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Climate declarations for buildings as a new policy instrument in Sweden: a multiple streams perspective

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ABSTRACT

Sweden has recently adopted new legislation on mandatory climate declarations of buildings. This occurred before the EU policy requests. The implementation of climate calculations and the visibility of the results of these calculations in a declaration is intended to increase building developers' knowledge of the climate impact from construction and improves the opportunities for the developer to make conscious choices that reduce their climate impact. Using the Multiple Stream Framework as a theoretical lens, we analyse by qualitative and quantitative text analysis, the formulation and decision-making on the new law. A majority of stakeholders approved the proposal for the new law, but it was not undisputed. Some stakeholders advocated a voluntary scheme instead of a mandatory scheme. Some key stakeholders advocated a focus on life cycle emissions rather than embedded construction emissions only. The final line of conflict was that the climate declarations are not linked to the most important phase for reducing the climate impact of buildings, which is planning and design, rather than construction. We show how frame disconnection and frame polarization was used by the Government Offices of Sweden and the Swedish government to downplay critique from key stakeholders.

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KEYWORDS

Multiple streams framework; buildings; climate declaration; climate policy; eco-labelling; policy process

Introduction

At a global scale, the buildings sector accounts for 40 per cent of total energy end-use and 35 per cent of greenhouse gas (GHG) emissions (International Energy Agency, IEA, 2021), making it one of the most important sectors for reaching the 1.5°C target of the Paris Agreement. At the European Union (EU) level, 40 per cent of energy is used in buildings and the sector accounts for 36 per cent of GHG emissions (European Commission, 2021). In Sweden, direct GHG emissions from private heating of buildings account for just 1 per cent of total terrestrial emissions. However, the total GHG-emissions (domestic and imported) from the building sector account for one-fifth of the total GHG-emissions.¹ Of that 20 per cent, construction activities account for just under 50 per cent and property management and heating for the other 50 per cent. This makes the construction phase particularly important from a GHG-perspective, especially when considering the reduction of carbon content in supply systems because of the ongoing decarbonization of those systems. As requirements for high-energy performance buildings tighten, the importance of focusing

on embodied GHG emissions increases (Moncaster & Song, 2012; Röck et al., 2020).

Sweden has long since been a frontrunner in climate policy (Matti et al., 2021). The Swedish Parliament (Riksdag) adopted a climate law in 2017, The Climate Act.² By 2045 at the latest, Sweden should have no net emissions of GHGs, and before then the country's parliament has decided on staged targets for 2030 and 2040 for emissions that are not part of the EU's emissions trading system. As of 1 January 2022, new buildings in Sweden are required by law to have a climate declaration, showing the embodied GHG emissions during the construction phase. The new policy instrument, mandatory climate declarations for buildings, which is among the first of its kind in the world,³ complements energy performance certificates, mandated by the EU energy performance of buildings directive (EPBD) to show the energy performance during the operation phase of buildings. The merits of a life cycle approach to the energy and climate policy of buildings have been raised in science for decades (Anand & Amor, 2017; Fenner et al., 2018; Goldstein & Rasmussen,

2018). Consequently, policies have been developed to address embodied energy and life cycle GHG emissions from buildings (Skillington et al., 2022).

The new Swedish policy instrument aims to address this. The Government of Sweden (2021) asserted that there is a need for additional instruments to reduce the climate impact of building construction. The climate declarations for buildings add to other policy instruments such as land instructions given by the municipalities, energy performance criteria related to the building permit given by municipalities, and the regulations set out by the National Board of Housing, Building and Planning (NBHBP) on buildings. The government (2021) states that the climate declarations will provide information that influences the climate footprint entailed by the construction of a building, e.g. through the choice of materials, construction methods, design solutions, distance to material production and resource planning. During the review and public consultation stage of the legislative formation in the policy process leading to the adoption of the new law in summer 2021, however, some stakeholders argued that the system was too limited in its scope, and that GHG emissions from the entire life cycle should be considered. The need for a mandatory tool was also questioned.

This paper aims to explore and explain the policy process for the formulation and adoption of mandatory climate declarations for buildings as a new climate policy instrument in Sweden. By using the Multiple Stream Framework (MSF) (Ackrill et al., 2013; Herweg et al., 2018; Kingdon, 1984), we analyse the problem, policy and politics streams providing a window of opportunity in agenda setting, policy formulation and decision-making, and the lines of arguments employed during the public consultation preceding the government handing over a bill to the parliament and the parliament's decision on the legislation.

Previous research on energy and climate policy for buildings

There are few policies for reducing the carbon footprint of buildings, but more so to improve the energy performance of buildings. These are related, why it is relevant to review the research on them. EU policy on energy efficiency of buildings has been around since the early 1970s when the European Council adopted a resolution promoting energy savings in 1974 (Economidou et al., 2020). Since then, a plethora of directives and other policies and measures to promote energy efficiency in buildings have been adopted in the EU. No single instrument is enough to stimulate energy-efficient and zero-carbon buildings. The different building contexts

and solutions available leads to policy mixes being required (Kern et al., 2017). As of today, EU policy on energy-efficient and low-carbon buildings is mainly manifested through the energy efficiency directive (EED) and the EPBD (Rubino, 2017; Visscher et al., 2016). Both directives, amended in 2018, include mandatory provisions on minimum energy performance requirements for new and existing buildings, energy performance certificates (labelling), national renovation plans, requirements for renovation of buildings owned and occupied by central government, mandatory energy audits, and requirements for (individual) metering and billing in multi-family buildings and multipurpose buildings. These directives do also include provisions on individual metering and billing of heating and cooling in multifamily and multipurpose buildings (Terés-Zubiaga et al., 2018), and the promotion of energy performance contracting and energy service companies (Bertoldi & Boza-Kiss, 2017), important to stimulate energy efficiency in buildings. Both the EED and the EPBD are currently renegotiated, as part of the 'European Green Deal' and the 'Fit for 55' legislative package of 2021, with the EPBD to include mandatory provisions for new buildings to be zero-carbon. Taking a critical view on EU policy for energy efficient and zero-carbon buildings, Visscher et al. (2016) argue that the effectiveness of current governance instruments, such as EPBD and EED, have had limited impact on actual GHG reductions and do not ensure actual energy performance to be achieved. To realize the very ambitious energy-saving goals of the EU, a radical rethink of regulatory systems and instruments is necessary, Visscher et al. (2016) claim. Energy performance of buildings and the behaviour of the occupants is not well understood by policymakers, nor how policy instrument works between levels of governance.

In a recent review of existing policy for reducing embodied energy use and GHG emissions from buildings, Skillington et al. (2022) found that, to date, efforts to address this issue have focused on reducing energy demand during building operation (cf. Bertoldi et al., 2021; Economidou et al., 2020), resulting in significant reductions in this area. However, recent studies have shown that substantial improvements to operational energy efficiency have increased the relative significance of indirect or embodied energy demands and the associated GHG emissions (Röck et al., 2020). Consequently, policies addressing this next frontier of energy and emissions reductions are emerging. Skillington et al. (2022) found that voluntary instruments dominate the policy landscape, with regulatory measures largely absent at national levels and confined to inconsistent application across lower levels of governance.

The Swedish law requiring mandatory climate declarations for buildings is one such example.

Designing policy instruments to improve energy efficiency and reduce GHG emissions from buildings requires knowledge of the barriers to decision-making in the buildings sector. Blomqvist et al. (2022) explored economic, behavioural and organizational conditions and analysed the conventional dependencies on: (1) type of ownership and (2) size of the organization, but also added an analysis of: (3) the degree of urbanization, (4) climate zones and (5) profession. Together, these dependencies enhance the customized design of policies and measures. The findings show that hidden costs and bounded rationality were prominent barriers due to problems in acquiring and analysing information.

Sadri et al. (2022) analysed the impact of the Swedish climate declaration for buildings legislation on the Swedish construction industry. They found that the desired impacts of the regulatory measures will require the application of binding levers, but it is not evident in climate declaration legislation neither as incentives nor deterrents. They show that the effectiveness of the climate declaration act will only emerge over time and needs to be continuously reviewed to reach payoffs (Sadri et al., 2022). Finland has implemented legislation on normative carbon limits for different building types before 2025 (Kuittinen & Häkkinen, 2020), that has promoted green public procurement aiming to reduce the climate impacts of buildings. Goyal (2021) used MSF to analyse policy diffusion on energy conservation in buildings in India and concluded that external influence in problem framing and activities of a transnational policy entrepreneur changed the policy agenda. The outcome emphasized energy conservation in buildings and enhanced the technical feasibility of the code during policy formulation.

Carter and Jacobs (2013) combined MSF and the punctuated equilibrium theory to analyse the transformation of UK climate change and energy policy in 2006 and 2010. They suggest two revisions to the models: (1) policy windows can remain open far longer than either model typically predicts; and (2) party politics, especially where party competition generates a 'competitive consensus', can be important for both initiating and prolonging policy change in parliamentary systems. An important factor typically overlooked by both models is the significant policy entrepreneurship role that government ministers can play, particularly when an issue becomes part of their 'narrative identity'.

Focusing on the politics of energy-efficient and low-carbon buildings in Sweden, Niskanen and Roracher (2022) argue that the standards and calculation tools that are largely presented as a technocratic and expert-

driven process are in fact heavily imbued with politics. The most powerful stakeholders showed to dominate the adaptation of the Swedish building code and defining visions and aims in the housing. This is similar to the findings of Dunlop and Völker (2023), who explored the politics of measurement, and in which a seemingly 'technical' discussion weaves together scientific and methodological aspects with political, societal and environmental issues.

In relation to climate policymaking in Sweden, Kronsell et al. (2019) analyses the societal actors included in the policymaking process towards decarbonization and conclude that there is a potential to achieve decarbonization objectives in spite of the incumbent established economic interests. This stands in contrast to the arguments made in sustainable transition studies that incumbents obstruct change. Instead, in the Swedish case, they are viewed as potential change agents (Kronsell et al., 2019). Finally, although the character of the actor relations is deliberative, it is a top-down, exclusive kind of deliberation that remains far from the ideals of ecological democracy. The important roles of nation states and central government to coordinate stakeholder interests in socio-technical transitions of, e.g. sustainable housing in Sweden, was identified through a socio-technical analysis of historical cases (Söderholm & Wihlborg, 2016). In the contemporary networked governance setting, central government, like no other player, still has the potential to guide and coordinate implementation processes for the realization of sustainable housing visions.

Policy formation in multiple streams

To analyse how a policy can be reached in spite of conflicting interests, interpretation of the problems to address and a complex parliamentary situations we use the MSF, building on the work of Kingdon (1984). MSF is a powerful tool to understand the policy process, and specifically the formation of policies, by identifying three separate streams – problems, policies and politics. This theoretical framework contextualizes the policy analysis into the unique arrangements of institutions and the relationship between ideas and interests that makes a policy change happen (Ackrill et al., 2013; Béland, 2016; Herweg et al., 2018; Kingdon, 1984).

The basic analytical approach is to identify three types of streams (Figure 1), which, when connected, have the power to change the policy in a given area. The first stream is the *problem stream*. The problem is what brings the need for a new policy onto the agenda, it is something that is seen as a public matter requiring attention. The problem stream appears when indicators

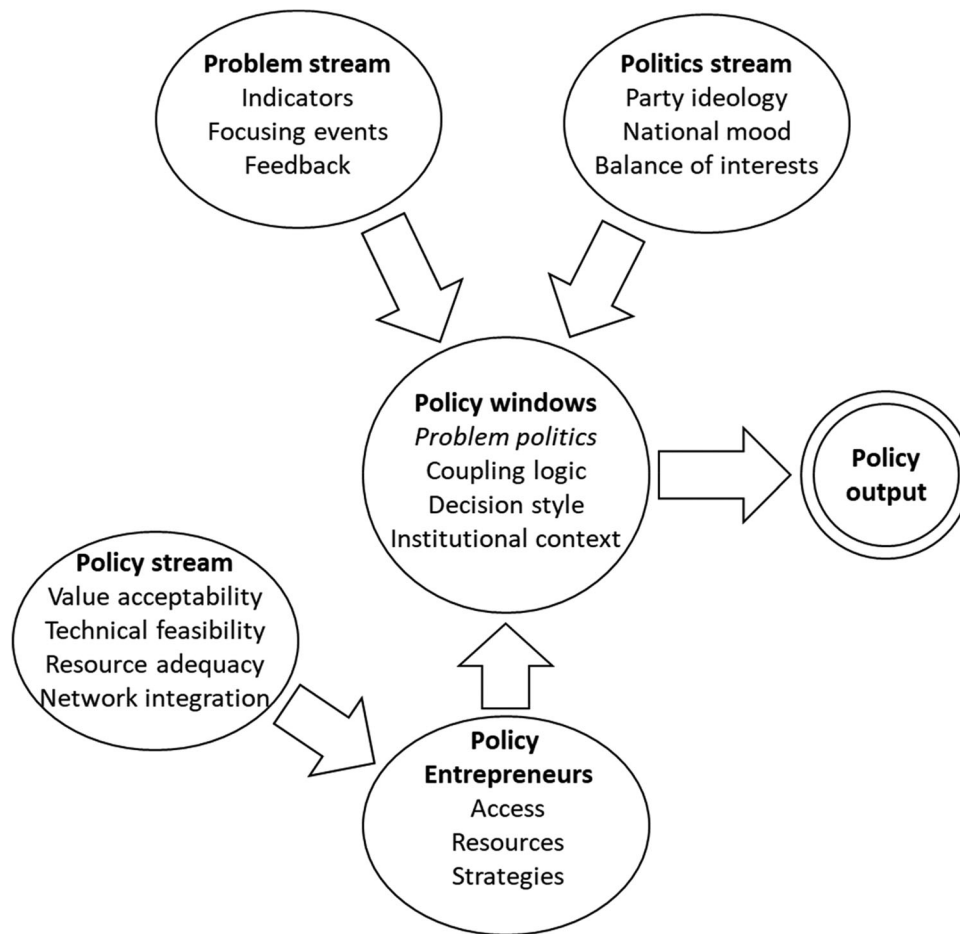


Figure 1. The multiple streams framework. Source: Based on Ackrill et al. (2013) and Herweg et al. (2018).

show a problem, when critical events highlight the problem(s) and the policy system receives feedback from actors on the identified problem.

The *policy stream* then brings potential proposals onto the agenda and formulates suitable proposals to address the problem. These policy proposals are formed by the values of acceptability in the formulation, the technical feasibility of the proposed solution, resources as competences, the existence of technical capacities and structures to manage the policy and a network supporting it. How the stakeholders, in groups and loosely coupled networks, discuss and compromise around the different policy proposals depends on the institutional arrangements and a policy solution has to be promoted by policy entrepreneurs with resources, strategies and access to the policy window where the streams can meet.

The third stream is thus the *politics stream*, which has to be integrated into the problem and policy streams to enable a new policy to emerge. The politics stream is defined by the framing of the decision-making including political party ideology, interests and the institutional arrangements around the decision-making.

The coordination of the three streams takes place when stakeholders act as entrepreneurs or brokers, both of which concepts are used in the literature (Herweg et al., 2018). They take on the task of combining the streams to enhance the new policy. The policy entrepreneurs are key actors who: (1) define the problem, in the problem stream, (2) couple it with certain policy alternatives, in the policy stream and (3) play the game according to the institutional procedures and roles in the political stream. The policy entrepreneurs are often experts in their field, particularly in relation to more science-based and technical issues, with competences to coordinate the streams through detailed and insightful compromises (e.g. Crow, 2010). Since the policy brokers are often parts of the elite in their specific field there is relevant critique arguing that the policy formulation process, through the coordination of these streams, conceals the power that shapes how public problems are defined (Knaggård, 2015). A policy window may open up when simultaneously a problem is recognized, a policy is available and the political context is conducive to change. This happens when a

focusing event relates to values and capacities to use resources and networks and at the same time fits into the political stream.

MSF assumes that policymaking in modern societies is very complex, and that there is a need for coordination, that actors specialize to form policies, and that they must follow the stream within which they act. This coordination of streams takes place within the institutional arrangements of the political stream (e.g. Sweden) and the problem stream defined by a policy topic (e.g. climate change). Importantly, policy changes, such as the one we analyse here, take place when the streams are coordinated, and interests are matched.

Method and materials

This paper builds on a qualitative case study that aims to explore and explain the process of policy formulation regarding climate declarations for buildings as a new climate policy instrument in Sweden. Following a series of proposals from the NBHBP (2018), the Government Offices of Sweden (2020), and the then coalition government (2021) of Social Democrats and the Green Party, in June 2021 the Sveriges Parliament (Riksdag) adopted a new law (2021, p. 787) on mandatory climate declarations for buildings. Part of the new legislation is also a Government Ordinance (2021, p. 789) on climate declarations for buildings.

Using the MSF as a theoretical framework for analysing the policy process, we will answer the following research questions:

- What happened in the problem, policy and politics streams?
- How did the policy window open?
- Who were the policy entrepreneurs, and how did they act?
- Was the process and its outcome considered as legitimate?

As for the method, we used qualitative and quantitative text analysis. This method was chosen since it makes it possible to get data from all stakeholders actively involved in the policy process. The main source of data was all the answers of 115 stakeholders to the public consultation that has been analysed through an interpretative qualitative text analysis, to grasp the argumentation from all stakeholders. It is required by the Swedish constitution that a public consultation on a proposal for legislation is conducted prior to the government finalizing any bill sent to parliament. The validity of the statements from each stakeholder is more accurate here and the comparability of their arguments

increases. Thus we argue that this material is more coherent, analogous and relevant than what could have been obtained through interviews, a survey or participatory observations.

The empirical data consists of official policy documents related to the formulation and adoption of the law on mandatory climate declarations for buildings, consisting of: (1) the initial proposal from the National Board of Housing, Building and Planning (NBHBP, 2018), the proposal from the Government Offices of Sweden (2020) which was sent for public consultation, (2) answers from stakeholders to the public consultation of the latter proposal,⁴ (3) the Government Bill (2020/21:144) on climate declaration for buildings (Government of Sweden, 2021) and (4) reports and comments including voting results from the Swedish Parliament (Sveriges Riksdag, 2021a, 2021b, 2021c). These documents were chosen since they include data on the positions of all actors involved in the policy process, i.e. the NBHBP, the Government Offices of Sweden, different interest groups (IGs) responding to the public consultation on the proposed law, the Swedish government and the Swedish Riksdag, including all political parties in the Riksdag. Table 1 summarizes the most important stakeholders in the policy subsystem and their roles in relation to policy processes regarding energy efficiency in buildings.

Based on the theoretical framing of MSF, the analysis started by counting the positions and identifying the stakeholders' argumentation pro and con the proposal of the Government Offices of Sweden and the government. Herby we could analyse lines of dispute among actors, by coding how the actors perceived (1) the problem to be addressed by the policy, (2) detailed proposals for policy design of the Government Offices of Sweden (2020) – approve or disapprove and (3) the political deliberations. The government's bill included the government's response to arguments raised in the public consultation, from which we could detect how the government discursively treated critique raised. In addition to text analysis, we conducted one interview with the policy officer of the Government Offices of Sweden in charge of the file. This interview provided insights on the policy process, particularly the specific advocacy among the stakeholders.

A drawback of our sample is that we could only identify arguments that were made by IGs who answered the public consultation, while there might be other organizations that hold views on climate declarations for buildings that were not voiced during the policy process. However, 11 stakeholders used the constitutional right to respond to the public consultation, without request. We assume that those

Table 1. Main stakeholders in the policy subsystem and their roles in relation to policy processes regarding climate impacts from buildings.

Sector	Stakeholders	Roles
Public sector	14 municipalities	Owners of buildings, issuers of land instructions, building permits and decisions on final notice
	Swedish Association of Local Authorities and Regions (SALAR)	Interest group for municipalities
	Public Housing Sweden	Interest group for public owners of multi-apartment buildings
	County administrative boards	Supervision of physical planning, oversees first-order appeals of building permits
	National Board of Housing, Building, and Planning (NBHBP)	National expert agency, law enforcement agency for climate declarations for buildings
Private sector	Swedish Chemicals Inspectorate, Swedish Competition Authority, Swedish Energy Agency, Swedish Environmental Protection Agency, Swedish Fortification Agency, Akademiska Hus	National expert agencies
		Owner of buildings of the Swedish Armed Forces and universities
	Bostadsrätterna (Condominium Owners Federation), Fastighetsägarna (Swedish Property Owners Federation)	Interest group for owners of multi-apartment buildings
	HSB, Riksbyggen, Wallenstam	Owners of multi-apartment buildings
	PEAB, Skanska,	Construction companies
	Swedish Construction Federation, Swedish Construction Clients, Swedish Installation Federation, Stålbbyggnadsinstitutet (Swedish Institute of Steel Construction), Teknikföretagen (Swedish Engineering Federation), Innovationsföretagen (Innovation Companies Federation), Plåt & Ventföretagen (Ventilation Companies)	Interest groups for construction companies
	Sweco, Tyréns, White Architects, WSP	Architects, technical consultants
	Saint Gobain	Building material companies
	Jernkontoret (Swedish Iron and Steel Federation), Swedisol, Swedish Concrete Federation, Sveriges Träbyggnadskansli (Swedish Wooden Building Secretariat), Swedish Federation of Wood and Furniture Industry	Interest groups for building material companies

stakeholders who had an opinion on climate declaration for buildings answered the public consultation, particularly those critical to the proposal of the Government Offices of Sweden. As for reliability, all included material, except notes from the interview with a policy officer, is publicly available in Swedish online in the repository of the Swedish government⁵ and the parliament.⁶ In all, we judge that the results are scientifically valid. We analysed the collected arguments in order to identify and group lines of argument and potential areas of conflict. The series of policy documents also give an insight into the policy process itself, helping us to understand the paths to policy change over time as illustrated in Figure 2.

The timeline of the policymaking process for the new legislation is summarized in Figure 2.

Results

The problem stream

The problem is what brings the need for a new or revised policy onto the agenda, it is something that is seen as a public matter requiring attention. In this case, the climate impact of buildings, and particularly the GHG emissions from the construction phase in the Swedish buildings sector is seen as a problem. The construction of buildings accounts for one-fifth of GHG emissions in Sweden.⁷ Hence, it has a large effect on the climate. A more rapid transition to low emissions is required in order to achieve Sweden's

climate goals, and improvements in this area could help considerably. Performing climate calculations (e.g. lifecycle assessments, LCAs) is increasing among construction actors (NBHBP, 2020), but is still expected to be carried out to only a limited extent because the driving forces to do so are judged to be small.

Another problem mentioned by NBHBP (2018), and by the Government Offices of Sweden (2020) is the lack of information on GHG emissions from buildings. There is a need for increased awareness and knowledge about the climate impact of buildings and increased availability of information about the impact on the environment and the climate of different choices made during the construction process. The Government has asserted that there is a need for additional instruments to reduce the climate impact of the construction of buildings (Government Offices of Sweden, 2020, p. 34, authors' translation from Swedish):

It is possible to influence the climate footprint that the construction of a building entails, e.g. through choice of materials, construction methods, design solutions, distance to material production, and resource planning. It is also possible to control the climate impact through the design. Through expertise in architecture, form, and design throughout the construction process, innovative processes, creative material choices and site-adapted solutions can be developed that meet climate requirements.

Knowledge is required about how different choices and decisions made during the construction process affect the climate footprint and behavioural changes in the

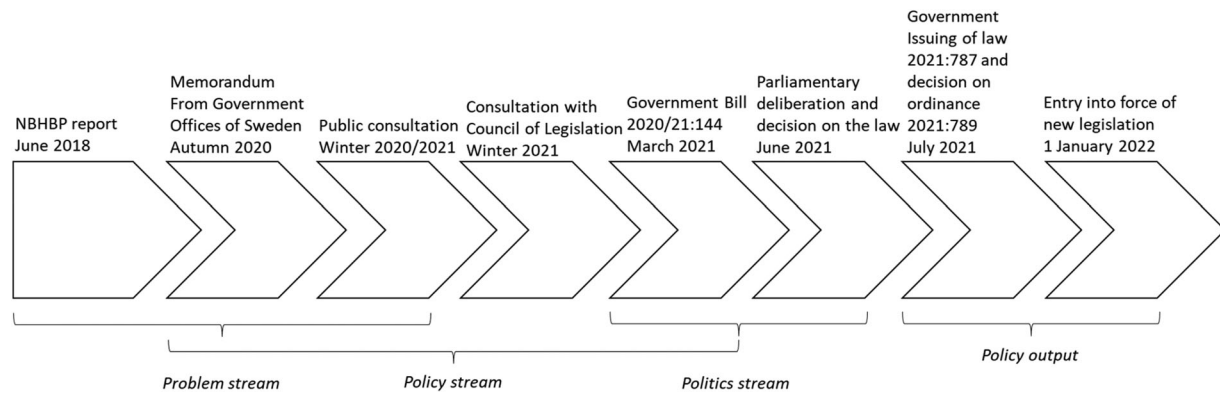


Figure 2. Timeline for the policy process for creating legislation mandating climate declarations for buildings.

construction and real-estate sectors. Improved insights into reducing climate impact can lead to a shift to more climate-smart choices during the construction process, to provide better conditions for the legislator to set requirements for the climate impact of buildings (NBHP, 2020).

The policy stream

The policy stream focuses on value acceptability, technical feasibility, resource adequacy and network integration. In the case of the climate declarations for buildings, there was one technically feasible idea available which was discussed by the policy community. A reduction of climate impact of buildings can be done through uptake of greenhouse gases, where uptake refers to, e.g. carbon storage in wood-based building materials. It also found value acceptability among the legislators and most IGs, although some IGs disputed the scope of the declaration, the timing when it should be presented to national authorities and the mandatory nature.

The proposal for a legislation on mandatory climate declaration for buildings

In February 2020, the Government Offices of Sweden (2020) presented a memorandum with a proposal for a new law on mandatory climate declarations for buildings. The purpose of the new law is to reduce the climate impact when constructing buildings by making this impact visible. As for the mandatory nature of the climate declarations, the Government Offices of Sweden stated that it will encourage and support the industry's driving forces to reduce climate impact in order to achieve more sustainable and environmentally friendly construction.

The Government Offices of Sweden proposed that the developer is responsible for drawing up and submitting a climate declaration to the 'NBHP'. The

requirement for a climate declaration applies to the construction of new buildings. Temporary buildings that are intended to be used for a maximum of two years, buildings that do not require a building permit according to the 'Planning and Building Act', industrial facilities and workshops, economic buildings for agriculture, forestry or other similar industries and buildings that do not have a gross area greater than 50.0 m² are proposed to be exempt from the requirement for a climate declaration. Furthermore, an exception is made for private individuals who erect a building in a way other than business activities. The developer must show that a climate declaration has been submitted, or that one of the exceptions is applicable, before a final notice can be issued by the building committee. Worth noting is that the systems in Finland and Denmark were not mentioned in the proposal, indicating that no policy diffusion occurred (cf. Goyal, 2021).

Interest groups' views on climate declarations for buildings

When the proposal was sent for public consultation, 115 organizations submitted answers. The majority of stakeholders approved of, or were generally positive about, the proposal from the *Government Offices of Sweden* about the introduction of legislation on climate declarations for new buildings.

Swedish Chemicals Inspectorate, Swedish Competition Authority, Swedish Environmental Protection Agency, Swedish Energy Agency, NBHP, Public Housing Sweden, HSB, Skanska Sverige, Peab, Akademiska Hus and Wallenstam, Swedish Installation Federation, Samhällsbyggarna and Tyréns Riksbyggen, supported the proposal and believed that the climate declaration would contribute to a build-up of knowledge and awareness and create conditions for the necessary behavioural changes and future minimum requirements from a life cycle perspective. *Riksbyggen* believed that instruments

are needed to complement the voluntary commitments that the Swedish construction sector has already made, such as 'Roadmaps for Fossil-Free Sweden',⁸ to achieve the national climate goal, and stated that climate declarations for buildings are a good first step. *The Swedish Wooden Building Secretariat* and the *Swedish Federation of Wood and Furniture Industry* are strongly engaged stakeholders on this issue and they agreed with this position and promoted that increased number of wooden buildings, since they would reduce embodied energy and GHG emissions during the construction phase.

However, some bodies were critical or predominantly negative about the proposal. The *Swedish Property Owners Federation* and the *Condominium Owners Federation* rejected the proposal and argued that the purpose of such declarations was to increase awareness and knowledge, in comparison with other declarations whose purpose is to demonstrate compliance or inform consumers and investors. Thus, they found the proposed policy instrument as is insufficient to justify the legal requirements. *Innovation Companies Federation*, *Tyréns*, *White Architects* and *WSP* believed that the requirement for a climate declaration should also be applied to renovation, because significant climate impacts are expected to arise during renovations and tenant adaptations.

The Swedish Association of Local Authorities and Regions (SALAR), representing all municipalities and regions, some municipalities and the *Swedish Construction Clients* were critical or hesitant about the proposal that municipal building committee may announce the final notice according to the Planning and Building Act only after the climate declaration has been submitted. Submission of the climate declaration at the point judged to be too late in the construction process to be able to lead to actual climate improvements. Many important choices that are decisive for the climate impact of a building are made during spatial planning and early in the design process. SALAR proposed instead that the client should report information about the upcoming building to the declaration register prior to the start notice, in order to supplement the declaration with a calculation of climate impact at a later stage. As a building permit, provided by the municipalities, is valid for five years, the law enforcement authority can use this time to supervise in situations where the climate declarations have not been submitted when the building is completed, and ensure that they are received. This limits the municipality's role in the system, argued SALAR. A similar critique was presented by *HSB* and one large municipality, who proposed that the requirement be supplemented with a

requirement for an initial climate declaration, presented at the latest when a building permit is issued. This makes the climate declaration to function as a policy instrument promoting choices about material and technology during the design phase.

The majority of stakeholders approved or had no objections to the declaration covering the climate impact of raw materials supply, transport, and manufacturing in the product phase, transport in the construction phase, and the construction and installation process in the construction production phase. For example, *HSB*, *Public Housing Sweden*, *Swedish Construction Clients* *Saint-Gobain Sweden* and the *Swedish Competition Authority* considered it reasonable to initially delimit the declaration to the embodied emissions from the construction phase. Some positive bodies, such as SALAR, the *Swedish Competition Authority* and the *Swedish Environmental Protection Agency*, pointed out, however, that in the long term it should be required that more stages of a building's life cycle be calculated as part of the declaration. The *Swedish Competition Authority* argued that a complete life cycle assessment today could be too complex for many actors to complete because the easily accessible data, knowledge and resources needed to make adequate calculations are lacking.

However, several stakeholders, including the *Swedish Property Owners Federation*, *Sweco*, *Swedish Concrete Federation*, *Swedisol*, *Riksbyggen*, *Swedish Construction Federation* and *WSP*, opposed the proposal and argued that the climate impact during a building's entire life cycle needs to be included. According to them, a climate declaration that only focuses on climate impact during the construction phase will lead to sub-optimizations and thus negative effects on the climate will mean that certain building materials are disadvantaged and distort competition and that other functions and technical requirements for the building will be downgraded. In its review of the proposal, the Government did not consider this critique to be sufficient to change its proposal, because it had already commissioned *NBHP* to elaborate on how life cycle emissions could be included in the future. *NBHP* (2020) proposed that target values covering life cycle emissions should be included from 2027. In spring 2022, the Government commissioned the *NBHP* to propose how life cycle criteria could be introduced at an earlier point. *NBHP* will report its findings in June 2023.

The politics stream

The politics stream is defined by the framing of the decision-making and the institutional formats around

the decision-making, including informal norms and values as well as the formal processes and legal arrangements. In line with established rules the initial proposal was sent for public consultation. Based on responses from stakeholders, a developed proposal was sent to the Council on Legislation (Lagrådet), before the government handed over its bill to the Riksdag, which approved the law. The politics stream was ripe when the government handed over its proposal to the Riksdag.

As for national mood, climate change has been an important topic on the public policy agenda in Sweden for decades and frames an informal institution of climate awareness. In the last 5–10 years, it has also been widely discussed in media and among the general public, e.g. as a result of Fridays for Future initiated by Greta Thunberg (Nordensvärd & Ketola, 2021). However, critical voices to Swedish climate policy have been raised in later years, particularly from the nationalist conservative Sweden Democrats (*Sverigedemokraterna*), the second largest party in the Riksdag (Hultman et al., 2019).

The public consultation only had a minor impact on the proposal in the bill, only some amendments had been made, e.g. on size of buildings covered, from $>50\text{ m}^2$ to $>100\text{ m}^2$. But the main design features, e.g. a mandatory system, focus on embodied GHG emissions from the construction phase, not entire life-cycle emissions, as well as the timing of handing in the declaration, remained unchanged. The implementation of climate calculations and the visibility of the results intends to increase builders' knowledge of the climate impact that arises during construction and thereby enhance developers to make conscious choices that reduce climate impact.

The bill was handed over to the Riksdag in March 2021 and was adopted in June 2021. Seven out of eight parties in the Riksdag, i.e. the Social Democrats (*Socialdemokraterna*), the Left Party (*Vänsterpartiet*), the Green Party (*Miljöpartiet*), the Centre Party (*Centern*), the Liberals (*Liberalerna*), the Conservative Party (*Moderaterna*) and the Christian Democrats (*Kristdemokraterna*), approved or gave consent to the government's proposal (Sveriges Riksdag, 2021c). The Riksdag shared the government's assessment that the climate impact when constructing buildings needs to be made visible. Construction accounts for one-fifth of society's climate impact, and it is necessary to have another policy instrument to reduce this climate impact. The Riksdag stated, like the government, that Sweden's climate goals require a faster transition in society towards low emissions. The Sveriges Riksdag (2021a) also stated that:

With a mandatory system for climate declarations, the industry's driving forces are encouraged and supported to reduce the climate impact in order to achieve a more sustainable and environmentally friendly construction. In addition, conditions are created for more developed life cycle assessments by developers and construction operators.

However, the Sweden Democrats, a nationalist conservative party, suggested that the government bill be rejected and that the Riksdag call on the government to give the appropriate authority the task of creating guidelines for climate certification linked to target values, as an informative starting point for voluntary climate certification in the market (Sveriges Riksdag, 2021a, 2021b). It comes as little surprise that the Sweden Democrats, with its scepticism towards climate change opted for a voluntary scheme. Thus, it is possible that in liberal democracies, like Sweden, policymakers and citizens desiring high levels of individual autonomy and responsibility may prefer instruments that are less coercive rather than other equally or perhaps more effective or efficient alternatives which do not promote these values. Thus, in such contexts stakeholders have, on philosophical or ideological grounds, shown to prefer voluntary and mixed instruments to compulsory instruments (Doern & Wilson, 1974; Doern, 1974; Howlett, 1991, 2004). Sweden is a liberal democracy, with a red and green government at the time the proposal was handed over to the Riksdag. The responsible minister at the time being was a member of the Green party (*Miljöpartiet*), which were in favour of coercive policy instruments besides financial subsidies for mitigating climate change.

Analysis

Lines of argument and dispute

The most widespread lines of argument and dispute, as identified above, related to design features of the policy instrument (Table 2). In addition, some IGs voiced arguments relating to other design features, including limitations to certain buildings, law enforcement and sanctions.

Table 2. Lines of dispute in relation to the proposal for a law on climate declaration for buildings.

<i>Design features of the new policy instrument</i>	
Policy instruments should be mandatory	Policy instruments should be voluntary
Focus on embodied GHG emissions during the construction phase	Focus on GHG emissions from the entire life cycle of a building
Submit climate declaration at final notice (construction phase)	Submit climate declaration with building permit or start notice (planning phase)

The first line of dispute focuses on whether the new legislation should be mandatory or voluntary. The vast majority of stakeholders as well as parties in the Riksdag were in favour of a mandatory system (Figure 3). The government argued that the building industry's voluntary commitments and initiatives should be supplemented with a new instrument on climate declarations. With a mandatory system for climate declarations, the industry's driving forces to reduce climate impact to achieve more sustainable and environmentally friendly construction are encouraged and supported. In addition, conditions are created for builders and construction actors to be able to provide more developed LCAs.

The second line of dispute concerned the scope of emissions to be included: construction-phase emissions only or entire lifecycle emissions. Advocates of construction-phase emissions argued that these emissions are the most important, which were the largest number (Figure 4), given the low emission rates from the operation of buildings. We have identified that they considered it reasonable to initially limit the declaration to the construction phase. It is also argued that it can be too complex today for many actors to draw up a complete LCA because the easily accessible data, knowledge and resources needed to make adequate calculations are lacking, there is a potential to use the policy instrument in this way. Advocates of lifecycle emissions argued that a climate declaration that only focuses on climate impact during the construction phase will lead to sub-optimizations and thus negative effects on the climate, that certain building materials are disadvantaged, and this distorts competition, and that other functions and technical requirements for the building are downgraded.

Finally, the third line of dispute addressed the point in the legislative process at which a climate declaration should be handed in to the responsible authority, i.e. municipalities. The Government Offices of Sweden

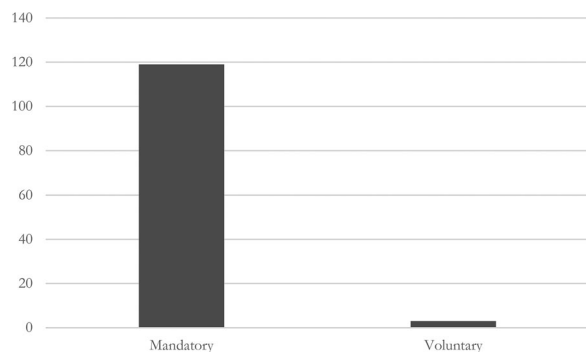


Figure 3. Number of stakeholders advocating mandatory or voluntary climate declarations for buildings.

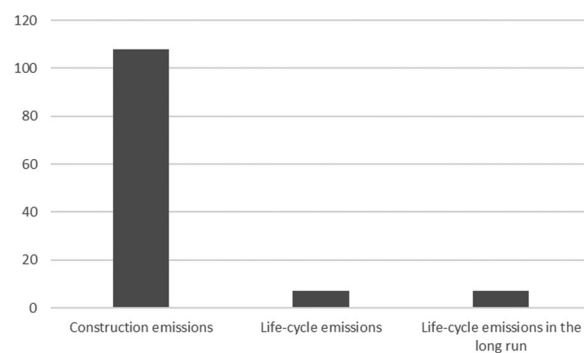


Figure 4. Number of stakeholders advocating different scope of emissions included in climate declarations for buildings.

(2020) and the Swedish government (2021) proposed, with support from a majority of stakeholders (Figure 5), that a climate declaration should be handed in prior to the municipalities' final notice, to minimize administrative burdens. Some IGs, however, argued that submitting the climate declaration at the point of final notice according to the Planning and Building Act was too late in the construction process to be able to lead to actual climate improvements. Many important choices that are decisive for the climate impact of a building are made during spatial planning and early in the design process. We note that few architects answered the public consultation. They work in a very early stage of the building process and their decisions have large impact for reducing the embodied GHG emissions of buildings (Häkkinen et al., 2015), if their stake had been more articulated there might have been more voices raised for undertaking and handing in the climate declarations in an early stage of the building process.

Given the overwhelming majority of stakeholders that supported the proposal for legislation of the Government Offices of Sweden, and the fact that all institutional arrangements were followed, we argue that

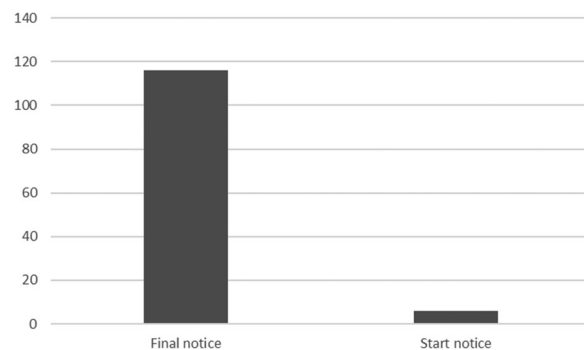


Figure 5. Number of stakeholders advocating different stages in the process when climate declarations for buildings should be handed in to the authorities.

there is legitimacy of the new legislation (cf. Jagers & Hammar, 2009; Vringer & Carabain, 2020). The law attracts the support of most of those directly involved in policymaking in the issue area or political sub-system involved, ranging from active public support (e.g. due to ideological or issue-related reasons) via acceptance (weak and strong) to consent (either active or passive).

Stakeholder groups

Based on the identification of lines of argument and dispute, six different stakeholder groups can be identified along the three disputed dimensions (Figure 6). The dominant group of stakeholders (number 1 in Figure 6), covering the government, a majority of parties in the Riksdag, national authorities, construction companies, construction material companies, etc., favour a mandatory system focusing on construction-phase emissions. The climate declaration should be handed in at the end of the construction phase, in order to get a final notice from the municipality. Some of the subordinate groups (3–5 in Figure 6), covering national authorities, construction companies, construction material companies, the representative of municipalities and regions, representatives of housing owners, technology

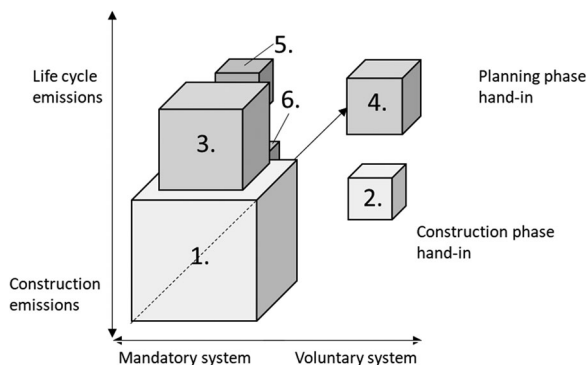


Figure 6. Stakeholder groups related to climate declarations for buildings. Note: The size of the cubes represents the size of the coalitions. (1) Government Offices of Sweden, Swedish government, NBHBP, Public Housing Sweden, Swedish Construction Clients, County administrative boards, Saint-Gobain Sweden, Swedish Competition Authority, Swedish Energy Agency, Swedish Chemicals Inspectorate, Akademiska Hus, PEAB, Skanska, Swedish Installation Federation, Swedish Institute of Steel Construction, Swedish Engineering Federation, Swedish Wooden Building Secretariat, Swedish Federation of Wood and Furniture Industry, Swedisol, Left Party, Social Democrats, Centre Party, Liberal Party, the Conservative Party, Christian Democrats, (2) Condominium Owners Federation, (3) Sweco, Swedish Concrete Federation, Swedisol, Riksbbyggen, Swedish Construction Federation, WSP, Swedish Environmental Protection Agency, Swedish Iron and Steel Federation, (4) Swedish Property Owners Federation, Sweden Democrats, (5) SALAR, (6) HSB.

consultants, etc., were in favour of lifecycle emissions. Four groups (1, 3, 5, 6) were in favour of a mandatory system, and two groups (5, 6) thought that climate declarations should be handed in earlier than suggested by the Government Offices of Sweden, at the same time as an application for a building permit is submitted. Two groups (2 and 4) advocated a voluntary system.

The networks forming the actor groups vary from sharing beliefs and discursive arguments, through deliberate coordination of political activities to implicit alliances where allies settle into roles and niches that complement each other (cf. Weible & Ingold, 2018). For instance, some group members, such as the *Swedish Wooden Building Secretariat* and the *Swedish Federation of Wood and Furniture Industry*, deployed outsider tactics by shaping public discourse, while others, such as *NBHBP* and *SALAR*, deployed insider tactics by working with the government to design regulations (cf. Gabehart et al., 2022). As for the actor groups on climate declarations for buildings in Sweden, there was little coordination among ‘members’ apart from in the Riksdag. Arguments were presented in the different organizations’ responses to the public consultation. No protest actions were identified. No clear clustering within the coalitions was identified based on types of actors, e.g. public organizations, building companies, or technology consultants, indicating that little coordination between organizations has taken place. As for advocacy apart from the public consultation, *SALAR* had close contact with the Government Offices on issues relating to the Planning and Building Act, since their member organizations – the municipalities – were supposed to manage the implementation of the new policy instrument. Other organizations contacting the Government Offices were the concrete and iron and steel industries, which claimed that the focus on emissions from the construction phase would discredit concrete and steel as building materials.

Opening the policy window

A policy window of opportunity may open when simultaneously a problem is recognized, a policy is available, and the political context is conducive to change, as in this case when the government and/or the Riksdag pays attention to an issue and perceives it as being problematic (Herweg et al., 2018). A policy solution is promoted by policy entrepreneurs with resources, strategies and access to the policy window where the streams can meet, as shown in this case in Figure 7.

The *problem stream* argues that what frames the legislation on mandatory climate declarations for buildings is the need to mitigate climate change, both in

general and in the building sector. Emissions from the operations phase have decreased; hence, there is now a focus on embodied GHG emissions from the construction phase. In addition, the Government Offices of Sweden considered there was a lack of information on the climate footprint of buildings, which is needed by architects and construction companies as well as the financial sector. These issues had been discussed for some years, but it was first when the *NBHP* and the Government Offices of Sweden presented their proposals for the new policy instrument, and the reasons for it, that the stream was ripe.

In the *policy stream* we identified several existing policies and policy instruments that provide a basis for new policy instruments to mitigate GHG emissions from buildings, e.g. the Swedish Climate Act, which includes a target for net-zero emissions by 2045, the Planning and Building Act, requiring energy performance criteria for buildings, mandatory energy labelling and voluntary eco-labelling of buildings. A new policy instrument could be either mandatory or voluntary, it could focus on embodied emissions from the construction phase or emissions from the entire lifecycle. It could also be an information tool, or a tool setting targeted emissions criteria. The proposal for a new law sent for public consultation was welcomed by a large majority of stakeholders, thus there was value acceptability in general. As for technical feasibility, embodied energy and GHG emissions can be reduced by an increased focus on wooden buildings, which had been advocated by the IGs for wooden buildings, the *Swedish Wooden Building Secretariat* and the *Swedish Federation of Wood and Furniture Industry* for some decades. Consequently, the Government Offices of Sweden (2004) proposed as early as 2004 a national strategy to support wooden buildings. This, together with the government's bill (Government of Sweden, 2018) on the designed environment, calling for more wooden buildings, prepared the way for the current policy stream, framing the agenda-setting. In relation to resource adequacy, i.e. whether there are sufficient resources to administer the new legislation, concerns have been raised about the capabilities of municipalities to handle new issues in the planning and building process. There are also concerns about the availability of methods and databases for undertaking full and legitimate LCA calculations for buildings.

It is interesting to note that the initial thoughts on a new policy instrument to reduce GHG emissions from buildings preceded the European Commission's (2021) proposal in the recast EPBD that all new buildings should have zero GHG emissions by 2030. The debate on

wooden buildings in Sweden has been ongoing for at least two decades. According to the policy officer in charge of climate declarations for buildings in the Swedish Government Offices, the new Climate Act gave room for the government to proceed with these thoughts, without waiting for initiatives or legislation from the EU.

The policy stream became ripe when the memorandum including the new policy instrument was sent on public consultation. There was only one policy option from the beginning, but the consultation initiated a debate on alternative designs of the policy instrument. Most IGs were positive to the proposal and there was value acceptability. As for network integration, the previous section presented the different stakeholder coalitions formed around the proposal. An explanation for the widespread consent and value acceptability to the proposal of the Government Offices is its similarity to a proposal in the construction sector's voluntary 'Roadmap for Fossil-Free Sweden',⁹ outlined together with the government's special envoy for a fossil-free Sweden.

The *politics stream* includes the preparation of the government's bill and the deliberation on the new legislation in the Riksdag. There was consensus in favour of the government's proposal among seven of the eight parties in the Riksdag. Only the Sweden Democrats advocated a voluntary scheme with GHG criteria for new buildings. It also includes the relationships between the government and the industry. Besides party ideology, an important feature of the institutional set-up for decision-making is the Swedish corporatist policy-making system with its consensual sensibilities (Petridou, 2017), and the strategic economic importance of the construction sector which has granted it special status in the Swedish welfare model, characterized by long-term cooperation and dialogue between the state, industry and the trade unions (Kronsell et al., 2019). Although it has the potential to achieve decarbonization objectives, it does so in the context of including mainly established economic interests, that is, incumbents. This stands in contrast to the arguments made in sustainable transition studies that incumbents obstruct change. Instead, in the Swedish case, they are viewed as potential change agents (Kronsell et al., 2019).

As for the *policy window*, it is opened by pushes from the problem stream and the policy stream. All stakeholders acknowledged the problem to decrease GHG emissions from buildings and the need for more information, but had different views on the details of the policy instrument. *NBHP* and the Government Offices of Sweden coupled the problem with a concrete proposal as for how to address the problems. What is going on

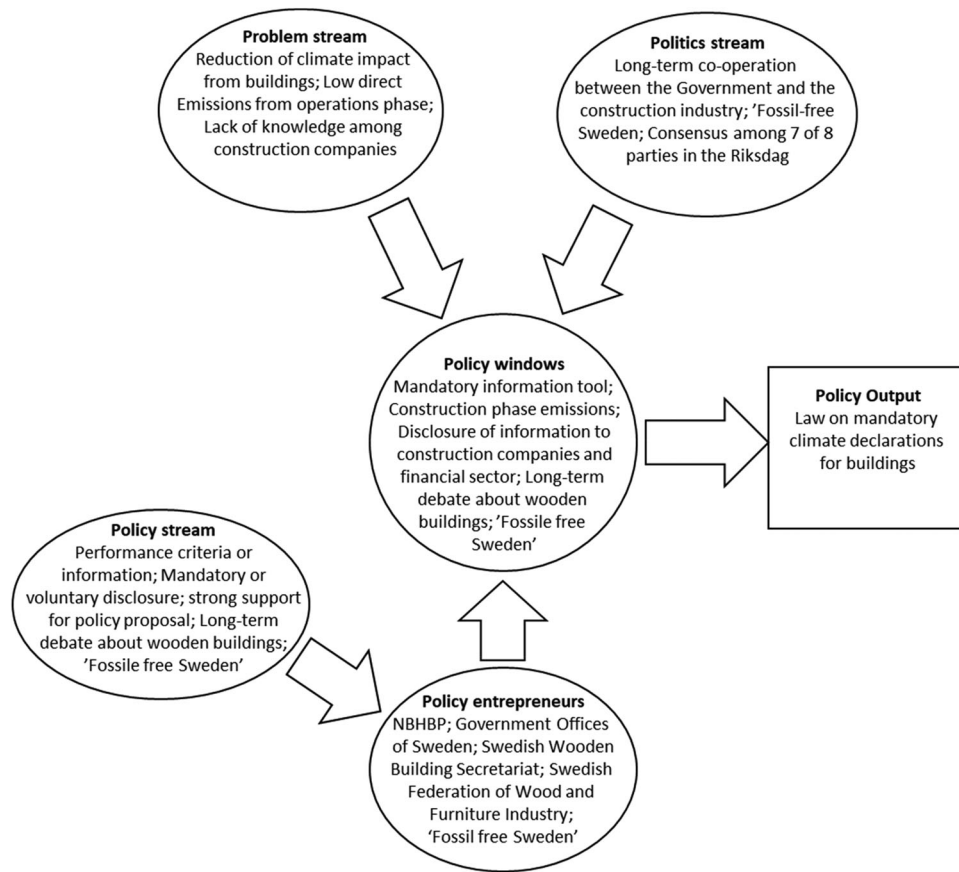


Figure 7. Multiple streams of the process leading to Swedish legislation on climate declarations for buildings.

in the problem stream is defining the conditions for coupling done by policy entrepreneurs, it creates the context for coupling (Knaggård, 2015). Framing of a condition as a problem makes us think about the problem in a particular way, which enables coupling to certain policies, but not to others. The framing of the problem was that embodied emissions from the construction of buildings was the main problem to address, thus the focus on embodied GHG emissions in the climate declarations. The focus was not on the entire life-cycle emissions from buildings.

Policy entrepreneurs

NBHBP and the Government Offices of Sweden as well as the government's envoy for the 'Fossil free Sweden' initiative, that worked together with the construction industry on a roadmap for a zero-carbon building sector, are the main policy entrepreneurs advocating mandatory legislation on climate declaration for buildings. The *Swedish Wooden Building Secretariat* and the *Swedish Federation of Wood and Furniture Industry* helped to provide data on the technical feasibility of wooden buildings. NBHBP, the Government Offices of Sweden

and the 'Fossil free Sweden' initiative coupled the problem stream with the policy stream. The Government Offices of Sweden helped the government link the policy stream with the politics stream.

This confirms the findings of Petridou (2017), that policy entrepreneurs in Sweden come from the ranks of public officials and thus policy entrepreneurship is a feature of the policy implementation stage rather than the agenda-setting stage of policymaking. There is not a place for the outsider, single issue entrepreneur in the Swedish consensual system, which provides for extensive inclusion, but of actors organized in IGs. Policy entrepreneurs are action-oriented, problem-solving doers, characterized by perseverance and resourcefulness and are key in consolidating policy change in the aftermath of a crisis (Petridou, 2017). In the Swedish corporatist consensual system, policy entrepreneurship becomes a conduit facilitating inter-connections among a multitude of actors that opens up additional channels of communication, while the policy entrepreneur is a network maker. Finally, policy entrepreneurship in Sweden is focused on forging a consensus rather than winning the competition: the art of quiet cooperation and collaboration.

Dealing with dualities

Frame differences among actors such as the lines of dispute discussed above can be understood as dualities between related but incompatible frames. Such duality can be dealt with in different ways, e.g. elimination, polarization, mutual adaptation, bargaining, reframing and interpenetration (Dewulf & Bouwen, 2012). In this case, the policy change was the result of negotiations, first in the government's handling of responses to the public consultation, and later in the Riksdag. However, the most critical views on the proposal sent for public consultation by the Government Offices of Sweden were not successful in these 'negotiations'. They had no advocate when the topic was coupled to the politics stream. It was the views of the dominant coalition that made it into the new law. The most widespread critique of the proposal was the focus on embodied emissions during the construction phase, and not during the entire lifecycle. Given this critique, the NBHBP had already been commissioned by the government, before the bill was submitted to the Riksdag, to propose a plan for the further development of the legislation on climate declarations so that they encompass a building's entire lifecycle, as well as normative limit values for GHG performance criteria, similar to the system in Finland (Kuittinen & Häkkinen, 2020). Given this suggestion, it seems that the current legislation is only half-baked. The government thought that calculations of lifecycle emissions would be too complex at the beginning and that methods needed to be developed before a law on climate performance criteria could be passed to the Riksdag. This would lead to renewed advocacy and negotiations of the revised law, with those who have an interest in the technical methodologies required to calculate lifecycle emissions stepping forward, similar to the case of standards for near-zero-energy buildings (cf. Niskanen & Roracher, 2022).

Dealing with the dualities along the lines of dispute in our case, the Government Offices of Sweden and later the Swedish government wanted to get rid of one of both poles. This has been variously conceptualized as *elimination* or *pruning*, *excluding* diversity by keeping diverse elements out, *selection* as favouring one pole of a dichotomy over the other, or in a slightly different manner, *assimilating* the different elements into clones of the dominant element (Dewulf & Bouwen, 2012). Policy entrepreneurs can also use different discursive techniques and interaction strategies for (re)framing the problem and policy solution and doing differences, e.g. persuasive framing and boundary work as well as frame incorporation, frame disconnection, frame

polarization, frame accommodation and frame reconnection (Dewulf & Bouwen, 2012).

In this case, the Government Offices of Sweden and later the Swedish government, as policy entrepreneurs, used persuasive framing and boundary work to argue and defend its proposal on the mandatory climate declaration of buildings. The Government Offices of Sweden and later the Swedish government favoured a mandatory scheme with focus on embodied GHG emissions from the construction phase, and that the climate declaration should be handed in to the municipality in time for the decision on a final notice. They used frame disconnection, disconnecting the challenging elements on a voluntary scheme from the ongoing conversation as irrelevant, unimportant, or off topic. The Swedish government (2021, p. 24) said that a mandatory system is needed since 'more actors need to implement behavioural changes and to a greater extent implement more choices of products and solutions with less climate impact'. They used frame polarization, polarizing the views on a mandatory versus a voluntary scheme, by reaffirming their own issue framing contrary to the issue framing of the *Swedish Concrete Federation* and others on the focus on full life-cycle emissions from the ongoing conversation as irrelevant, unimportant, or off topic. The government said it would be too complex to focus on life-cycle emissions. Frame disconnection was also used in relation to when a climate declaration should be handed in to the authorities. The government considered that SALAR's proposed design is

deemed to entail significant uncertainty regarding the application of the requirement and the quality of the climate declarations, while at the same time making it more difficult to supervise the system did not consider such a design to be appropriate. (Government of Sweden, 2021, p. 27)

Conclusions, policy implications and future research

This paper aimed to explore and explain the policy process involved in the formulation of the climate declarations for buildings as a new climate policy instrument in Sweden through an analysis of the window of opportunity in agenda setting, policy formulation and decision-making. We conclude that the policy window opened through a unique and timely coordination of the problem stream, the policy stream and the politics stream by a coalition of policy entrepreneurs, consisting of the NBHBP, the Government Offices of Sweden and the work of the government's special envoy on a

'Fossil-free Sweden'. They identified and framed the problem and suggested a policy option to deal with the problem. Of some importance were also the works of *Swedish Wooden Building Secretariat* and the *Swedish Federation of Wood and Furniture Industry*, who had long been advocating more wooden buildings, which would reduce the embodied GHG emissions of buildings.

We also conclude that MSF is a fruitful theory to analyse and understand the policy process. To the analysis of different streams and the role of policy entrepreneurs in coupling the streams and opening the policy window, our study adds to the MSF an identification and discussion about coalitions formed in the policy process. This enhances the understanding of the policy debate and the value acceptability in the policy stream.

The focus of the paper was the formulation of the Swedish law on climate declaration for buildings. The policy process is related to the specific circumstances in Swedish policymaking at the national level, but lessons can nevertheless be drawn for an international audience. These refer to the design features of the new policy tool. Should climate declarations be mandatory, as in Sweden, or voluntary as in Denmark (Hesselsen-Nielsen et al., 2022) and argued by some stakeholders in Sweden? Should the climate declaration focus on embodied emissions in the construction phase as in Sweden, or the entire life-cycle as in Finland (Kuittinen & Häkkinen, 2020)? Should the climate declaration be handed in to the authorities at the final stage in the construction process, as is the case in the Swedish system, or should it be handed in at the beginning of the construction process, as suggested by some Swedish stakeholders? The answers to these questions will be decisive for the impact of the new policy instrument on the design of buildings and thus on their carbon footprint.

A majority of stakeholders expressed support or consent to the proposal in their answers to the public consultation. However, some key stakeholders were critical of the proposal to introduce a new mandatory law on climate declarations for buildings and argued that the stated purpose of the declarations – to increase awareness and knowledge – is insufficient to justify legal requirements in comparison with other declarations whose purpose is to demonstrate compliance or inform third parties, such as consumers and investors. They argued that a voluntary scheme would suffice. Since our study only analysed the views of stakeholders on the legislation prior to its adoption, it would be relevant to follow up the impact and compare effects of different policy instruments within the EU.

There are currently several voluntary eco-certification or eco-labelling schemes for buildings on the Swedish market, e.g. BREEAM, LEED, and Sweden Green Building Council's 'GreenBuilding' and 'Zero-CO₂' (cf. Blum et al., 2001; Medved et al., 2019; Seinre et al., 2014; Skillington et al., 2022; Van der Heijden, 2015). There is a need to further analyse the political, economic and technical constructions of policy instruments, as criteria that address GHG emissions during the construction of a building, green financing (Bertoldi et al., 2021), and assessments of the climate impact of buildings, to increase the knowledge and a transparent basis for future policymaking. More stringent requirements based on the climate impact of buildings in the industry should therefore be promoted in order to switch to more sustainable construction with reduced climate impact. A relevant question for future research is: What would be the role of mandatory climate declarations in relation to voluntary eco-labelling schemes on the market? Further research should also analyse relations among mandatory climate declarations for buildings, voluntary eco-labelling schemes and green public procurement, since non-state governance, which develops voluntary schemes, has been shown to challenge traditional state authority (Guldbrandsen 2006).

Notes

1. Environmental indicators from the National Board of Housing, Building and Planning, <https://www.boverket.se/sv/byggande/hallbart-byggande-och-forvaltning/miljoindikatorer---aktuell-status/vaxthusgaser/> (Last accessed 22 May 2023).
2. <https://www.naturvardsverket.se/en/topics/climate-transition/sveriges-klimatarbete/swedens-climate-act-and-climate-policy-framework/> (Last accessed 22 May 2023).
3. Similar policies have been or are currently being implemented in Denmark, Finland and Norway.
4. All answers are publicly available in Swedish at: <https://www.regeringen.se/remisser/2020/05/remiss-av-ds-20204-klimatdeklaration-for-byggnader/> (Last accessed 22 May 2023).
5. <https://www.regeringen.se/remisser/2020/05/remiss-av-ds-20204-klimatdeklaration-for-byggnader/> (Last accessed 22 May 2023).
6. <https://data.riksdagen.se/fil/71A7C402-A211-4342-BF83-4A3F23C18591> (Last accessed 22 May 2023).
7. Environmental indicators from the National Board of Housing, Building and Planning, <https://www.boverket.se/sv/byggande/hallbart-byggande-och-forvaltning/miljoindikatorer---aktuell-status/vaxthusgaser/> (last accessed 22 May 2023).
8. <https://fossilfrittssverige.se/en/roadmaps/> (Last accessed 22 May 2023).
9. <https://fossilfrittssverige.se/en/roadmap/the-construction-and-civil-engineering-sector/> (Last accessed 22 May 2023).

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References

- Ackrill, R., Kay, A., & Zahariadis, N. (2013). Ambiguity, multiple streams, and EU policy. *Journal of European Public Policy*, 20(6), 871–887. <https://doi.org/10.1080/13501763.2013.781824>
- Anand, C. K., & Amor, B. (2017). Recent developments, future challenges and new research directions in LCA of buildings: A critical review. *Renewable and Sustainable Energy Reviews*, 67, 408–416. <https://doi.org/10.1016/j.rser.2016.09.058>
- Bertoldi, P., & Boza-Kiss, B. (2017). Analysis of barriers and drivers for the development of the ESCO markets in Europe. *Energy Policy*, 107, 345–355. <https://doi.org/10.1016/j.enpol.2017.04.023>
- Bertoldi, P., Economidou, M., Palermo, V., Boza-Kiss, B., & Todeschi, V. (2021). How to finance energy renovation of residential buildings: Review of current and emerging financing instruments in the EU. *WIREs Energy and Environment*, 10(1), e384. <https://doi.org/10.1002/wene.384>
- Béland, D. (2016). Kingdon reconsidered: Ideas, interests and institutions in comparative policy analysis. *Journal of Comparative Policy Analysis: Research and Practice*, 18(3), 228–242. <https://doi.org/10.1080/13876988.2015.1029770>
- Blomqvist, S., Ödlund, L., & Rohdin, P. (2022). Understanding energy efficiency decisions in the building sector: A survey of barriers and drivers in Sweden. *Cleaner Engineering and Technology*, 9, 100527. <https://doi.org/10.1016/j.clet.2022.100527>
- Blum, A., Deilmann, C., & Neubauer, F. S. (2001). Eco-labeling for buildings. In N. Maiellaro (Ed.), *Towards sustainable building* (Vol. 61, pp. 43–57). Springer. https://doi.org/10.1007/978-94-017-3563-6_4
- Carter, N., & Jacobs, M. (2013). Explaining radical policy change: The case of climate change and energy policy under the British Labour Government 2006–2010. *Public Administration*, 92(1), 125–141. <https://doi.org/10.1111/padm.12046>
- Crow, D. A. (2010). Policy entrepreneurs, issue experts, and water rights policy change in Colorado. *Review of Policy Research*, 27(3), 299–315. <https://doi.org/10.1111/j.1541-1338.2010.00443.x>
- Dewulf, A., & Bouwen, R. (2012). Issue framing in conversations for change: Discursive interaction strategies for ‘doing differences’. *Journal of Applied Behavioral Science*, 48(2), 168–193. <https://doi.org/10.1177/0021886312438858>
- Doern, G.B. (1974). The concept of regulation and regulatory reform. In G. B. Doern & V. S. Wilson (Eds.), *Issues in Canadian Public Policy* (pp. 8–35). Macmillan.
- Doern, G.B., & Wilson, V.S. (1974). Conclusions and observations. In G. B. Doern, & V. S. Wilson (Eds.), *Issues in Canadian Public Policy* (pp. 337–345). Macmillan.
- Dunlop, T., & Völker, T. (2023). The politics of measurement and the case of energy efficiency policy in the European Union. *Energy Research & Social Science*, 96, 102918. <https://doi.org/10.1016/j.erss.2022.102918>
- Economidou, M., Todeschi, V., Bertoldi, P., D’Agostino, D., Zangheri, P., & Castellazzi, L. (2020). Review of 50 years of EU energy efficiency policies for buildings. *Energy and Buildings*, 225, 110322. <https://doi.org/10.1016/j.enbuild.2020.110322>
- European Commission. (2021). *Proposal for a directive of the European Parliament and the Council on the energy performance of buildings (recast)*, COM(2021) 802 final, Brussels: European Commission. EUR-Lex - 52021PC0802 - EN - EUR-Lex (europa.eu).
- Fenner, A. E., Kibert, C. J., Woo, J., Morque, S., Razkenari, M., Hakim, H., & Lu, X. (2018). The carbon footprint of buildings: A review of methodologies and applications. *Renewable and Sustainable Energy Reviews*, 94, 1142–1152. <https://doi.org/10.1016/j.rser.2018.07.012>
- Gabehart, K. M., Nam, A., & Weible, C. M. (2022). Lessons from the Advocacy Coalition Framework for climate change policy and politics. *Climate Action*, 1(1), 13. <https://doi.org/10.1007/s44168-022-00014-5>
- Goldstein, B., & Rasmussen, F. N. (2018). LCA of buildings and the built environment. In M. Hauschild, R. Rosenbaum, & S. Olsen (Eds.), *Life cycle assessment* (pp. 695–722). Springer. https://doi.org/10.1007/978-3-319-56475-3_28
- Government of Sweden. (2018). *Politik för gestaltad livsmiljö*, Government Bill 2017/18:110, Stockholm. <https://www.regeringen.se/492796/contentassets/8ecb8b5973924e6b9e93627c041d27a6/politik-for-gestaltad-livsmiljo-prop.-201718110.pdf>
- Government of Sweden. (2021). *Klimatdeklaration för byggnader*, Government Bill 2020/21:1144, Stockholm. <https://www.regeringen.se/4955e9/contentassets/8012373f173e44b19b96d9c7c314ffd9/klimatdeklaration-for-byggnader-prop.-202021144.pdf>
- Government Offices of Sweden. (2004). *Mer trä i byggandet: Underlag för en nationell strategi att främja användning av trä i byggandet*, Ds 2004:1, Stockholm. <https://www.regeringen.se/49bbba/contentassets/622a4cddc02a4026a3bc3c4f5d5b94aa/mer-tra-i-byggandet-underlag-for-en-nationell-strategi-for-att-framja-tra-i-byggandet-ds-20041>
- Government offices of Sweden. (2020). *Klimatdeklaration för byggnader*, Ds 2020:4, Stockholm: Government Offices of Sweden. <https://www.regeringen.se/4a4044/contentassets/3e13a513131b447f8b1e41eddcbbf6b5/klimatdeklaration-for-byggnader-ds-20204.pdf>
- Goyal, N. (2021). Policy diffusion through multiple streams: The (non-)adoption of energy conservation building code in India. *Policy Studies Journal*, 50(3), 641–669. <https://doi.org/10.1111/psj.12415>

- Guldbrandsen, L. H. (2006). Creating markets for eco-labelling: Are consumers insignificant? *International Journal of Consumer Studies*, 30(5), 477–489. <https://doi.org/10.1111/j.1470-6431.2006.00534.x>
- Häkkinen, T., Kuittinen, M., Ruuska, A., & Jung, N. (2015). Reducing embodied carbon during the design process of buildings. *Journal of Building Engineering*, 4, 1–13. <https://doi.org/10.1016/j.jobe.2015.06.005>
- Herweg, N., Zahariadis, N., & Zohnhöfer, R. (2014). The multiple streams framework: Foundations, refinements, and empirical applications. In C. M. Weible & P. A. Sabatier (Eds.), *Theories of the policy process* (4th ed., pp. 17–53). Routledge.
- Hesselsteen-Nielsen, L., Tozan, B., Birgisdóttir, H., & Wittchen, K. (2022). *CO₂ requirements and special building requirements*, Build report 2022:27, Aalborg: Aalborg University. <https://www.lcabg.dk/en/publications/>
- Howlett, M. (1991). Policy instruments, policy styles, and policy implementation: National approaches to theories of instrument choice. *Policy Studies Journal*, 19(2), 1–21. <https://doi.org/10.1111/j.1541-0072.1991.tb01878.x>
- Howlett, M. (2004). Beyond good and evil in policy implementation: Instrument mixes, implementation styles, and second generation theories of policy instrument choice. *Policy & Society*, 23(2), 1–17. [https://doi.org/10.1016/S1449-4035\(04\)70030-2](https://doi.org/10.1016/S1449-4035(04)70030-2)
- Hultman, M., Björk, A., & Viinikka, T. (2019). *The far right and climate change denial*. Routledge.
- IEA. (2021). *World energy outlook*. International Energy Agency.
- Jagers, S. C., & Hammar, H. (2009). Environmental taxation for good and for bad: The efficiency and legitimacy of Sweden's carbon tax. *Environmental Politics*, 18(2), 218–237. <https://doi.org/10.1080/09644010802682601>
- Kern, F., Kivimaa, P., & Martiskainen, M. (2017). Policy packaging or policy patching? The development of complex energy efficiency policy mixes. *Energy Research & Social Science*, 23, 11–25. <https://doi.org/10.1016/j.erss.2016.11.002>
- Kingdon, J. (1984). *Agendas, alternatives and public policies*. Harper Collins.
- Knaggård, Å. (2015). The multiple streams framework and the problem broker. *European Journal of Political Research*, 54(3), 450–465. <https://doi.org/10.1111/1475-6765.12097>
- Kronsell, A., Khan, J., & Hildingsson, R. (2019). Actor relations in climate policymaking: Governing decarbonisation in a corporatist green state. *Environmental Policy and Governance*, 29(6), 399–408. <https://doi.org/10.1002/eet.1867>
- Kuittinen, M., & Häkkinen, T. (2020). Reduced carbon footprints of buildings: New Finnish standards and assessments. *Buildings and Cities*, <https://doi.org/10.5334/bc.30>
- Matti, S., Petersson, C., & Söderberg, C. (2021). The Swedish climate policy framework as a means for climate policy integration: An assessment. *Climate Policy*, 21(9), 1146–1158. <https://doi.org/10.1080/14693062.2021.1930510>
- Medved, S., Domjan, S., & Arkar, C. (2019). Environmental labelling of buildings. In S. Medved, S. Domjan, & C. Arkar (Eds.), *Sustainable technologies for nearly zero energy buildings*. Springer tracts in civil engineering (pp. 357–388). Springer. https://doi.org/10.1007/978-3-030-02822-0_14
- Moncaster, A. M., & Song, J. Y. (2012). A comparative review of existing data and methodologies for calculating embodied energy and carbon of buildings. *International Journal of Sustainable Building Technology and Urban Development*, 3(1), 26–36. <https://doi.org/10.1080/2093761X.2012.673915>
- NBHBP. (2018). *Klimatdeklaration av byggnader: Förslag på metod och regler – Slutrapport*. National Board of Housing, Building and Planning. https://www.boverket.se/globalassets/publikationer/dokument/2018/klimatdeklaration-av-byggnader_slutrapport.pdf
- NBHBP. (2020). *Regulation on climate declarations for buildings proposal for a roadmap and limit values*. National Board of Housing, Building and Planning. <https://www.boverket.se/globalassets/publikationer/dokument/2020/regulation-on-climate-declarations-for-buildings.pdf>
- Niskanen, J., & Roracher, H. (2022). A politics of calculation: Negotiating pathways to zero-energy buildings in Sweden. *Technological Forecasting and Social Change*, 179, 121630. <https://doi.org/10.1016/j.techfore.2022.121630>
- Nordensvärd, J., & Ketola, M. (2021). Populism as an act of storytelling: Analyzing the climate change narratives of Donald Trump and Greta Thunberg as populist truth-tellers. *Environmental Politics*, 31(5), 862–882. <https://doi.org/10.1080/09644016.2021.1996818>
- Petridou, E. (2017). *Political entrepreneurship in Swedish: Towards a (Re)theorization of entrepreneurial agency* [PhD dissertation in political science]. Östersund, Sweden: Mid Sweden University. <http://miun.diva-portal.org/smash/get/diva2:1057901/FULLTEXT02.pdf>
- Röck, M., Saade, M. R. M., Balouktsi, M., Rasmussen, F. N., Birgisdóttir, H., Frischknecht, R., Habert, G., Lützkendorf, T., & Passer, A. (2020). Embodied GHG emissions of buildings – The hidden challenge for effective climate change mitigation. *Applied Energy*, 258, 114107. <https://doi.org/10.1016/j.apenergy.2019.114107>
- Rubino, A. (2017). Energy efficiency: Governance in the EU. *Nature Energy*, 2(6), 17097. <https://doi.org/10.1038/nature.2017.97>
- Sadri, H., Pourbagheri, P., & Yitmen, I. (2022). Towards the implications of Boverket's climate declaration act for sustainability indices in the Swedish construction industry. *Building and Environment*, 207(Part A), 108446. <https://doi.org/10.1016/j.buildenv.2021.108446>
- Seinre, E., Kurnitski, J., & Voll, H. (2014). Building sustainability objective assessment in Estonian context and a comparative evaluation with LEED and BREEAM. *Building and Environment*, 82, 110–120. <https://doi.org/10.1016/j.buildenv.2014.08.005>
- Skillington, K., Crawford, R. H., Warren-Myers, G., & Davidson, K. (2022). A review of existing policy for reducing embodied energy and greenhouse gas emissions of buildings. *Energy Policy*, 168, 112920. <https://doi.org/10.1016/j.enpol.2022.112920>
- Söderholm, K., & Wihlborg, E. (2016). Striving for sustainable development and the coordinating role of the central government: Lessons from Swedish housing policy. *Sustainability*, 8(8), 827. <https://doi.org/10.3390/su8080827>
- Sveriges Riksdag. (2021a). *Klimatdeklaration för byggnader, Civilutskottets betänkande 2020/21:CU23*. Sveriges Riksdag. https://www.riksdagen.se/sv/dokument-lagar/arende/betankande/klimatdeklaration-for-byggnader_H801CU23
- Sveriges Riksdag. (2021b). *Riksdagens protokoll 2020/21:145, måndagen den 21 juni*. Sveriges Riksdag. <https://data.riksdagen.se/fil/71A7C402-A211-4342-BF83-4A3F23C18591>

- Sveriges Riksdag. (2021c). *Riksdagens protokoll 2020/21:146, tisdagen den 22 juni*. Sveriges Riksdag. <https://data.riksdagen.se/fil/2DA9AE56-FBEA-4F25-A042-454C0C620A8C>
- Terés-Zubiaga, J., Pérez-Iribarren, E., González-Pino, I., & Sala, J. M. (2018). Effects of individual metering and charging of heating and domestic hot water on energy consumption of buildings in temperate climates. *Energy Conversion and Management*, 171, 491–506. <https://doi.org/10.1016/j.enconman.2018.06.013>
- Van der Heijden, J. (2015). On the potential of voluntary environmental programmes for the built environment: A critical analysis of LEED. *Journal of Housing and the Built Environment*, 30(4), 553–567. <https://doi.org/10.1007/s10901-014-9428-z>
- Visscher, H., Meijer, F., Majcen, D., & Itard, L. (2016). Improved governance for energy efficiency in housing. *Building Research & Information*, 44(5–6), 552–561. <https://doi.org/10.1080/09613218.2016.1180808>
- Vringer, K., & Carabain, C. L. (2020). Measuring the legitimacy of energy transition policy in The Netherlands. *Energy Policy*, 138, 111229. <https://doi.org/10.1016/j.enpol.2019.111229>
- Weible, C. M., & Ingold, K. (2018). Why advocacy coalitions matter and practical insights about them. *Policy & Politics*, 46(2), 325–343. <https://doi.org/10.1332/030557318X15230061739399>