analysis in concrete policy debates and practice-oriented insights.

The Policy Lab created a space for the co-identification of barriers, tensions, and potential solutions related to environmental and energy policies in the Norwegian context. It combined presentations, group discussions, and a concluding plenary session. Participants were divided into thematic groups—densification, retrofitting, and nature-based solutions—to explore challenges and opportunities at the intersection of green policies and housing inequalities. Each group included representatives from the housing sector, ensuring that diverse and practice-based perspectives were brought into the discussion. The plenary session enabled cross-group dialogue and collective reflection.
Insights from the Policy Lab were instrumental in identifying policy gaps and understanding the broader implications of environmental and energy policies on housing inequalities. Moreover, the event played a key role in mapping relevant stakeholders for follow-up in-depth interviews.

Interviews. In total, we conducted six semi-structured interviews with seven key informants, including representatives from municipal administrations, housing organizations, and energy agencies (see Table 1). The interviews, each lasting approximately one hour, aimed to deepen the understanding of how environmental and energy policies interact with housing policy and practice in Norway.
Interview discussions covered a range of themes, including governance structures, inter-agency coordination, and the design and implementation of policy tools and financial mechanisms. Informants provided insights into how EU directives are shaping Norwegian policies, as well as the degree of national adaptation and contestation surrounding their implementation. Interviews further explored how municipal actors navigate trade-offs between environmental goals and housing affordability in the context of densification and NBS projects, particularly in disadvantaged areas. Others focused on funding structures and policy instruments supporting retrofitting, and their implications for different segments of the housing sector (e.g., student, municipal, and cooperative housing). Across interviews, participants highlighted the fragmented responsibilities between housing and environmental sectors and the challenges of aligning climate adaptation and mitigation strategies with inclusive and equitable housing policies.

Interview	Key informant/Institution	Date and place	Duration	Focus
Interview 1	Representative from the Tenants' Association (Leieboerforeningen)	*19 May 2025*. Online	1h	Energy retrofitting and inequalities in the rental market
Interview 2	Expert from research institution	*19 May 2025*. Online	1h	Energy retrofitting
Interview 3	Representative from Enova	*21 May 2025*. Online	1h	Energy retrofitting
Interview 4	Representative from Husbanken	*21 May 2025*. Online	1h	Energy retrofitting
Interview 5	Two representatives from the municipality of Oslo	*27 May 2025*. Online	1,15 h	Nature-based solutions and densification
Interview 6	Representative from the cooperative Housing Federation (NBBL)	*27 May 2025*. Online	1h	Energy retrofitting and cooperative housing

Table NO1. List of interviews

This multi-source approach offers a holistic view of how national strategies are translated into operational practices, how financial tools are deployed, and how different segments of the population (especially in relation to different tenures) can be affected by different green initiatives.

Limitations of the methodological approach
A noteworthy limitation of the methodological approach is the disproportionate focus on energy retrofitting in the interview material: five out of the six interviews conducted addressed this topic. This imbalance reflects, in part, the general knowledge and, more specifically, the research team's pre-existing in-depth knowledge of nature-based solutions (NBS) and densification policies in the Norwegian context. In contrast, energy retrofitting represents a relatively underexplored area within this policy landscape. As such, targeted interviews were deemed necessary to address this knowledge gap and to complement the available documentary sources with more contextualised, practice-based insights

3 General governance system

Norway's governance system is characterized by a three-tier structure involving national, regional, and local levels. As of 2024[1], the country is administratively divided into 15 counties (*fylker*) and 357 municipalities (*kommuner*). While municipalities are the core units of local government, responsible for delivering a wide range of public services, counties provide regional coordination, particularly in education, transport, and business development. Both levels operate under the oversight of state-appointed governors who ensure compliance with national laws. Despite this formal division of responsibilities, Norwegian governance operates through a multilevel framework that often requires collaboration across tiers, especially in sectors such as environmental planning, infrastructure, and social services. Although not a member of the European Union, Norway is closely integrated into EU policymaking through the European Economic Area (EEA). This arrangement entails the implementation of a significant portion of EU legislation at the national and subnational levels, notably in areas such as climate policy, procurement, and regional development. Local and regional authorities thus play a critical role in interpreting and applying EU/EEA regulations, adding a further layer of complexity to multilevel governance. It is within this institutional context that Norway's approach to sustainable urban development unfolds.
Norway's approach to sustainable urban development is shaped by a complex multilevel governance structure involving national, regional, and local authorities, each playing distinct roles in planning, regulation, funding, and implementation. Despite clear national commitments to climate mitigation and sustainability, the implementation of these strategies reveals substantial fragmentation and uneven capacities across levels of government. Notably, a siloed approach persists between environmental and housing policies—a key issue that this report will explore in greater depth.

[1] https://www.regjeringen.no/no/tema/kommuner-og-regioner/kommunestruktur/fylkesinndelingen-fra-2024/id2922222/

Housing

Housing governance in Norway is highly centralized. The Ministry of Local Government and Modernisation serves as the national housing authority, setting housing policy and promoting the political objective of widespread homeownership (eierlinja). Regions (fylkeskommuner) play a supportive and coordinating role, rather than holding direct responsibility for housing provision. Regions are not mandated to ensure sufficient housing construction, a responsibility that remains with the municipalities. However, they are seen as key actors in fostering regional coordination, especially in cases where housing needs and urban development transcend municipal boundaries (Asplan Viak, 2023). As for municipalities, while they can develop local housing strategies and recommendations—such as measures to enhance housing affordability—their policy capacity is significantly constrained by binding national regulations, particularly in the areas of land use and housing.

A key governance tension in the provision of affordable housing, especially in the context of urban densification, stems from the national Planning and Building Act. This legislation allows zoning plans to include provisions regarding the number of dwellings in an area, minimum and maximum dwelling sizes, and requirements related to accessibility and special-needs design. However, it does not include any requirements related to housing affordability or specific tenure forms (Cavicchia, 2023a). As a result, decisions about the number and typology of dwellings remain the primary instruments available to shape a more diverse and inclusive housing supply.

Housing retrofitting

Housing retrofitting in Norway is characterized by centralized governance, with key decisions and funding mechanisms largely controlled at the national level. The national government, through the Ministry of Local Government and Regional Development and the Ministry of Climate and Environment, defines the regulatory framework and allocates financial resources. Implementation relies heavily on financial incentives, primarily through two national bodies: Enova and Husbanken. Enova, operating under the Ministry of Climate and Environment, promotes technological innovation and energy savings but offers modest support for deep renovations. Husbanken, under the Ministry of Local Government and Modernization, provides low-interest loans, especially for municipalities upgrading public rental housing or private homeowners conducting comprehensive upgrades.

At the local level, municipalities have limited regulatory authority over retrofitting unless they own the building stock. Most housing remains privately owned, so the decision to retrofit lies with homeowners or housing cooperatives. Municipalities may apply for state grants for municipal housing and offer local incentives. Financial constraints—especially in smaller municipalities—further limit their ability to engage in retrofitting governance beyond accessing national funds.

NBS

In Norway, the implementation and governance of nature-based solutions (NBS) follow a multilevel framework involving national, regional, and local authorities. At the national level, multiple ministries—especially Climate and Environment, Local Government, Agriculture, Transport, and Energy—collaborate to integrate NBS across sectors and fund related

programs. Regional authorities coordinate planning and support municipalities, with Rogaland being a leader in NBS-based climate adaptation. Municipalities, however, hold primary responsibility for land-use planning and NBS implementation through zoning and local development plans. Despite national guidelines and financial support, many municipalities face technical and fiscal challenges, leading to fragmented implementation. Environmental NGOs advocate for stronger NBS policies, but their influence varies. A critical governance gap exists between green infrastructure and housing strategies, where green upgrades may inflate property values or constrain affordable housing development. While local autonomy enables context-sensitive planning, it also creates inconsistencies and dependency on national funding for sustaining large-scale NBS projects.

Densification

Densification is one of the most long-standing and institutionalized strategies in Norwegian urban planning, originating in the 1980s and embedded in national spatial and climate policies. The Planning and Building Act forms the legal backbone for land use decisions, promoting compact city development to reduce car dependency and preserve agricultural and recreational land. Yet, the implementation of densification is primarily a local responsibility. Municipalities hold planning authority and design their masterplans and zoning regulations accordingly.

This decentralized framework grants municipalities formal autonomy, but in practice, private developers wield significant influence. Developers initiate most zoning proposals, which municipalities approve through political processes in the city council (E. I. Falleth et al., 2010). Since the 1980s, declining public land ownership has weakened municipal bargaining power, making densification projects heavily market-driven. Consequently, although densification increases housing supply, it seldom aligns with affordability goals. The absence of strong national requirements for affordable housing or inclusionary zoning amplifies this issue, especially in high-demand cities like Oslo, where densification contributes to rising housing costs and micro-apartment proliferation.

Regional authorities (fylkeskommune) play a limited role, primarily offering technical support and ensuring that local plans align with national objectives, in particular about densifying around transportation hubs.

Governance Level	Housing	Housing Retrofitting	Nature-Based Solutions (NBS)	Densification
National level	Highly centralized. The Ministry of Local Government and Modernisation sets housing policy.	Centralized governance. The Ministry of Local Government and Regional Development and the Ministry of Climate and Environment define the framework. Enova promotes innovation and energy savings; Husbanken provides	Different Ministries and National Agencies Integrate NBS into urban development and land-use planning, ensuring green infrastructure is included in zoning regulations	Planning and Building Act promotes compact development.

		loans for comprehensive upgrades.		
Sub-national level 1(Regions / fylkeskommuner)	Supportive and coordinating role; not directly responsible for housing provision.	Limited role. May offer technical support to municipalities but hold no direct authority over retrofitting efforts.	Coordinate planning efforts across municipalities, ensure compliance with national objectives, provide guidance, and support to municipalities	Provide technical support and ensure local plans align with national goals.
Sub-national level 2(Municipalities)	Responsible for local housing provision. Can develop local housing strategies, but constrained by national regulations, especially on land use.	Limited authority unless owning the housing stock. Can apply for national grants and offer local incentives. Financial constraints affect capacity.	Primary implementers of NBS and are supposed to incorporate NBS into zoning regulations, pilot projects, and community engagement initiatives	Hold planning authority. Develop masterplans and zoning regulations, but heavily influenced by private developers. Affordability often not prioritized.

Table NO2. Multilevel governance of housing, energy retrofitting, NBS and densification in Norway

4 Housing retrofitting

4.1 The policy cycle: emergence of the issue and policy decisions

Legal requirements

In Norway, separate and targeted regulations or laws on energetic retrofitting of the existing building stock do not exist. Indeed, the building requirements comprised in the national regulations primarily apply to new construction (which accounts for about 2% of the total building stock every year)(Nakstad & Engebakken, 2019). The lack of specific regulations on existing buildings highlights a remarkable shortcoming as in the facts, most of the building activity in Norway concerns interventions on existing buildings. There have been substantial discussions about the need for separate regulations concerning the existing building mass, but as of today, this still does not exist (Nakstad & Engebakken, 2019). This generates problems because it is not always easy to adapt existing buildings to the technical requirements that concern the new ones.

The main national regulation relevant for interventions on existing buildings is the national Planning and Building Act (PBL), which is the national planning law. The first version of the law dates back to 1985 and the second and last version refers to 2008, even though several updates have been made along the years. It is crucial to note that PBL does not explicitly address energy efficiency or energetic retrofitting for existing buildings within this chapter. While it allows municipalities to set requirements for building modifications, the sections focus on structural and safety aspects rather than energy performance or sustainability measures.

PBL is supplemented by two levels of regulations: TEK (Regulations on technical requirements for construction works) and SAK (the building matters regulations). TEK are the main regulatory framework for energetic retrofitting at the national level and contain requirements for energy efficiency in buildings.

The first TEK regulations were promulgated in 1997 (Norwegian Ministry of Local Government and modernization, 1997)and were followed by new regulations in 2010 (TEK10) and in 2017 (TEK17), the latter being the ones currently in place. The building regulations for the Norwegian construction industry (TEK10) underwent a major revision in 2015 (Lunke et al., 2016) and were updated to match an EU directive[2] regarding energy performance in buildings (European Parliament, Council of the European Union, 2010). Furthermore, they introduced the goal of passive house standard in 2015, and near-zero houses in 2020.

National strategies and visions

When it comes to national strategies, a few plans are relevant in addressing the energy retrofitting of the existing building stock.

Worth mentioning is the Økobygg program[3] (1998-2002), supported by the Ministry of Local Government and Regional Development, which contributed to increase the environmental commitment within the construction sector, while boosting knowledge exchange through environmental networks. While relevant to increase attention to the environmental performances of buildings, the document primarily emphasizes sustainable practices, standards, and pilot projects for new construction rather than existing buildings.

The first document with a more focused attention on existing buildings is the ***2005-2008_ Miljøhandlingsplan for bolig- og byggsektoren*. "Environmental action plan for the housing and construction sector"**(Norwegian Ministry of Local Government and Regional Development, 2005)**.** The document was elaborated under the Stoltenberg II government (2005-2013), a coalition of the Norwegian Labor Party (Ap), the Socialist Left Party (SV) and the Center Party (Sp). The Miljøhandlingsplan 2005-2008 emphasizes energy efficiency and environmental sustainability across Norway's housing and building sectors and it identifies specific goals and initiatives for retrofitting existing buildings, both commercial and residential. Specifically, new financial support tools are introduced (they will be explored in the next section), new methods to calculate energy performance are explored and energy labeling of homes is adopted, following the EED (Energy Efficiency Directive).

[2] Directive 2010/31/EU of the European Parliament and of the Council
[3] https://www.byggemiljo.no/wp-content/uploads/2014/10/Prosjektkatalog_Okobygg.pdf

Another relevant national strategy is the ***2009-2012_ Bygg for framtida*. "Build for the future: Environmental action plan for the housing and construction sector 2009–2012"** (Norwegian Ministry of Local Government and Regional Development, 2009)**.** As the previous, also this document was elaborated under the Stoltenberg II government. A significant part of the action plan underscores the need for **increasing environmental efforts in the existing building stock**. The document stresses that most Norwegian buildings, especially those built in the 1960s-1980s, are still in use and do not meet current energy standards. Consequently, there is a significant potential for environmental improvements in these structures, with a major focus on retrofitting to improve insulation and reduce energy consumption. Retrofitting is highlighted as essential for achieving both environmental and cost-effective energy improvements.

Worth mentioning in relation to retrofitting, is also the launch of the program "Fremtidens Byer" (Future Cities) in 2008. This program is a collaboration between the state and Norway's largest cities, aimed at creating sustainable urban development to reduce greenhouse gas emissions and enhance climate resilience. The program was divided in 4 focus areas, one of which is energy in buildings. The efforts around this priority area largely revolved around the program **Future Built**, which involves the 13 largest municipalities in Norway and has the goal of completing 100 pilot projects that cut carbon emissions by at least 50% compared to current regulations and common practice. By 2025, the program will have 80 pilots (both public and commercial), including housing. Husbanken (the State Housing Bank) provides financial support for these projects, contributing up to 5 million NOK annually to stimulate urban environmental improvements. The idea is that improving the energy efficiency of public buildings will influence also the other building sectors.

The last relevant action plan to discuss is the **2023 Action plan for energy efficiency in all parts of the Norwegian economy** (Norwegian Ministry of Petroleum and Energy, 2023)**.** One section of the plan is dedicated to energy reduction in the building sector and has an important focus on existing buildings. The plan addresses that the government has increased subsidies for municipal building upgrades, raising the budget from NOK 263 million in 2023 to NOK 300 million in 2024 (of these NOK 50 million is earmarked for municipal buildings, while NOK 250 million is for general work on energy efficiency). These funds target projects such as additional wall insulation, window replacements, and geothermal heat pumps, addressing energy deficiencies in municipal rental housing, where only 5% of units meet satisfactory energy standards. Rural municipalities, in particular, report the worst conditions. Even though no specific retrofitting goals have been set for social housing, Husbanken provides grants for the renovation of municipal rental housing and distributes two-thirds of the available budget to municipally owned rental housing. 2025 budget is NOK 400 million. Furthermore, the plan highlights the strenghtening of supports from Enova including an additional NOK 180 million allocation for 2024 for comprehensive energy upgrading of buildings. Energy labelling regulations are under review to address the gap in older buildings, which comprise the majority of Norway's building stock and hold the greatest potential for energy efficiency improvements.

Influences of EU directives

Norway is not a member of the European Union, but it participates in the EU internal market through the EEA agreement. As a result, the implementation of EU directives follows a more

independent and selective path, with Norway typically incorporating aspects of the directives at a later stage. EU directives are not automatically binding in the Norwegian context; they must be individually assessed and transposed into national law, often involving political negotiations and contextual adaptations. Annex 1 provides an overview of the EU directives relevant to retrofitting, while this section examines how, and to what extent, these directives have been integrated into Norwegian policies and practices.

While Norway participates in the EU Emission Trading System (EU ETS) since 2008, in 2019 it entered into an agreement with EU to intensify its climate cooperation by also aligning its actions to reduce emissions outside of the EU ETS and specifically agriculture, transport, waste management and **buildings** (see table NO 3 for an overview of the national objectives in relation to the relevant EU directives). Under this agreement, Norway has started to apply the Effort Sharing Regulation by committing to binding annual greenhouse gas emission targets for the period 2021–2030 for the mentioned sectors. Under the terms of the climate agreement with the EU, Norway is to cut emissions from all the mentioned sectors by 40 % by 2030 compared with the 2005 level (Norwegian Ministry & of Climate and Environment, 2021).

It is important to highlight that on January 29, 2025, the Norwegian Government collapsed. The Centre Party (Senterpartiet) withdrew its support for Prime Minister Jonas Gahr Støre of the Labour Party, triggering the crisis. The dispute centers on the adoption of three European directives concerning environmental and energy policies. While the Labour Party advocates for incorporating the directives on renewable energy, energy performance of buildings, and energy efficiency into the Norwegian law, the euroskeptic Centre Party opposed their implementation. As a result, the political landscape regarding EU energy directives remains highly uncertain. The following considerations pertain to the situation as it stood before the current government crisis.

Norway does not currently have a specific target for reducing its total energy consumption (absolute reduction). Instead, the country has set a national goal to improve **energy intensity**[4] in the mainland economy by 30% between 2015 and 2030. In the action plan for energy efficiency from 2023, the government has proposed a revised target of 10 TWh reduced electricity consumption in the entire building stock by 2030 compared to 2015 (The Norwegian Government, 2023). The potential for energy saving in Norway is enormous, especially in the building stock, and meeting the established target for emission reduction in both new and existing buildings could cost approximately 18 billion NOK annually, with over half of this investment needed for detached houses (SINTEF, 2023). Significant financial support may be required to make retrofitting feasible[5] and appealing for private and commercial property owners.

As of today, and given the contested political context, the future implementation of the Energy Performance of Buildings Directive (EPBD) in Norway remains uncertain (Interviews). While discussions are ongoing across various housing and energy institutions, they largely remain at a theoretical level rather than translating into concrete policy directions (interviews). So far,

[4] **Energy intensity** refers to the amount of energy consumed relative to the economic output (usually measured as energy use per unit of GDP). Improving energy intensity means making the economy more energy-efficient—producing the same or greater economic output with less energy.

[5] https://www.sintef.no/en/latest-news/2023/energy-saving-measures-in-buildings-can-turn-them-into-norways-biggest-power-plant/

the EPBD has influenced the design of loans and grants available to both private actors and public institutions, including those responsible for student and municipal housing (interviews). There are also plans to simplify eligibility criteria. Additionally, the directive has contributed to the development of energy certification systems and inspection protocols in Norway, shaping the policies and programs administered by organizations such as Enova and the Norwegian Water Resources and Energy Directorate. (The Norwegian Government, 2023).

The **EU Energy Efficiency Directive (EED)** complements the EPBD by setting binding measures to improve energy efficiency in member states, including public buildings. In Norway, the EED has influenced public buildings to adopt higher energy efficiency standards, serving as examples for the rest of the sector (see for example the Future Built Program). Additionally, residential retrofitting projects are encouraged through financial incentives and technical support, with programs designed to meet the directive's energy-saving targets (Enova and Husbanken grants).

The Renewable Energy Directive (RED) has also played a significant role by setting targets for renewable energy usage in buildings and encouraging the integration of renewable systems in retrofitting projects. In Norway, this has translated into the promotion of renewable energy technologies such as solar panels, heat pumps, and district heating systems in residential and commercial buildings. These efforts are supported by grants, loans, and technical assistance, aligning national policies with the EU's renewable energy goals (Farstad, 2022).

The broader influence of EU directives is evident in Norway’s retrofitting strategies, which include financial subsidies, technical guidelines, and certification programs. Collaborative projects under EU programs such as Horizon 2020 have enabled the exchange of best practices and innovative solutions between Norway and EU member states. As a result, energy certification, lifecycle energy management, and the training of energy consultants are now integral parts of Norway's approach to energy efficiency in buildings(Farstad, 2022).

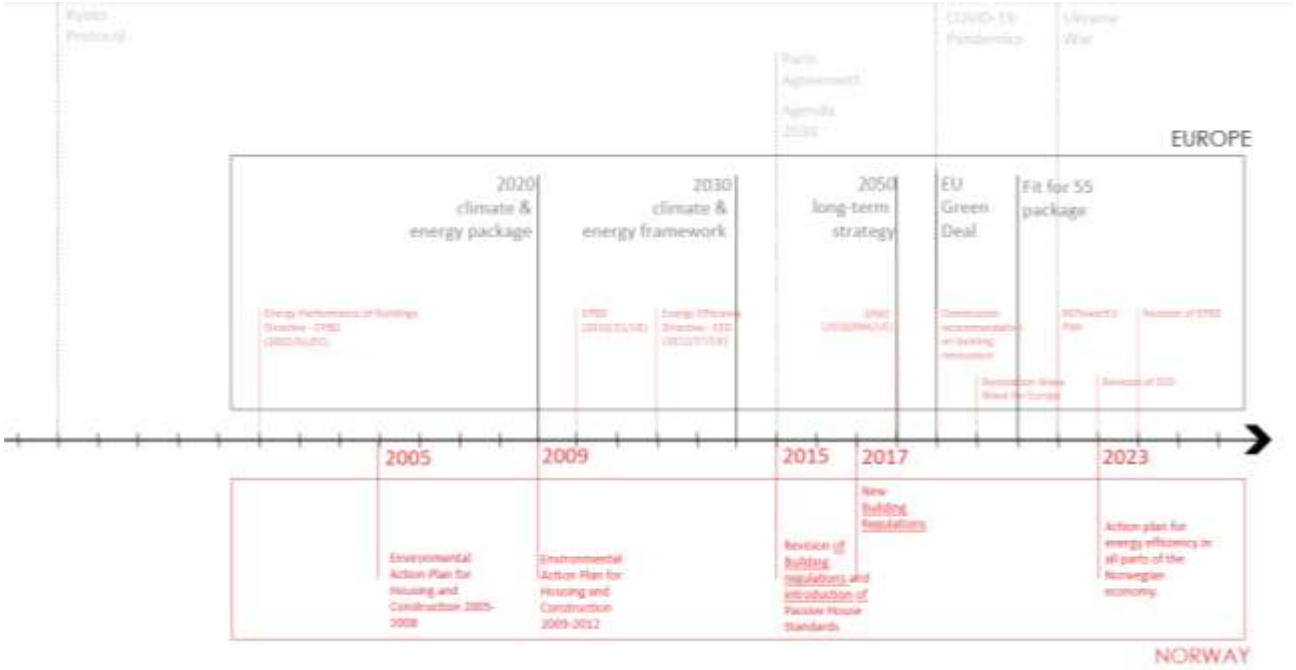

Figure NO1. Timeline illustrating key policies and regulations in Norway (bottom part) and EU (upper part) affecting housing retrofitting (in red)

4.2 The implementation process

Currently, the majority of housing retrofitting expenses in Norway are borne by homeowners, who also play a central role in initiating retrofitting projects. As previously mentioned, there is no legal mandate requiring retrofitting in Norway, making such interventions largely a matter of private choice.

Financial tools

At the national level, various support schemes are available to encourage retrofitting efforts. Public initiatives for energy retrofitting in Norway include financial support mechanisms, regulatory frameworks, and other measures designed to promote building upgrades and enhance energy efficiency. It should be noted that these support mechanisms are universal and do not vary according to income brackets.

At the **national level**, two main actors shall be considered:

Enova plays a central role in providing financial support for energy retrofitting. Established in 2001, Enova is from 2018 under the Ministry of Climate and Environment and offers grants aimed at reducing energy consumption and CO_2 emissions. Importantly, the limitations of available grants, which will be discussed also in the next sessions, are also tied to Enova's primary mandate, which is to support the development and market introduction of new technologies rather than to fund large-scale energy renovations of existing buildings..Enova grants are available for projects that involve transitioning from electric heating to renewable alternatives, such as district heating or biofuels, and for implementing energy-saving

measures, including improved insulation and energy-efficient systems. Enova also supports pilot and demonstration projects to encourage innovative retrofitting technologies. There is an agreement, running between the 1st of January 2021 and 31st of December 2024[6], between the Climate and Energy Fund and Enova SF to contribute with about 3 billion Norwegian kroner (approximately 3 mln euros) per year (see, https://snl.no/Klima-_og_energifondet). The Climate and Energy Fund, which is a state fund whose purpose is to promote energy efficiency and an environmentally friendly transformation of energy use and production, provides grants for climate and energy measures in housing associations and condominiums, businesses and private homes and it is an important tool also to boost growth and climate-friendly technology. There are different support schemes that can be granted to both housing cooperatives as well as private owners, and the entity of the support changes according to the typology of intervention to implement. The main schemes for private homes concern replacement of doors and windows, insulation of the building envelope, systems for water management and use of wind energy. For buildings built before the 80s, where re-insulation might be needed, there is no support grant (research should clarify the extent of this building mass in low energy class). For condominiums, the main support schemes concern the installation of solar energy systems and interventions on the building finishes (windows, doors and structural improvements, including insulation upgrade). The grants from Enova SF have specific thresholds for each kind of interventions (they may not cover the whole expense) and, in the case of condominiums, depend on the number of housing units[7]. All subsidies are funded by a tax on Norwegian electricity bills, known as the "Enova-fee"[8]. Typically, Enova grants cover around 20% of retrofit costs, leaving homeowners responsible for the remaining 80% (interviews). This gap is often financed through loans, such as those provided by Husbanken, which will be described in the next section. While private banks also offer loans, green loan schemes are currently more developed for new construction than for energy upgrades. Obtaining loans for retrofitting is more challenging, partly because banks lack clear and accessible indicators to define what qualifies as a "green" renovation project. However, there are signs of progress: starting from 2026, Norway's energy performance certification system is expected to be revised, which may help improve clarity and support the development of green financing for upgrades (interviews). Another key actor is **Husbanken,**which provides financial incentives to facilitate retrofitting. The Housing Bank can provide loans for housing quality to individuals, companies, municipalities and county authorities. For privates, the housing bank requires, as a general rule, that the upgrade work must include measures that improve both energy efficiency and accessibility. Husbanken offers low-interest loans and grants that can cover up to 90% of project costs for high-ambition initiatives, such as meeting passive house standards or comprehensive energy upgrades (the general rule for private individuals is that the loan can cover 85% of the renovation cost, and the left 15% has to be paid out as equity). For municipalities to upgrade municipal rental housing, the subsidy paid cannot exceed 50 percent[9] of the actual costs of the measures. Municipalities that received approval for a subsidy

[6] Soon, there will be a new Enova agreement 2025-2028

[7] In the case of energy retrofitting of condominiums, the support from Enova can cover up to 30 percent, and a maximum of NOK 10,000,000, of the project's costs. https://www.enova.no/bedrift/bygg-og-eiendom/stotte-til-forbedring-av-energitilstand-i-borettslag-og-boligsameier/

[8] The ENOVA fee goes to the Climate and Energy Fund, and is intended to contribute to an environmentally friendly transformation of the use and production of energy https://www.elvia.no/nettleie/alt-om-nettleie/statlige-avgifter-inngar-i-nettleien/ .

[9] https://www.husbanken.no/kommune/lan-og-tilskudd/tilskudd-energitiltak/

in 2024 must normally complete the measures so that the subsidy can be paid out within one year of the approval being given. Husbanken provides loans for improving energy efficiency also to developers and housing associations[10].

At the local level, some municipalities promote initiatives to support the improvement of the energy efficiency level of existing housing. The municipality of Oslo[11], for example, has a support scheme for the installation of solar panels in housing cooperatives and condominiums, which covers 20% of the total expenses, and a support for replacing of windows and doors.[12]

Support and Networking Tools

Support and knowledge exchange around housing renovation and energy efficiency in Norway are facilitated through various structures. Husbanken plays a central role, not only through financing tools but also via its advisory function with municipalities and other actors, including participation in the development of new loan criteria (interviews). Knowledge sharing also occurs through inter-organizational cooperation, such as collaboration with the Directorate for Building Quality and meetings with Enova to coordinate support schemes and avoid overlap (interviews). Platforms like *Energi Nettverket* provide additional arenas for dialogue among municipalities, state actors, and energy experts, fostering policy learning and coordination (interviews). NGOs are also part of this ecosystem, contributing perspectives on equity and the implications of energy measures for disadvantaged groups (interviews). Despite these efforts, limitations exist in capacity and clarity about available tools, especially at the municipal level.

Name	Typology	Actor	Description
Enova Grants	Financial	Enova	Grants for energy-saving measures (e.g., insulation, heating systems); support for pilot projects and new technologies; typically cover about 20% of retrofit costs.
Husbanken Loans and Grants	Financial	Husbanken	Low-interest loans and grants for energy and accessibility upgrades; up to 90% coverage for high-ambition retrofits.
Municipal Support (e.g., Oslo)	Financial	Local Municipalities (e.g., Oslo Kommune)	Local schemes for energy improvements, including 20% subsidies for solar panels and

[10] https://www.husbanken.no/bransje/lan-og-tilskudd/boligkvalitet/oppgradering/
[11] Solar energy subsidy - Klimaetaten
[12] Oslo kommune støtter energieffektive vinduer og dører - Klimaetaten

			window/door replacement in cooperatives.
Husbanken Advisory Services	Support	Husbanken	Provides technical and financial advice to municipalities and housing actors; contributes to defining new loan criteria.
Energi Nettverket	Networking	Municipalities, State Agencies, Energy Experts, NGOs	Platform for policy learning and coordination around energy efficiency across governance levels.

Table NO3. Policy tools for implementing energetic retrofitting in Norway

4.3 Size and role of the market

Energy price settings

Norway's energy market is integrated into the Nordic power market, where electricity prices are determined by supply and demand dynamics. The Norwegian Energy Act is based on the principle that electricity production and trading should be market-based. A significant portion of Norway's electricity is generated from renewable hydropower, ensuring competitive and relatively stable energy prices. However, market fluctuations can occur during dry periods or when demand surges in connected European markets. Global events like the COVID-19 pandemic triggered a surge in energy demand, initiating a steep price rise. This trend was further intensified by the European energy crisis and the Russian invasion of Ukraine in 2022, which led to natural gas shortages across Europe. It should be noted that, in order to support households to mitigate high electricity costs, in september 2023 a support model (Strømstøttemodell**)** was introduced in Norway. The support is calculated hourly based on the spot price of electricity rather than a monthly average. If the spot price exceeds a threshold of 91.25 øre per kilowatt-hour (73 øre/kWh excluding VAT) during any given hour, the government covers 90% of the cost above this threshold. The support is automatically deducted from household electricity bills, reducing the amount payable. It applies to monthly consumption up to 5,000 kWh, with any usage beyond this limit excluded. While the scheme is available to all households, it does not cover holiday homes.

Furthermore, it should be noted that this situation is evolving rapidly in light of the ongoing government crisis. The debate surrounding the energy market and electricity pricing schemes remains highly contentious, with intense discussions on their potential impact. One of the most recent government proposals is the so-called *Norgespris* (Norwegian Price) for electricity, which would offer all consumers a fixed rate of 40 øre per kWh, excluding VAT. This measure

was discussed in the Policy Lab as a potential factor that could further discourage investment in energy retrofitting interventions.

Energy obligation schemes

While Norway does not have a specific Energy Efficiency Obligation Scheme (EEOS) targeting housing retrofitting, Enova's programs described above serve a similar purpose by encouraging energy-efficient renovations through financial support and guidance. These efforts align with broader national goals to reduce energy consumption and greenhouse gas emissions in the residential sector.

4.4 The multilevel governance process

The governance of retrofitting in Norway is highly centralized, with both normative and financial responsibilities primarily managed at the national level.

In terms of the normative framework, the Ministry of Local Government and Regional Development and its subordinate agency, the Directorate for Building Quality (DiBK), are the key actors. They set energy requirements for existing buildings and establish building regulations (TEK). EU directives, particularly the Energy Performance of Buildings Directive (EPBD) and the Energy Efficiency Directive (EED), significantly influence Norway's national retrofitting framework by introducing stricter standards for energy efficiency and building energy labeling. However, Norway has not yet adopted a law mandating energy retrofitting for residential buildings with low energy standards, leaving the long-term effects of these directives uncertain.

Regarding the financial framework, two national entities play central roles in supporting building renovations: Enova, under the Ministry of Climate and Environment, and Husbanken, under the Ministry of Local Government and Regional Development. These organizations provide grants and financial incentives to encourage energy-efficient retrofitting.

At the current stage of research, no specific responsibilities for retrofitting seems to concern the regional level, and municipalities mainly have the role to apply for fundings for renovating municipal rental units (which constitute only the 3% of the overall Norwegian housing stock). For private buildings, the decision to retrofit, secure funding, and apply for national grants remains largely with individual property owners or housing associations.

Overall, Norwegian municipalities rely on national funding for housing retrofitting projects, highlighting their financial dependence. However, they appear to maintain some autonomy in regulatory matters, as there is no regulatory mandate for retrofitting non-public buildings, creating a nuanced balance between national oversight and local implementation.

	National level	Local level

Responsible political actors	Ministry of Local Government and regional development: responsible for the Planning and Building Act Ministry of Climate and Environment: Coordinates Enova work Directorate for Building Quality (DiBK): responsible for developing and managing the building regulations known as TEK17, provides guidance on achieving energy efficiency in buildings The Norwegian Water Resource and Energy Directorate (NVE): coordinating role in energy matters including energy labelling of buildings and housing	
Responsible Financial actors	Enova: provides grants for retrofitting to individuals and cooperatives Husbanken: provides loans for retrofitting to private and public housing (social rental stock and student housing) Banks: provide green loans to support energy-efficient measures, though these are currently more common for new construction than for retrofitting existing buildings.	
Key regulatory tools	TEK 17: Regulations on technical requirements for construction works	
Key Financial tools	Enova grants and Husbanken loans	Municipalities are responsible of applying for grants for the renovation of municipal rental housing from Husbanken. Furthermore, municipalities promote local grants for energy efficiency (e.g. installation of solar panels)
Key policies	Actions plans for energy reduction in the building sector: • Environmental Action Plan 2005–2008 • Build for the future: Environmental action plan for the housing and construction sector 2009–2012 • Action plan for energy efficiency in all parts of the Norwegian economy 2023	

Table NO4. Governance structure of retrofitting in Norway

The synergies between retrofitting and housing affordability policies in Norway appear to be minimal. Firstly, Norway lacks a comprehensive housing affordability policy. National housing strategies focus primarily on homeownership and municipal housing, the latter representing only the 3% of the total stock and being limited to the most disadvantaged populations. While

some housing affordability initiatives have been undertaken by developers or specific municipalities, no clear connection to retrofitting policies has been observed.

Secondly, financial support for retrofitting is limited. Further research is needed to better understand the gap between the available grants and the actual costs borne by private property owners, which may act as a barrier to widespread retrofitting efforts. Additionally, the absence of a rent control law in Norway means there are no mechanisms in place to regulate rent increases linked to retrofitting interventions, potentially leading to higher rents.

Finally, the primary measure implemented to address household housing costs appears to be national support for electricity bills, rather than measures directly targeting the affordability of housing or the integration of retrofitting into broader affordability strategies.

4.5 Achievements, assessments, and challenges

Literature analysing the relationship between housing retrofitting and housing inequalities in Norway is, to our knowledge, extremely limited. At this stage, only one academic study was identified—Fyhn et al. (2019)—which highlights the challenges homeowners face when accessing Enova grants for retrofitting. Given this knowledge gap, the following analysis draws on informed hypotheses grounded in the institutional characteristics of Norwegian retrofitting and housing policies, complemented by empirical insights gathered through expert interviews and discussions conducted during the Policy Lab.

A central issue emerging from this material is the lack of integration between retrofitting and housing policy. Norway has no comprehensive housing affordability strategy, and existing retrofitting instruments do not account for affordability—for instance, through income-targeted subsidies. Public grants for retrofitting are relatively modest, with households typically required to cover up to 80% of the total cost (interviews). This financial structure poses a substantial barrier to broader uptake and risks deepening inequalities between those who can afford to invest in retrofitting and those who cannot. As one interviewee noted, current schemes are designed primarily to stimulate market activity—encouraging the adoption of new technologies and fostering demand—rather than to ensure accessibility for lower-income groups (interviews).

This dynamic is particularly problematic in the rental sector, where tenants are significantly more exposed to energy poverty and substandard housing conditions than homeowners. In Norway's highly commodified rental market, energy efficiency improvements depend entirely on the initiative of property owners. No direct support is available to tenants, and existing grants do little to incentivise landlords—whether private or public—to invest in upgrading the housing stock (interviews). The core vulnerability for tenants lies not so much in the risk of renoviction, but in the structural imbalance between landlords and tenants, particularly when it comes to negotiating for adequate energy standards. Many tenants are reluctant to report poor housing conditions due to fears of eviction or lease non-renewal (interviews). This problem is compounded by the common practice of separating energy costs from rent, which further weakens landlords' incentives to improve energy performance.

Access to Enova support also presents a number of structural and procedural challenges. Fyhn et al. (2019) describe how homeowners are often deterred by complex application procedures, extensive documentation requirements, and the relatively limited financial support offered. These administrative burdens disproportionately affect less resourceful households, such as those lacking digital literacy, language proficiency, or time to navigate bureaucratic processes. Several interviewees pointed out that this creates a polarisation in both energy costs and housing quality, particularly disadvantaging elderly residents, single parents, or low-income homeowners without the capacity to engage in lengthy application processes.

The cooperative housing sector is another area where affordability concerns and retrofitting efforts intersect in particularly complex ways. When building maintenance or energy upgrades are financed through collective loans, the associated debt burden can place significant financial pressure on individual residents, in some cases forcing them to sell their homes (interviews). Yet these same debt levels may reduce the market value of the property, making resale more difficult and potentially limiting sellers' ability to purchase a comparable home in the same neighbourhood. According to interviewees and Policy Lab participants, tensions within cooperatives are common, though rarely discussed publicly. Decisions around retrofitting are often politically and socially negotiated. In several cases, board members expressed hesitation to proceed with renovations if the costs risk displacing vulnerable residents—even when the majority supports the investment. Without formal mechanisms or mandates to ensure equitable decision-making, action depends on consensus, and disagreement or discomfort can stall necessary upgrades. As such, the cooperative model illustrates how retrofitting decisions are shaped not only by economic constraints, but also by internal social dynamics, timing, and shared norms.

Territorial disparities further reinforce these patterns of uneven retrofitting outcomes. Larger cities such as Oslo and Bergen are better positioned to access national funding, launch pilot projects, and coordinate multi-stakeholder efforts. Smaller municipalities, by contrast, often face resource constraints, limited administrative capacity, and difficulties meeting co-financing requirements. As several interviewees noted, some municipalities lack the institutional capacity to pursue retrofitting efforts, even when there is political support or evident local need (interviews). Without mechanisms for redistribution or inter-municipal support, retrofitting risks reinforcing spatial inequalities, with the greatest progress concentrated in already well-resourced areas.

	Potential Impacts
Affordability and Access to Grants	Deepening inequalities between those who can and cannot afford retrofitting; increased polarization of housing quality.
Rental Sector Vulnerabilities	Increased energy poverty in rental housing; risk of hidden evictions and deterioration of rental stock.
Administrative Barriers	Widening gaps in housing standards and energy efficiency between well-connected and vulnerable households.

Cooperative Housing Sector	Reduced housing stability; internal conflicts delaying or blocking retrofitting efforts.
Territorial Disparities	Fragmented national retrofitting landscape; reinforcement of urban-rural inequality.

Table NO5. Potential impacts of retrofitting policies on housing inequalities.

5 Nature-Based Solutions

5.1 The Policy Cycle: Emergence of the Issue and Policy Decisions

Legal Requirements

In Norway, Nature-Based Solutions (NBS) are defined in accordance with the UNEA 5.2 definition (UNEP United Nations Environment Programme, 2022) which states that NBS are 'actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services, resilience and biodiversity benefits.'

NBS are increasingly central to Norway's climate adaptation and biodiversity policies, shaped by global agreements like the Paris Agreement (United Nations, 2015) and the UN Global Biodiversity Framework (United Nations, 2022). These have promoted ecosystem-based approaches, reinforcing NBS in areas such as stormwater management and biodiversity conservation through national frameworks and local experimentation (Nordic Council of Ministers, 2019).

Today, there is an explicit legal requirement to consider NBS in spatial planning guidelines in Norway. A key milestone for reaching this has been the adoption of the **State Planning Guidelines for Climate and Energy Planning and Climate Adaptation (henceforth, SPR Klima)** published in 2018 (Kommunal- og distriktsdepartementet, 2018). The SPR Klima states that the preservation, restoration, or establishment of NBS (such as existing wetlands and natural streams, or new green roofs and walls, artificial streams, and pools) should be considered. SPR Klima requires municipalities and regional authorities to assess the use of NBS in climate adaptation planning. If alternative solutions are chosen, planners must justify why NBS are not selected (Kommunal- og distriktsdepartementet, 2018). While not legally binding for private actors, the guidelines must be incorporated into zoning plans for legal effect. Non-compliance may trigger objections from relevant authorities under the Planning and Building Act (2008). (Di Marino et al., 2025)

These guidelines, built upon earlier 2009 strategies, place a stronger emphasis on climate adaptation and ecosystem services, and their implications are particularly evident in two national policy documents shaping spatial planning in Norway: The **National Expectations regarding Regional and Municipal Planning** published in 2019 and 2023. The most recent version (Ministry of Local Government & and Regional Development, 2023) is the main

planning instrument for implementing NBS (Di Marino et al., 2025). These guidelines recall the key message of SPR Klima (2018), by highlighting the relevance of NBS as a climate mitigation tool in spatial planning, including water management (Di Marino et al., 2025). The National expectations are updated every four years.

Additionally, in 2022, the Norwegian Ministry of Climate and Environment published a white paper (Meld. St. 26, 2022–2023), stating that NBS should be used to reduce flooding or stormwater, thus stabilising the ground and preventing landslides, while preserving or improving the conditions for biodiversity. The meaning is that "changing climate and natural hazards are better addressed in risk and vulnerability analyses in connection with specific building applications and when land-use plans are updated" (Ministry of Environment and Climate 2020, p.46). An important principle is that the municipalities might be allowed to charge a separate fee to the residents in order to fund NBS measures, such as stormwater measures, and the opportunity to extend this is under consideration by the Government (Ministry of Environment and Climate 2020).

Finally, in **2024**, the Norwegian Government adopted the new **State Planning Guidelines for Climate and Energy** in which there is a small change - compared to the SPR Klima, 2018 - in the purpose regarding climate adaptation (see *objective d*: society and ecosystems are prepared for and adapted to climate change, in which NBS are also included). In addition, the flood and landslide report that was recently adopted in the Storting (Kommunal- og distriktsdepartementet, 2024) also mentions NBS as a crucial asset (chapter 7.2.4)

These updates reflect a broader shift toward embedding NBS more systematically into Norwegian spatial planning and climate adaptation strategies. However, local governments remain responsible for implementation, and approaches vary across municipalities (Furuseth, Ingvild Skumlien et al., 2024).

Influence of World, Nordic and EU Directives

Over the last few years, there has been increasing awareness and implementation of NBS in the Nordic countries. International and Nordic policies on NBS have given relevant impulses to the national policy making, while the EU's policies have contributed to a limited extent to the debate and Norwegian agenda.

The reports/programs from i) the International Union for the Conservation of Nature (IUCN, 2016), ii) the Intergovernmental Science-Policy Platform on Biodiversity and Climate change (Pörtner et al., 2021), and iii) the United Nations Environment Programme (2022) have increased the awareness about the implementation of NBS in Norway. These key policies are fundamental to achieve global targets for both biodiversity, as well as for climate change mitigation and adaptation. In 2022, by joining the Nordic ministerial declaration on NBS in 2022 (Sandin et al., 2023), Norway was committed to "actively promote the full potential of nature-based solutions, while ensuring their social and environmental safeguards and enhancing their multiple benefits".

Norway's commitment to the EU Water Framework Directive (2000/60/EC) and the UN Sustainable Development Goals results in the River Basin Management Plans (RBMPs, 2016). Through the RBMPs, the regional water authorities (*vanneregionmundigheter*) have

recognised the importance of the NBS in water planning (Di Marino et al., 2025). Consequently, the RBMPs have been implemented in the regional plan and by the municipalities (Di Marino et al., 2025). The objectives of the RBMPs are legally binding. This means that all public authorities should implement measures for protecting all water and groundwater surfaces (Di Marino et al., 2025) referring to (Larsen & Solli, 2022).

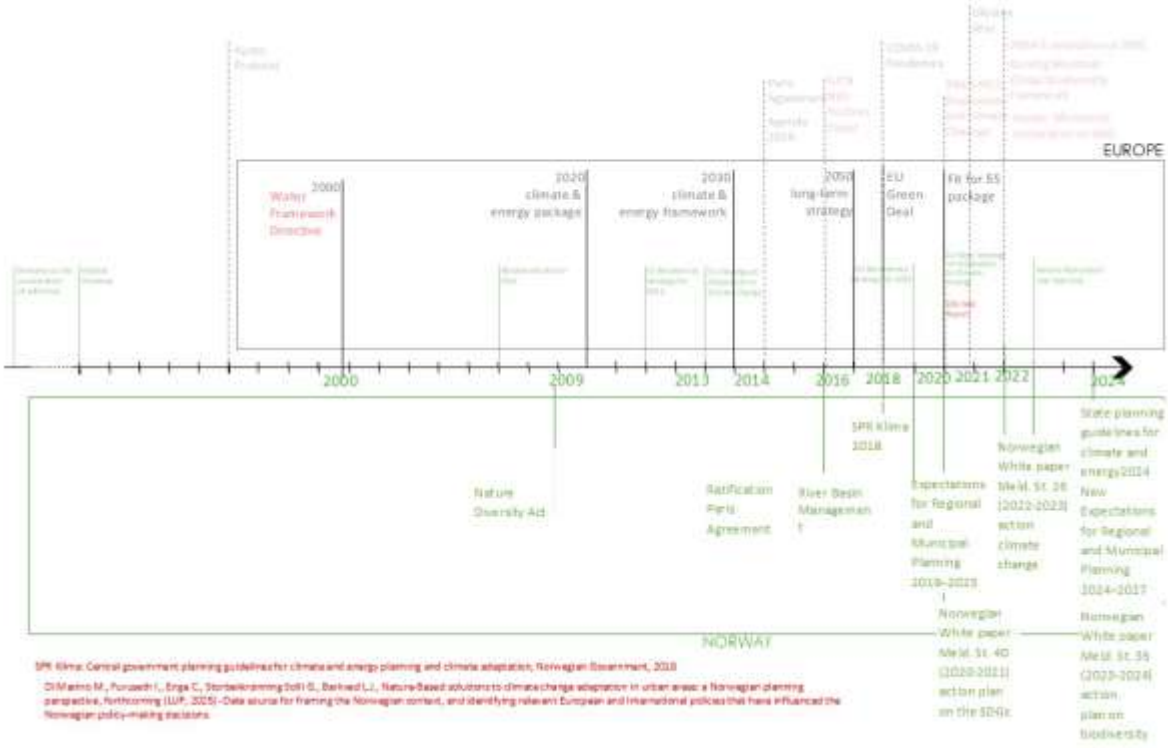

Figure NO2. Timeline illustrating key policies and regulations in Norway (bottom part), internationally and EU (upper part) affecting NBS (in green)

5.2 The implementation process

The implementation of NBS in Norway reflects a multi-faceted approach combining regulatory measures, financial incentives, and collaborative strategies (Furuseth, Ingvild Skumlien et al., 2024).

Municipalities often incorporate incremental deadlines into their planning cycles, such as five-year reviews of climate adaptation plans (Furuseth, Ingvild Skumlien et al., 2024). The implementation of NBS should be regulated in land use planning. This means that there should be recognized as a legal basis if obligations are to be imposed on **private parties, and thus affecting property rights** (Di Marino et al., 2025). As mentioned in Section 2.1.1, the SPR Klima (2018) is not a legally binding tool that can impose the use of NBS on private parties (Di Marino et al., 2025). Therefore, the instructions of the SPR Klima (2018) should be

implemented into existing legally binding zoning plans (Di Marino et al., 2025). On the contrary, the implementation of NBS on ***public*** **properties** is typically a local policy question. The municipalities can decide which criteria to adopt for determining and using NBS – and the result is related to local finances, practical conditions, or other factors (Di Marino et al., 2025, referring to (Junker, 2024). A key challenge in the implementation process concerns territorial disparities, particularly between urban and rural areas. Smaller and rural municipalities appear to be adapting more slowly to the national guidelines, largely due to limited administrative capacity, technical expertise, and human resources. In contrast, larger cities often have more robust institutional frameworks and dedicated staff, which allow them to respond more efficiently and proactively to policy changes (Furuseth, Ingvild Skumlien et al., 2024). This uneven pace of adaptation is further exacerbated by disparities in access to financial and technical support mechanisms. As detailed below, smaller municipalities often face greater obstacles in navigating and benefiting from the available support schemes, which further hinders their ability to implement national directives effectively and equitably. As reported by Di Marino et al. (2025), in 2023, 70% of Norwegian zoning plans were initiated by private developers (Minde, 2023). The financial tools reported below mainly target public properties in municipalities and do not have different implications for different housing tenures. In the same way, regulatory frameworks developed by municipalities concerning green roofs and other NBS for stormwater management in new developments can indirectly affect housing costs in all housing tenures.

Financial Tools

The main aim of the **Government is** to support the implementation of NBS in **spatial planning practices**. Additional national instruments are in force for the NBS implementation, such as **grant schemes offered by the Norwegian Environment Agency** (*Miljødirektoratet*) (Di Marino et al., 2025). This allows municipalities and other local authorities to develop NBS - among the tools for climate change adaptation, as well as networks among different actors involved in climate adaptation strategies (Di Marino et al., 2025). The Norwegian Environment Agency provides guidance to the municipalities for implementing NBS for climate adaptation in spatial planning (such as a web-based guide, guidelines on how to work with NBS, referencing several reports, examples and webinars) (Di Marino et al., 2025)

The municipal practitioners interviewed by Furuseth et al. (2024) stated that having the option to apply for government grants is important for supporting the implementation of NBS. All Norwegian municipalities can apply to the above-mentioned grant schemes. The national guidelines, fees and tools can be implemented in both urban and rural contexts.

In addition to the public grants for NBS mentioned above, there are direct funds for restoration and nature protection projects, urban climate change adaptation, stormwater treatment and water quality improvement (Nordic Council of Ministers, 2022). However, most of these funding opportunities have not been tagged with NBS, but used other terms such as storm water management, green structure, etc.

In addition to these grants, which directly target the implementation of NBS, there are also complementary support schemes provided by various government bodies and agencies. While not specifically designed for NBS, these schemes can indirectly facilitate their implementation

by offering funding, technical assistance, or capacity-building opportunities that align with broader environmental or planning goals. In the agricultural sector, the **Nasjonalt miljøprogram** (National Environmental Program), introduced in 2004, offers financial incentives to farmers and landowners to implement practices that preserve biodiversity and enhance ecosystem services. Grants are available for maintaining and restoring agricultural landscapes, promoting sustainable farming practices, and establishing buffer zones along waterways to reduce nutrient runoff. Additionally, the Norwegian Water Resources and Energy Directorate (**NVE**) provides funding for projects related to flood and landslide risk management and supports initiatives that incorporate solutions like floodplain restoration and the enhancement of natural water retention areas. These projects aim to utilise natural systems to absorb and manage water flow, thereby reducing the impact of extreme weather events.

Regulatory Tools

Several municipalities in Norway have implemented regulatory measures to integrate NBS into urban planning and development. Municipal zoning policies (Furuseth, Ingvild Skumlien et al., 2024) often mandate a minimum percentage of green areas in new developments, utilising tools like the **Blue-Green Factor (BGF)** to quantitatively assess and promote the integration of green and blue elements. In some municipalities, **tree planting obligations** require the replacement of removed trees with new plantings to maintain urban canopy cover. In others, **green roof and wall** requirements encourage or mandate the installation of green roofs to manage stormwater and reduce heat islands. The concept of **area neutrality** is also gaining traction, aiming to balance land development with the preservation of natural areas to maintain ecological functions and services.

Support and Networking Tools

To facilitate the implementation of NBS, Norway has developed various support and networking tools. Workshops and **training** programs equip municipal planners with the skills to design and implement NBS effectively. **Public awareness campaigns** and collaborative networks, facilitate knowledge sharing among municipalities. (SINTEF, 2022). It is important to highlight that Norway's active participation in numerous **EU research-funded projects** has fostered the development of living labs, **pilot experiments**, and extensive networking opportunities, thereby enhancing innovation and collaborative efforts across various sectors.

IFont is a network that was established in 2015, consisting originally of 11 cities and coordinated by the Norwegian Environment Agency. The network has been contributing to increasing and sharing knowledge and competence across the municipalities and regions, as well as testing and developing climate adaptation measures. iFront is also a reference group for several national processes, such as the assessment of the BGF, as well as some research and **development initiatives related to green roofs** (Di Marino et al., 2025)

Criticalities

The implementation of NBS is facing several barriers and important criticalities. At the national level, guidelines from 2018 and 2024 provide strategic direction, but **enforcement mechanisms remain limited**, making municipal implementation highly dependent on local

political and financial conditions (Barkved, L. J. et al., 2024). First, in terms of financial constraints, the **high upfront costs** of NBS often deter municipalities and developers. Smaller municipalities, in particular, struggle to allocate resources for NBS projects. A second important challenge is related to the **resistance from developers** since frequently they argue that NBS requirements, such as green roofs, increase project costs and complexity (Furuseth, Ingvild Skumlien et al., 2024). Additionally, there are **knowledge gaps**. Limited expertise among municipal planners hinders the effective evaluation and implementation of NBS. Finally, there are **conflicts between urban priorities**. Indeed, balancing NBS with urban densification and affordable housing goals remains a persistent challenge, particularly in high-demand urban areas like Oslo and Trondheim (Cucca et al., 2024).

Name	Tipology	Actors	Description
Klimasats and other granting schemes	Financial	Environmental Directorate	Support schemes: Municipalities and county authorities can apply for funds for knowledge building and studies on specific climate adaptation measures. Klimasats schemes for NBS in flood-prone areas (green roofs, urban wetlands, and the restoration of natural waterways to manage stormwater and mitigate flooding risks)
National environmental Program	Financial	Agriculture Directorate	Maintaining and restoring agricultural landscapes along waterways.
Support scheme	Financial	Norwegian Water Resources and Energy Directorate	Projects related to flood and landslide risk management and supports initiatives that incorporate solutions like floodplain restoration and the enhancement of natural water retention areas
BGF	Regulatory	Municipalities	Tools that aim to increase the impact of various blue-green qualities in outdoor spaces, such as open stormwater management initiatives, and **conservation and planting of trees**. It is a method to ensure the provision of sufficient blue–green areas, together with the management of their water and vegetation. The idea behind them is to plan infill developments more sustainably by providing more permeable surfaces and vegetation. This approach is being used for new construction projects
No-net loss 'area neutrality' Municipalities	Regulatory	Municipalities	An approach with the goal of 'net zero loss' of nature, based on the principles of a hierarchy of measures to avoid natural consequences, then mitigate, then restore, and possibly, as a last resort, compensate by implementing natural interventions.

Green structure Municipalities	Regulatory	Municipalities	It aims to manage biological diversity in a sustainable way and to protect cultural landscapes and cultural heritage for future generations. Is has a regulatory role. It has been introduced as a **land-use category, including its sub-categories of land use** *nature areas, open spaces, parks and green areas for walking*
IFont	Networking	Norwegian Environment Agency	Arena coordination cities efforts in NBS

Table NO6. Tools for NBS in Norway

5.3 Size and role of the market

A combination of public, private, and civil society contributions defines the market framework for NBSs in Norway. While the public sector remains central to initiating and supporting NBS projects, the private market has increasingly taken on a role in scaling up and innovating these solutions. However, **purely market-driven NBS** interventions remain still **limited** (Wilbers et al., 2022).

Public-private partnerships are fundamental to Norway's NBS market (Barton et al., 2015). Government bodies, such as the Norwegian Environment Agency, provide funding and regulatory guidance, while private actors contribute expertise and resources for implementation. For example, urban green infrastructure projects like rain gardens and green roofs in Oslo are frequently developed through such partnerships, where municipalities offer incentives, and private developers handle construction and maintenance (Wilbers et al., 2022). However, many large-scale NBS projects, such as urban park development or riverbank restoration, depend on significant public funding, while most of the micro-scale interventions are initiated by private developers in the zoning plans (Furuseth, Ingvild Skumlien et al., 2024).

Anyway, the professional private sector's role in NBS is expanding, especially in urban areas. Companies specialising in green infrastructure, landscaping, and architecture increasingly include NBS in their portfolios, driven by demand for eco-certified developments and sustainable solutions. However, many developers still do not expect to gain particular economic benefits from the implementation of NBS, unless these interventions overlap with other specific contextual elements of the projects (central location, proximity to blue infrastructures, public transportation, etc) (Barton et al., 2015; Cucca et al., 2024)

Regulatory frameworks are pivotal in shaping the NBS market. Requirements like zoning regulations and tools such as the Blue-Green Factor (BGF) promote the integration of NBS into urban planning, creating demand for private services in design and installation (Di Marino et al., 2024). Additionally, knowledge transfer from publicly funded pilot projects has helped in building professional expertise, reducing barriers for private actors to participate in NBS implementation (Furuseth, Ingvild Skumlien et al., 2024)

Examples of market-driven NBS in Norway include **eco-certified developments**, where real estate projects integrate green roofs, energy-efficient landscaping, and stormwater management systems to meet **certification standards like BREEAM** (Wiik et al., 2023). Companies specialising in green infrastructure also lead urban NBS implementation, such as permeable pavements and bioretention systems, often under contract with municipalities. Furthermore, corporate social responsibility (CSR) initiatives see businesses investing in NBS to **enhance their environmental branding**, such as sponsoring urban tree planting or biodiversity projects in collaboration with local governments (Time, 2023). However, high upfront costs and long-term economic returns deter purely market-based interventions (Barton et al., 2015). The willingness for immediate profitability indeed limits private sector contributions, as many benefits of NBS—such as reduced flood damage or increased property values—accrue over time (Barton et al., 2015; Cucca et al., 2024).

In conclusion, regulatory frameworks and public funding remain essential in shaping market dynamics, providing the necessary incentives for the implementation of NBS. Some of the municipal practitioners interviewed by Furuset et al. (2024) stated that developers should pay and maintain the NBS, while some government grants to which the developers can also apply (see Section 2.2.1) should support the municipalities to develop and maintain NBS. At the same time, according to the municipal managers, there is a common perception among the private developers that the implementation of NBS is costly, and some developers believe that the implementation of these measures may block new housing construction (Di Marino et al., 2015, p.X). Additionally, the financial support for developing and maintaining NBS is often originated from different public agencies, thus there is not a unique budget but fragmented financial sources (Di Marino et al., 2015). „At the moment, municipalities cannot fund NBS, such as a rain bed or open ditch/stream, through income from water supply fees“ (Di Marino et al., 2015, p. 14). The municipal planners are also aware that not all developers are familiar enough with the concept of NBS and the use of NBS can be perceived as increasing the cost of the process (Furuset et al. 2024). Additionally, the use of NBS also often means that area must be set aside for green areas that could otherwise be residential space with a greater prospect of profit (Furuset et al., 2024). In the context of ongoing housing shortages in major cities, this trade-off can significantly influence political decision-making processes and the dynamics of negotiation between public authorities and private developers. It may also place pressure on local regulatory frameworks, as municipalities attempt to balance environmental objectives with housing demand and market interests. Regulatory frameworks are pivotal in shaping the NBS market. Requirements like zoning regulations and tools such as the Blue-Green Factor (BGF) can be used to promote the integration of NBS into the land use, creating demand for private services in design and installation (Di Marino et al., 2024). Additionally, knowledge transfer from publicly funded pilot projects should help in building professional expertise, reducing barriers for private actors to participate in NBS implementation (Furuseth et al., 2024).

5.4 The multilevel governance process

The implementation and governance of NBS in Norway operate within a **multilevel framework** (Gundersen Enge et al., 2024) that includes the national, regional and local levels and

generally relies on the principles of ministerial responsibility and local self-governance (Christensen & Lægreid, 2020).

At the **national level**, the regulation and implementation of NBS involve multiple ministries, reflecting their relevance across environmental, urban, agricultural, and infrastructural sectors. The **Ministry of Climate and Environment** plays a central role by developing policies, funding programs, and overseeing environmental agencies such as the **Norwegian Environment Agency** (Miljødirektoratet), which supports the practical implementation of NBS. The **Ministry of Local Government and Regional Planning** integrates NBS into urban development and land-use planning, ensuring green infrastructure is included in zoning regulations. The **Ministry of Agriculture and Food** promotes NBS through sustainable land management and biodiversity conservation in rural areas. The **Ministry of Transport** incorporates NBS into infrastructure projects, while the **Ministry of Petroleum and Energy, through the Norwegian Water Resources and Energy Directorate (NVE)**, funds projects related to flood risk management and ecosystem restoration. These ministries collaborate to ensure that NBS contribute effectively to climate adaptation, biodiversity, and sustainable urban development.

The responsibility for land use planning in Norway is decentralised, with regional and local authorities playing pivotal roles as authorized by the national **Planning and Building Act**. At the **regional level,** the **county authorities** (Fylkeskommune) are supposed to coordinate planning efforts across municipalities, ensure compliance with national objectives, provide guidance, and support to municipalities. This tier is particularly important for disseminating best practices and addressing regional climate adaptation challenges. The Region of Rogaland, however, stands out as the only region with an explicit climate adaptation plan prioritising NBS (Rogaland Region, 2020), setting ambitious goals for green, multi-functional solutions (COWI, 2024).

Locally, **municipalities** (Kommune) hold the primary authority for detailed land use planning within their jurisdictions. They are responsible for developing municipal master plans (kommuneplan), zoning plans (områdeplan), and detailed zoning plans (detaljregulering), which guide the development and use of land following both local needs and national policies. They are the primary implementers of NBS and are supposed to incorporate NBS into zoning regulations, pilot projects, and community engagement initiatives (Furuseth, Ingvild Skumlien et al., 2024).

The national government provides a range of guidelines to support municipalities in the implementation of nature-based solutions (NBS), with the stated aim of strengthening knowledge, skills, and institutional capacity among local authorities and stakeholders. Despite these efforts, many municipalities continue to face significant technical and financial challenges in translating NBS strategies into practice. Environmental NGOs, such as Naturvernforbundet, actively promote stronger and more ambitious NBS policies. However, their influence on local planning processes tends to vary widely, depending on the political priorities, institutional openness, and resource constraints of individual municipalities. The decentralised governance system, while allowing for tailored solutions, has however led to fragmentation of responsibilities. Smaller municipalities, in particular, struggle with the technical and financial demands of implementing NBS strategies. Environmental NGOs, such

as Naturvernforbundet, advocate for stronger NBS policies, but their influence varies depending on local political priorities.

A notable **gap in coordination exists between NBS policies and housing strategies**. While both should aim to enhance urban livability, investments in green infrastructure can inadvertently contribute to increasing housing costs. For instance, new or revitalised green spaces may drive up property values. Furthermore, in densely populated urban areas, the prioritisation of green infrastructure can reduce available land for affordable housing developments, creating competing priorities.

Municipalities' regulatory autonomy allows them to tailor NBS strategies to local contexts, but this discretion also leads to inconsistencies in how these solutions are prioritised and executed. Additionally, municipalities may rely on national grants and subsidies to fund large-scale NBS projects, such as riverbank restoration or stormwater management systems. This financial dependency limits their ability to independently sustain or expand NBS initiatives.

	National level	Regional Level	Local level
Responsible political actors	Norwegian Government Main actor: Ministry of Climate and Environment Other actors: Ministry of Local Government and regional development Ministry of Agriculture and Food Ministry of Transport Ministry of Petroleum and Energy	Counties coordinate and support municipalities, according to national reccomendations	Municipalities develop masterplans and area zoning plans, while developers propose detailed zoning plans
Responsible Technical actors	Norwegian Environment Agency		Municipal Planning Departments Private Developers propose detailed zoning plans
Key regulatory tools	SPR Klima Planning and Building Act, Land Act, Nature Diversity Act, National Climate Strategies	Regional Land-Use Plans, Environmental and Transport Guidelines	Municipal Masterplan (land use element), Zoning plans (area zoning and detailed zoning)
Key policies	National Climate Plans (since the 1990s)		Local climate Plans and Municipal Masterplans

Table NO7. Governance structure of NBS in Norway

5.5 Achievements, assessments, and challenges

Local experimentations with NBS have proven effective in enhancing climate resilience and mitigating environmental risks (SINTEF, 2022). Urban biodiversity has also benefited from NBS initiatives, supporting greater species diversity and strengthening ecosystem services. Investments in urban parks and green infrastructure have revitalised public spaces, improved recreational opportunities and contributed to residents' mental well-being (Time, 2023).

However, critical evaluations of NBS implementation highlight challenges and unintended consequences that need attention.

Despite the emphasis on NBS in various Norwegian guidelines and norms, the **availability of green spaces has been decreasing** in several urban areas due to densification, notably in Oslo (Næss et al., 2020). Moreover, the distribution of green and blue infrastructures is often inequitable, leading to disparities in access among different communities (Venter et al., 2023). To address spatial inequalities, the government has, over the past two decades, implemented large-scale area-based policies aimed at improving the quality of green spaces in socioeconomically disadvantaged districts (Områdesatsinger). While comprehensive empirical evidence on the effects of these initiatives on housing values is still lacking, insights from key informants suggest that their implications vary significantly depending on the degree of vulnerability to gentrification in different neighbourhoods. In areas already experiencing market pressure and demographic shifts, investments in green infrastructure may contribute to rising property values and the risk of displacement, whereas in more stable or marginalized districts, such improvements may just enhance quality of life (Cucca et al., 2024). Enhanced green spaces can increase property values, making neighborhoods more desirable but also raising the risk of **green gentrification** (Cucca et al., 2024). The effects of NBS on housing costs appear to be highly context-dependent. Price increases following the implementation of NBS are more likely to affect specific neighbourhoods with pre-existing socio-economic and spatial characteristics that make them susceptible to market-driven pressures (Barton et al., 2015).

The **policy capacity** (Cucca & Ranci, 2022) of municipalities to prevent rising housing costs related to NBS implementation remains uncertain, due to lack of coordination between housing and planning policies in the multilevel governance framework (Di Marino et al., 2023). In Norway, housing affordability policies and tools are relatively **weak**, complicating the integration of NBS without exacerbating housing pressures. Additionally, a lack of alignment between NBS and housing policies may result in **competing priorities**, particularly in high-density urban areas where space for green infrastructure and housing are in direct competition (Cavicchia, 2021a). Policies aimed at preserving carbon-rich areas, wetlands, and forests—while essential for biodiversity and climate mitigation—could further limit land availability for housing, driving up demand and property prices. Moreover, integrating NBS into development plans may **increase construction and maintenance costs**, which could ultimately be passed on to residents, reducing affordability even further.

Establishing robust **monitoring** systems would enable policymakers to better understand how NBS contribute to social and environmental goals and ensure that their benefits are distributed equitably.

	Potential Impacts
Private Owned Market	High maintenance costs can increase monthly fees; high production costs of NBS can increase housing price; available land for development can be reduced
Rental Sector Vulnerabilities	In some central, dense areas, NBS can increase direct and indirect displacement due to the higher attractiveness of the neighbourhood

Cooperative Housing Sector	High maintenance costs can increase monthly fees; high production costs of NBS can increase housing prices
Territorial Disparities	Can increase territorial disparities in housing prices following greening or risk adaptation, if it is not implemented in an equitable way

Table NO8. Potential impacts of NBS on housing inequalities.

6 Densification

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

The concept of densification gained currency in Norway already from the Brundtland report (WCED, 1987). The "Nature and Environmentally Friendly Urban Development" (NAMIT) project, which ran from 1988 to 1992, introduced in Norway the principle of densification as a strategy to **counteract undesirable consequences of urban sprawl**. The findings from NAMIT have been foundational for subsequent research on sustainable urbanization in Norway. Since those years, the concept was explicitly tied to climate action and sustainability goals, with the strong rationales of contrasting urban sprawl, protecting green and agricultural areas and promoting mixed development. Another key justification was the imperative to reduce emissions contributing to climate change. The principles of compact urban development, deeply rooted in environmental rationales, have gained widespread acceptance in Norway and have been systematically institutionalized. From the early 1990s onward, these principles were integrated into national policies and regulations, reflecting a proactive approach to sustainable urban planning. In the latest years, the relevance of densification for sustainable development has been further emphasized in Norway in connection to the expansion of the second-home phenomenon, often referred to as “recreational sprawl.” Notably, densification has emerged as a prominent planning and land-use concept in Norway well before European directives began to influence its adoption, underscoring the country's early commitment to aligning urban development with environmental sustainability.

Legal requirements

As mentioned above, the **Planning and Building Act** is the Norwegian national planning law. Even though there is no national law imposing densification directly, densification is emphasized in the Act as the most sustainable urban development strategy and expectations for sustainable land-use are established at the national level for both regional and local levels. In the Planning and Building Act it is stated that “More compact cities and places make it easier for people to walk, cycle and use public transport. This improves access to jobs, services and cultural offerings. At the same time, transformation and higher utilisation of already developed areas will reduce the need to reduce agricultural land and land that sequesters carbon.”. Furthermore, the Planning and Building Act represent the legal framework for coordinated housing, spatial and transport planning, the main principle of the Norwegian national planning

law for sustainable development. The support for densification is also linked to the zero-traffic growth goal, which was first stated in the 2012 Parliament's climate agreement and then incorporated in the subsequent national transport plans (IPAC & OECD, 2021). Densification, indeed, is deemed to reduce the use of cars by increasing proximity and mixed-use development. Furthermore, densification is indirectly affected by other sectoral legislations, which affect urban development and land use in different ways:

- **The Land Act (1995)**, which regulates land use to ensure sustainable management of agricultural and natural resources. Its primary objective is to protect and preserve farmland. The protection of outdoor recreational spaces is a huge topic in the Norwegian Planning. As noted in Hanssen and Hofstad (2013), almost every urban settlement in Norway is characterized by one or more recreational areas, mainly forests called "Marka". These, as in the case of Oslo, usually set the urban growth boundaries.
- **The Nature Diversity Act (2009)**, which protects biological, geological and landscape diversity.
- **The Cultural Heritage Act (1978)**, which protects archeological and architectural monuments and sites and applies for urban areas.

Among these, the legislations concerning the protection of agricultural and recreational areas are considered to be those influencing densification most significantly (Hanssen & Hofstad, 2013).

National climate plans, since the 1990s, have included the following principle as guiding Norway's pathway towards densification:

- Redevelopment of brownfield,
- Development around transportation hub and reduction of car traffic
- Protection of green areas
- Increase housing supply, especially in growing areas

State planning guidelines for land use and mobility assume that the growth in passenger transport in metropolitan areas should be taken by public transport, cycling and walking (Norwegian Government, 2025). The guidelines state that in urban and rural areas and around public transport hubs, special emphasis should be placed on high land use, densification and transformation with quality. At the same time, emphasis should be placed on the cultural environment, site qualities, good outdoor areas, quality of life and access to green structures and natural areas.

Influence of EU Directives

When it comes to the effects of EU regulations, as mentioned, Norway, has been focused on densification well before joining the EU Emission Trading System. However, worth mentioning is that being Norway an EEA member, it is aligned with LULUCF regulations, which are under the "ready for 55" package and focus on achieving a carbon-neutral land use sector by 2035. Norway is required to set and achieve a national net carbon uptake target for its land use sector. Due to an aging forest population, deforestation, and increased logging, Norway's forests have seen declining carbon uptake levels since 2009. To meet the EU-aligned goals,

Norway must focus on limiting deforestation, controlling logging activities, and enhancing reforestation efforts (Farstad, 2022). This might indirectly affect densification, but it should be verified with further research.

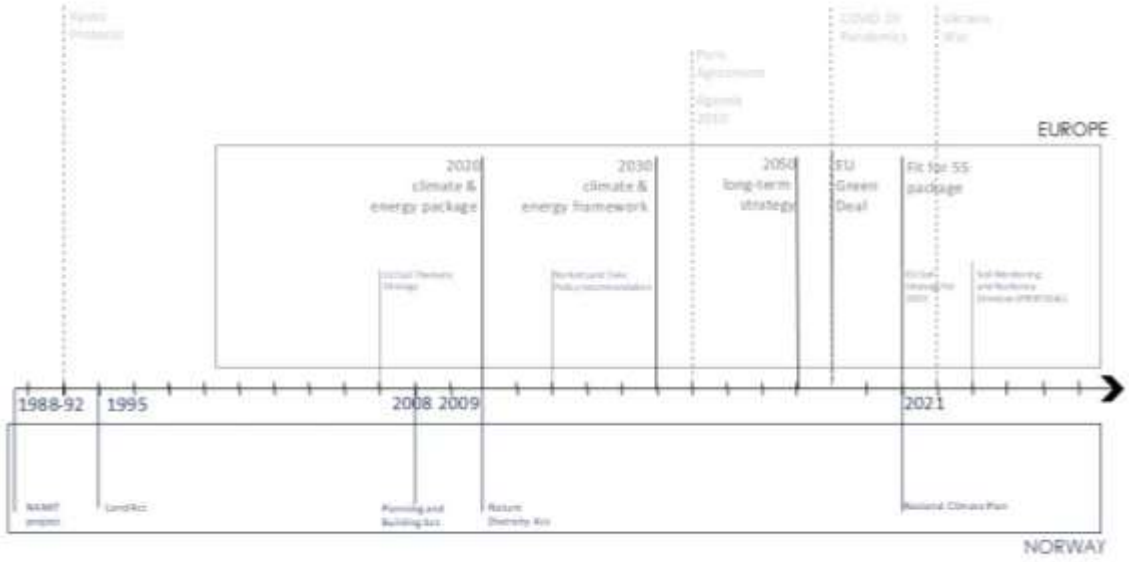

Figure NO3. Timeline illustrating key policies and regulations in Norway (bottom part) and EU (upper part) affecting densification

6.2 The implementation process

Regulatory tools

As already mentioned, there are various national regulatory tools that affect, more or less directly, the implementation of densification (see previous section). It should be noted that Norwegian municipalities have large autonomy when it comes to land use and thus play a central role for the implementation of densification interventions. At the local level, the most important tool is the municipal masterplan, which sets development objective and regulates land-use. **Municipalities have also significant freedom** when it comes to zoning plans and deciding what to build where. According to the Planning and Building Act, zoning plans might contain provisions on 'the number of dwellings in an area, largest and smallest dwelling size, and further requirements for accessibility and the design of the dwelling where it is appropriate for special needs' (*Plan- og bygningsloven – pbl* 2008, § 12.7). The city council serves as the primary planning authority, responsible for approving or rejecting zoning plans, most of which are submitted by **private developers** (Nordahl, 2014). As Hanssen and Hofstad (2013) observed, the Planning and Building Act Reform of 1985 marked the end of the public planning monopoly by allowing private entities to initiate detailed and area-based zoning plans. These plans are then submitted to the local government for political approval. While this change was

originally intended to enhance democratic participation by involving civil society, it has increasingly become a tool for market-driven actors, with densification efforts often motivated by profitability (Cavicchia, 2023b).

6.3 Size and role of the market

Urban planning in Norway has been significantly shaped by neoliberal policies, where private developers play a dominant role despite the public sector's extensive legal authority and oversight. Although municipalities have considerable regulatory tools, it is private developers who effectively implement urban plans (E. Falleth et al., 2011). Developers are responsible for initiating zoning proposals, financing developments, managing land assembly, and driving housing production. Municipalities generally approve income-generating projects on the condition that developers also invest in public infrastructure, such as roads, green spaces, and bike paths (Eika, 2020).

A critical factor in the influential role of private actors is **land ownership**. Since the 1980s, public land ownership in Norway has declined significantly, weakening municipalities' bargaining power in development negotiations. While municipalities can acquire land through pre-emption rights, they must do so at market value.

Land expropriation is permitted by law for 55 specified purposes, including public buildings, infrastructure, housing, and certain commercial projects. Although expropriation rights are available to all levels of government, their use has become rare for local governments, with national transport authorities now being the primary users of this mechanism (OECD, 2017).

This shift in land ownership dynamics, coupled with the reliance on private developers, highlights a market-driven approach to land-use planning in Norway, where the public sector's regulatory oversight is tempered by its reduced control over land resources.

6.4 The multilevel governance process

At the national level, the Planning and Building Act, alongside other sectoral laws like the Land Act and the Nature Diversity Act, provides the legal foundation for sustainable urban development. National climate and transport policies emphasize densification as a means to combat urban sprawl, reduce car dependency, and protect agricultural and green spaces. While these policies establish clear guidelines, municipalities have considerable autonomy in their implementation, reflecting a decentralized approach to land-use governance.

Regions contribute through regional planning instruments such as regional plans and plan strategies, and they facilitate knowledge-building and analytical support to municipalities. This role is particularly important in enabling a shared understanding of housing needs, aligning development goals, and supporting densification strategies where regional infrastructure and mobility planning are involved (Asplan Viak, 2023). Housing, land use, and transport planning (*bolig-, areal- og transportplanlegging*, BATP) plays a key role in ensuring coordinated regional development, especially in areas facing urban growth and densification pressures. Regions contribute by developing regional plans that integrate housing provision with land use and

transport infrastructure. National planning guidelines emphasize the importance of cross-municipal collaboration to achieve efficient land use, reduced car dependency, and socially sustainable housing development. While BATP provides a strong framework for aligning housing with mobility and spatial planning, its implementation varies, highlighting the need for stronger coordination between regional and local planning levels(Asplan Viak, 2023).

Local governments, particularly municipalities, are the primary actors responsible for executing densification policies. Municipal masterplans and zoning regulations serve as the key tools for shaping land use and determining where and how densification occurs. City councils act as political decision-making bodies, approving or rejecting zoning proposals, many of which are submitted by private developers. As mentioned, the significant role of private developers in densification is further reinforced by the decline in public land ownership since the 1980s' governments.

Despite efforts to coordinate national and local priorities, densification policies face a fundamental trade-off between environmental sustainability and housing affordability. Market-driven development is often prioritized, as Norway's neoliberal housing system lacks strong policy mechanisms to promote affordable housing (Cavicchia, 2021b). As a result, while densification increases housing supply and supports sustainability goals, it does not inherently address affordability concerns. The absence of targeted affordable housing initiatives means that densification projects are largely shaped by market forces, often catering to higher-income segments rather than providing inclusive housing solutions.

	National level	Regional Level	Local level
Responsible political actors	Norwegian Government, Ministry of Local Government and regional development define national policies and laws		Municipalities develop masterplans, zoning regulations, and negotiate with developers
Responsible Technical actors			Municipal Planning Departments Private Developers propose zoning plans, finance housing and infrastructure
Key regulatory tools	Planning and Building Act, Land Act, Nature Diversity Act, National Climate Strategies	Regional Land-Use Plans, Environmental and Transport Guidelines	Municipal Masterplans, Zoning Regulations
Key policies	National Climate Plans (since the 1990s)		Local climate Plans and Municipal Masterplans

Table NO6. Table NO 3. Governance structure of densification in Norway

6.5 Achievements, assessments, and challenges

The discourse surrounding urban densification in Norway has primarily been framed within the context of environmental sustainability but is increasingly intertwined with housing provision. Especially in larger Norwegian cities facing significant housing pressure, politicians and developers often argue that densification can help lower housing prices by increasing supply compared to low-density development. However, scholars have identified several challenges that complicate this assumption, highlighting how densification can contribute to housing inequalities. Much of this research has focused on Oslo, where the impacts of densification are particularly pronounced.

One major concern is the effect of densification on housing quality, particularly in terms of dwelling size and access to natural light—an especially critical factor in Nordic countries, where daylight is scarce for much of the year (Schmidt, 2014). In Oslo, this debate has centered around the increasing prevalence of **"hyblification"**, a term derived from the Norwegian word *hybel*, meaning small studio apartments typically ranging from 15 to 20 square meters. The proliferation of such micro-units raises concerns about livability, as densification efforts often prioritize maximizing the number of housing units over ensuring adequate living conditions. Furthermore, developers often justify the construction of small apartments as a way to provide more affordable housing, particularly for young people entering the market. However, these units typically have a higher price per square meter than larger ones, ultimately serving as a strategy for developers to maximize profits.

Densification also has significant implications for housing affordability. Norway's housing policies have followed a neoliberal trajectory since the 1980s, with limited public intervention to guarantee affordable housing. Unlike many other European cities that implement inclusionary zoning policies—requiring developers to allocate a share of new units as affordable housing—Norwegian municipalities lack strong regulatory mechanisms to enforce affordability requirements (Cavicchia, 2023b). As a result, densification projects often align with market profitability rather than social equity, contributing to rising housing costs and the exclusion of lower-income groups from newly developed areas.

Moreover, densification is increasingly linked to **gentrification dynamics** (Andersen & Røe, 2017). While traditional gentrification, as seen in cities with lower homeownership rates, may be less evident in Norway due to the high levels of property ownership, research has identified **exclusionary pressures** associated with densification. This refers to the spillover effect where the creation of attractive, high-density residential areas drives up property values in surrounding neighborhoods, making housing less accessible to lower-income populations over time (Cavicchia, 2023c). These dynamics suggest that while densification may contribute to urban sustainability, without targeted policies to address affordability and inclusivity, it risks exacerbating housing inequalities rather than alleviating them.

Finally, another critical trade-off to consider is the impact of densification strategies on the reduction of urban green spaces. In several densification areas across Oslo, this issue has sparked protests against further development.

Potential Impacts	Description
Housing Quality and Livability	Proliferation of micro-apartments ('hyblification') reduces livability and access to daylight; compromises housing standards.
Affordability and Market Pressures	Densification aligns with market profitability rather than social equity; limited public tools to ensure affordable housing.
Gentrification and Exclusion	Spillover effects of high-end developments increase surrounding property values, displacing low-income groups.
Regulatory Limitations	Lack of inclusionary zoning and affordability mandates in Norwegian planning weakens equity outcomes of densification.
Reduction of Urban Green Spaces	Densification can lead to loss of green areas, sparking public opposition and reducing environmental quality.

Table NO7. Potential impacts of densification policies on housing inequalities.

7 Summary and discussion of results

7.1 Summary of changes in EEP

Over the past few decades, Norway has progressively integrated environmental and energy objectives into national and urban policies, although the trajectory and maturity of these policies vary significantly across domains. Nature-based solutions (NBS) and densification strategies were institutionalised well before the emergence of EU environmental directives on the matter, whereas energy retrofitting lags behind, both in policy coherence and implementation. This temporal misalignment contributes to uneven integration across levels of governance and complicates the alignment of green transition measures with housing objectives.

National environmental policy is strongly oriented towards sustainability, biodiversity protection, and compact urban development. Densification policies, originating in the 1980s and rooted in national climate strategies, were codified in the Planning and Building Act, enabling local governments to prioritise compact urban form, limit sprawl, and reduce car dependency. Similarly, NBS have gained increasing traction in national and municipal planning frameworks, especially following the 2018 SPR Klima guidelines, which introduced requirements to consider ecosystem-based measures in land-use planning. However, the implementation of these strategies—particularly NBS—remains highly uneven, with stronger uptake in larger municipalities and urban regions that have greater technical and institutional capacity.

In contrast, the development of energy retrofitting policies has been slower and more fragmented. Norway has no legal obligation for private building retrofits, and national strategies have largely relied on voluntary incentives rather than mandates. Financial tools, such as

Enova grants and Husbanken loans, are the primary levers used to promote retrofitting; however, they typically cover only a fraction of the total costs and are not income-differentiated. The lack of a clear regulatory mandate or targeted social criteria for retrofitting reflects a policy gap that limits the reach of green transition measures to those who can afford them.

From a governance perspective, territorial disparities emerge as a central challenge across all three policy areas. In NBS and retrofitting, the capacity to plan, fund, and implement projects is highly dependent on local resources and administrative capacity. While national agencies provide technical guidance and some financial support, smaller or rural municipalities often lack the capacity to apply for funding, coordinate across departments, or engage with private actors. In densification, the dominant role of private developers—who initiate most zoning proposals—has led to increasingly market-driven urban development, often at odds with affordability and inclusion goals.

The fragmented distribution of authority and resources across governance levels, combined with the lack of strong horizontal coordination between housing and environmental policies, reinforces these disparities. As a result, the multilevel governance structure remains marked by vertical inconsistencies (between national policy ambitions and local implementation capacity) and horizontal silos (between housing and environmental domains).

7.2 Relations and Trade-Offs Between EEPs and Housing Policies

The integration of environmental, energy, and housing policies in Norway remains weak. This is particularly evident in retrofitting, where affordability concerns are largely absent from existing policy tools. Enova and Husbanken schemes are not designed to address social disparities: they provide the same incentives regardless of income, tenure, or vulnerability. This design limits their redistributive potential and risks exacerbating housing inequalities by privileging owner-occupiers with sufficient capital or credit access. Interviewees and Policy Lab participants repeatedly stressed that current schemes are designed more to stimulate market demand for energy technologies than to address affordability gaps or social needs.

In the rental sector, this results in stark vulnerabilities. Tenants have no access to retrofitting subsidies and are reliant on landlords to initiate energy upgrades. Yet landlords, particularly in profit-driven private rental markets, face little incentive to invest in costly renovations they cannot directly capitalise on through energy savings. Moreover, the absence of rent regulation potentially allows any improvement to be passed on to tenants in the form of higher rents, further compounding the problem.

In the cooperative housing sector, affordability is equally precarious. Retrofitting initiatives must be agreed collectively and are often financed through joint debt. This can generate internal tensions and risks of financial overburdening, particularly for residents with lower incomes or higher vulnerability. In practice, decisions to proceed with retrofitting are shaped as much by social negotiation and internal politics as by technical considerations.

NBS present another set of trade-offs. While they contribute positively to climate resilience, they can also generate indirect socio-spatial effects. In some areas, the introduction of green amenities—urban parks, green roofs, restored waterways—can increase property values,

triggering gentrification dynamics and putting pressure on low-income residents. In Oslo and other high-demand cities, the prioritisation of green infrastructure in urban planning has sometimes led to increased housing costs, especially when land reserved for NBS reduces the space available for affordable housing. Moreover, local governments often lack the tools to manage these trade-offs effectively, given the absence of integrated planning frameworks that align environmental goals with housing needs.

Densification is the most institutionalised and mature among the three domains, but its implementation is also marked by strong market orientation and weak affordability safeguards. In fact, in many cities, densification has coincided with a proliferation of small, high-priced units and has been linked to exclusionary pressures. Without robust inclusionary zoning mechanisms or affordability requirements, the housing outcomes of densification remain shaped by market logics rather than social objectives.

In sum, the three environmental and energy policy domains analysed in this report—retrofitting, NBS, and densification—present different levels of maturity, institutionalisation, and alignment with housing goals. Densification is the most embedded in national policy, with a long-standing legal and planning framework, but also the most captured by private interests. NBS are increasingly present in national guidance and legal instruments but uneven in implementation due to local capacity gaps. Retrofitting is the least developed, with fragmented governance, limited affordability considerations, and contested political support, particularly in the current context of political instability and uncertainty around the implementation of EU directives.

Across all three areas, a common challenge lies in the lack of integrated policy design that considers the intersection between environmental transitions and housing inequalities.

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9 Annex

Annex 1

EUROPEAN LEVEL		
2002	Energy Performance of Buildings Directive (EPBD) https://eur-lex.europa.eu/eli/dir/2002/91/oj/eng	The 2002 EPBD did not impose common, precise numerical targets. It required each Member State to develop a national methodology for calculating the energy performance of buildings. It required members states **to set national minimum requirements on the energy performance of new buildings and only existing buildings with a total useful floor area over 1000 m^2 that are undergo major renovation[13].** Member States may decide not to set or apply the requirements for the residential buildings (new and existing) which are intended to be used less than four months of the year.
2010	EPBD revision https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32010L0031	The 2010 EPBD did not impose common, precise numerical targets but it included some changes with respect to the 2002 version. It established mandatory national minimum requirements on the energy performance of new buildings and **only existing buildings that are undergo major renovation, regardless of their surface area.** Mandatory national minimum requirements have to be updated every five years and are set with a view to achieving cost-optimal levels Member States shall ensure that: by 31 December 2020, all new buildings are nearly zero-energy buildings; and after 31 December 2018, new buildings occupied and owned by public authorities are nearly zero-energy buildings Member States may decide not to set or apply the requirements for "*residential buildings which are used or intended to be used for either less than four months of the year or, alternatively, for a limited annual time of use and with an expected energy consumption of less than 25 % of what would be the result of all-year use*".
2012	Energy Efficiency Directive (EED)	The 2012 EED set out a number of energy efficiency targets, referring not only to the residential or building sector but more broadly to all sectors.

[13] According to the Directive: "*Major renovations are cases such as those where the total cost of the renovation related to the building shell and/or energy installations such as heating, hot water supply, air-conditioning, ventilation and lighting is higher than 25 % of the value of the building, excluding the value of the land upon which the building is situated, or those where more than 25 % of the building shell undergoes renovation*"

	https://eur-lex.europa.eu/eli/dir/2012/27/oj/eng	**The EU aimed to reduce energy consumption by 20% by 2020. Each Member State was required to set indicative national energy efficiency targets.** Member States also had to renovate each year at least 3% of the total floor area of centrally owned public buildings.
2018	EPBD revision https://eur-lex.europa.eu/eli/dir/2018/844/oj/eng	Each Member State shall establish **a long-term renovation strategy to support the renovation of the national stock of residential and non-residential buildings, both public and private, into a highly energy efficient and decarbonised building stock by 2050**, facilitating the cost-effective transformation of existing buildings into nearly zero-energy buildings, in particular by an increase in deep renovations. The long-term renovation strategy shall include indicative milestones for 2030, 2040 and 2050, and specify how they contribute to achieving the Union's energy efficiency targets in accordance with Directive 2012/27/EU.
2023	EED revision https://eur-lex.europa.eu/eli/dir/2023/1791/oj/eng	2023 EED defines higher targets for energy efficiency and introduces the "Energy-efficient first principle" as a key element, meaning that energy efficiency must be prioritised by member states across all policy and investment decisions **Public bodies at national, regional and local level should fulfil an exemplary role as regards energy efficiency.** Each Member State shall ensure that at least 3 % of the total floor area of heated and/or cooled buildings that are owned by public bodies is renovated each year to be transformed into at least nearly zero-energy buildings or zero-emission buildings **Member States shall establish and achieve a share of the required amount of cumulative end-use energy savings among people affected by energy poverty, vulnerable customers, people in low-income households and, where applicable, people living in social housing**
2024	EPBD revision https://eur-lex.europa.eu/eli/dir/2024/1275/oj/eng	**2024 EPBD objective is the reduction of greenhouse gas emissions from buildings within the Union, with a view to achieving a zero-emission building stock by 2050** **Member States shall establish a national building renovation plans that also includes a roadmap with targets and indicators, including the reduction of the number of people affected by energy poverty.** Member states must implement measures to reduce average primary energy consumption of the national residential building stock by at least 16% compared to 2020

		by 2030; and by at least 20-22% compared to 2020 by 2035. Member States shall ensure that at least 55 % of the decrease in the average primary energy use referred to in the third subparagraph is achieved through the renovation of the 43 % worst-performing residential buildings