



**SAPIENS
NETWORK**

Sustainability and Procurement
in International, European, and
National Systems

SAPIENS Working Paper

March/2024

Directive 2023/1791 EED: A Step Closer to or a Missed Opportunity for Mandatory Green Public Procurement Criteria Through Sectoral Legislation

Alexandru Buftic

Work Package 3

Sectorally applied SPP



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 956696.

Directive 2023/1791 EED: A Step Closer to or a Missed Opportunity for Mandatory Green Public Procurement Criteria Through Sectoral Legislation

Abstract:

The European Union's Directive 2023/1791 EED is a critical step in the European Union's trajectory towards climate neutrality by 2050, instituting enforceable Green Public Procurement criteria. This article delves into the Directive's implementation complexities, scrutinising its potential to navigate the EU energy policy evolution and foster sustainability in public procurement. Notably, Article 7 and Annex IV of the Directive demonstrate a clear shift by mandating high energy efficiency performance standards across various sectors, signifying a move from discretionary to compulsory Green Public Procurement criteria. Despite its robust policy stance, the Directive faces practical impediments, including diverse Member States compliance levels and the need to balance regulatory directives with market dynamics. While the Directive aims to position public authorities at the forefront of sustainable procurement, catalysing market transformation, it walks a delicate line between legislative ambition and actionable enforcement. The variability in economic and technological capacities among Member States could hinder uniform application. By introducing a framework that allows for enforceable, adaptive, and technology-sensitive specifications, the Directive could bridge the gap between policy and practice, optimising its impact on energy consumption and environmental sustainability. However, addressing potential ambiguities in interpretation, the economic burden on public entities, and institutional inertia remains critical for its rigorous and effective implementation. This article provides a comprehensive analysis of Directive 2023/1791, situating it within the EU's broader energy policy framework, and critically evaluates its potential to change the Union's approach to energy efficiency and Green Public Procurement.

Keywords: EU Energy Efficiency, Energy Efficiency Directive, Green Public Procurement, Sustainable Construction, Climate Neutrality Legislation, Public Buildings

Acknowledgements

This working paper was written under the auspices of the European Union's Horizon 2020 research and innovation programme under the Maria Skłodowska-Curie grant agreement No.956696.

Correspondence address: Alexandru Buftic, Babeş-Bolyai University, The Faculty of Political, Administrative and Communication Sciences, Traian Moşoiu Street, nr. 71, 400132, Cluj-Napoca, Romania, email: alexandru.buftic@ubbcluj.ro

Introduction

The dynamic evolution of the European Union's (EU) energy efficiency policy has been influenced by a combination of historical challenges, market responses, and legislative interventions. Among these historical challenges are pivotal moments such as the oil embargo of the 1970s and the global recession of 2008. These events, alongside recognised market failures, have underscored the importance of addressing energy efficiency not just as an economic concern but also as a strategic and environmental imperative.

Energy efficiency, in essence, is about using less energy input to achieve the same or an improved level of output or service. In the context of buildings, this translates to maintaining or enhancing comfort levels, functionality, and safety while reducing the energy consumed. The pursuit of energy efficiency in buildings is crucial for many reasons. From an economic standpoint, it reduces operational costs and enhances energy security by decreasing reliance on external energy sources (EPSR, 2020; Gerarden *et al.*, 2017; Mata Pérez *et al.*, 2019). Environmentally, improved efficiency mitigates greenhouse gas emissions and contributes to climate change mitigation efforts (COMBI, 2018). Socially, it can alleviate energy poverty, improve living conditions, and generate employment opportunities in the energy services sector (Ürge-Vorsatz *et al.*, 2016).

Public buildings, in particular, play a pivotal role in the energy efficiency landscape. As significant energy consumers and highly visible community fixtures, they offer substantial potential for efficiency improvements and serve as influential demonstrators for the wider building stock. However, realising this potential is hindered by a complex web of market failures. Firstly, a salient market failure impedes the realisation of these benefits: the 'energy efficiency gap'—the divergence between current energy efficiency levels and their economically viable potential (Backlund *et al.*, 2012; Gerarden *et al.*, 2017; Gillingham *et al.*, 2009; Jaffe and Stavins, 1994). This gap signifies an actionable misallocation of resources, underscoring the need for regulatory intervention to redirect market trajectories toward optimal societal outcomes (Sanchez Graells, 2014). Secondly, information asymmetries and split incentives between building owners, managers, and occupants obscure the benefits of efficiency investments and deter action (Altwies and Nemet, 2013; Gillingham *et al.*, 2009). Thirdly, the public good nature of many efficiency measures in public buildings dilutes individual incentives to invest, as benefits are dispersed across taxpayers (McFarlane *et al.*, 2021). Finally, and most critically, the negative externalities of energy use, such as carbon emissions and air pollution, are not adequately priced, leading to an undervaluation of efficiency (Auffhammer, 2018; Levesque *et al.*, 2021).

Addressing this energy efficiency gap necessitates multifaceted interventions. The EU confronts energy security challenges stemming from reliance on external energy sources and grapples with externalities like the under-pricing of environmental impacts (EPSR, 2020; Gerarden *et al.*, 2017; Mata Pérez *et al.*, 2019). Simultaneously, it recognises the expansive impact of energy efficiency, from macroeconomic vitality and air quality enhancement to job creation and, critically, climate change mitigation (COMBI, 2018). Governments can bridge information gaps by mandating energy audits, performance disclosure, and benchmarking for public buildings (Kontokosta *et al.*, 2020a, 2020b; Yilmazoglu, 2017). They can correct split incentives through innovative financing mechanisms and procurement policies prioritising lifecycle costs over upfront expenses (Ahlrichs *et al.*, 2020; Charlier, 2015; Economidou *et al.*, 2023). Most importantly, they can internalise environmental externalities through carbon pricing, stricter building codes, and leadership by example in their own building stock (Enker and Morrison, 2020; Freire-González, 2020; Levesque *et al.*, 2021). However, striking the right balance between regulatory measures and market mechanisms is delicate, as excessive intervention may risk further market distortion (Sanchez Graells, 2014).

In response to these challenges, central to the EU's strategy is the Energy Efficiency Directive 2023/1791 (hereafter EED 2023 or Directive) (EP and CEU, 2023). Designed to propel the EU toward climate neutrality by 2050, the Directive underscores the inadequacy of previous measures in achieving desired energy consumption reductions. Recent reports for 2023 reveal a troubling trend: only 16 EU countries met the deadline to submit updated National Energy and Climate Plans (NECPs) to the European Commission for the period leading to 2030, and astonishingly, none fully adhere to the latest energy efficiency benchmarks (The Coalition for Energy Savings, 2023). Specifically, the Directive mandates Member States (MS) to curtail their energy consumption by a minimum of 11.7% by 2030 (Art 4), coupled with an annual reduction target of 1.5% in final energy consumption from 2024 to 2030. Highlighting the public sector's leadership (Art 5, pr1), the Directive positions public authorities not just as regulatory entities but as influential market participants.

In this context, strategic state procurement—beyond its fiscal role—serves as a catalyst for innovation. As Perez asserts in (Lember *et al.*, 2014), through directed public investment, the state can encourage private sector ingenuity, driving both market expansion and technological advancements that are crucial for addressing environmental issues. Public procurement is instrumental in this regard, with public authorities as significant market players, using their purchasing power to effect change. By advocating for sustainable procurement policies, they not only guide market demand toward sustainability but also stimulate the development of energy-efficient solutions in the private sector. This approach is in harmony with the Directive's updated provisions, demonstrating how public entities can leverage their procurement strategies to foster an environment where energy efficiency is not just a directive but an integrated practice.

However, the balance between promoting energy efficiency and accommodating other economic and political considerations is delicate. Introducing the Directive EED 2023 exemplifies the EU's commitment to bridging this balance. It is noteworthy that while regulation, such as this Directive, can act as a remedy to market failures, its design and implementation must be carefully considered to avoid unintended consequences. This article aims to delve deeper into the implications of this Directive, particularly its potential to mandate Green Public Procurement (GPP) Criteria through sectoral legislation and assess its role in addressing the multifaceted challenges posed by the energy efficiency gap.

Leveraging Public Procurement and Sectoral Legislation for EU Sustainability

The intersection of public procurement and environmental sustainability has emerged as a critical juncture in the EU's journey towards a greener future. Public procurement, once a mere financial tool, has evolved into a strategic lever for driving sustainable market behaviour, aligning with the ambitions of Sustainable Development Goal (Bleda and Chicot, 2020; Mazzucato, 2020; Westerholm, 2020). The EU's Public Procurement Directive (2014/24/EU) underscores this shift, emphasising the integration of socio-environmental standards in procurement processes (EP and CEU, 2014). However, the Directive falls short in providing a clear, actionable framework for harmonising these standards in practice, leaving a critical gap that must be bridged to translate policy objectives into tangible, sustainable outcomes.

The evolution of EU public procurement law, particularly Directive 2014/24/EU, reflects a progressive stance on leveraging procurement for societal goals, especially sustainability. Landmark cases like *Concordia Bus Finland* (8C-513/99) and *Wienstrom* (C-448/01 EVN AG) have validated the inclusion of environmental criteria in procurement decisions, shaping the Directive's core principles. Article 18 establishes a mandate for compliance with environmental, social, and labour laws, while Articles 42, 43, 56(1), 57(4), 67, 68, 69(3), and 70 provide mechanisms for promoting sustainability, transparency,

and fair competition within the procurement process (EP and CEU, 2014). Despite these provisions, strict adherence to the subject matter principle may limit the full execution of sustainability objectives, highlighting the need for further refinement in the legal framework.

Green Public Procurement (GPP), a focused arm of sustainable public procurement, has emerged as a critical instrument in driving the green agenda and net-zero aspirations (Bleda and Chicot, 2020; Mazzucato, 2018, 2020, 2023a; Nilsson Lewis *et al.*, 2023). The EU's commitment to GPP has evolved from aspirational to strategic, with the Commission Communication COM (2008) 400 setting ambitious targets for public tenders to comply with GPP criteria (EP and CEU, 2008). However, the adoption of GPP has been tentative and uneven across MS, with less than half of public procurement integrating GPP criteria as of 2023 (OECD, 2023; Renda *et al.*, 2012; Rosell, 2021). This disparity underscores the need for mandatory GPP regulations and a shift from contract-specific considerations to a lifecycle perspective (Andhov *et al.*, 2020; Caranta, 2023; Janssen and Caranta, 2023; Martinez Romera and Caranta, 2017; Pouikli, 2021).

The EU's commitment to a greener, more energy-efficient built environment is anchored in the Energy Performance of Buildings Directives (EPBD). The EPBD's evolution, from its introduction in 2002 to its proposed overhaul in 2021 (COM/2021/802), reflects an increasing ambition to decarbonise the building stock by 2050 (EP and CEU, 2002, 2010, 2018a; European Commission, 2021). Key measures include introducing the nearly Zero Energy Buildings (nZEBs) concept, minimum energy performance standards (MEPS), and phase-out of fossil fuel boiler subsidies. The European Parliament's March 2023 amendments to the EPBD proposal further advance MEPS and introduce a Whole Life Carbon (WLC) approach for measuring and minimising carbon emissions across all life cycle phases of buildings (EP, 2023).

The Energy Efficiency Directive (EED) has also played a pivotal role in promoting energy efficiency in buildings. Evolving from the Energy Services Directive (ESD), the EED expanded its scope to include products, buildings, and services, setting binding energy efficiency targets and prescribing policy measures to achieve them (EP and CEU, 2006a, 2012, 2018b). Articles 4, 5, 8, 9, and 11 of the EED address key aspects of building energy efficiency, including long-term renovation strategies, the exemplary role of the public sector, energy performance contracts, and accurate measurement and billing (EP and CEU, 2018b).

Sector-specific legislation, such as the Directive on Clean and Energy-Efficient Road Transport Vehicles (2019/1161) and the Battery Directive (2006/66/EC), further support the implementation of GPP (EP and CEU, 2006b, 2019). The former requires purchasing authorities to consider lifetime energy and environmental impacts when procuring road transport vehicles, while the latter regulates the attributes and disposal mechanisms for batteries. Proposed revisions to the Battery Directive aim to introduce strict regulations and binding targets for GPP (Halleux, 2023).

Other legislative regulations, such as the Ecodesign for Sustainable Products Regulation (ESPR) and the Construction Product Regulation (CPR), also contribute to the promotion of sustainable practices through public procurement (EP and CEU, 2009, 2011; European Commission, 2022a, 2022b). The ESPR, set for publication in 2024, aims to enhance environmental accountability throughout product life cycles and introduces mandatory GPP criteria (European Commission, 2022a). The CPR, in effect since 2011, highlights sustainability, recycling, and reuse in construction trade regulations, with a proposed 2022 revision seeking to reinforce environmental standards in the EU construction sector (EP and CEU, 2011; European Commission, 2022b).

As explored in this section, the EU's journey towards leveraging public procurement and sectoral legislation for sustainability reveals a landscape of progress and challenges. While the evolution of public procurement into a strategic tool for driving sustainable market behaviour aligns with the EU's commitment to Sustainable Development Goal 12, the current legal framework falls short of providing a clear, actionable pathway for harmonising sustainability standards in practice (Bleda and Chicot, 2020; Mazzucato, 2020, 2023a; Westerholm, 2020). The uneven adoption of GPP across MS underscores the limitations of the existing approach, which relies heavily on voluntary measures and lacks the necessary enforcement mechanisms to ensure widespread implementation (Andhov *et al.*, 2020; Caranta, 2023; Janssen and Caranta, 2023; Martinez Romera and Caranta, 2017; OECD, 2023; Pouikli, 2021; Renda *et al.*, 2012; Rosell, 2021).

Recognising these limitations, the EU has sought to foster sustainability and environmental criteria through sectoral legislation, as evidenced by initiatives such as the EPBD, the EED, the Directive on Clean and Energy-Efficient Road Transport Vehicles (2019/1161), and the Battery Directive (2006/66/EC). By targeting specific sectors and introducing mandatory requirements, these directives aim to address the shortcomings of the broader public procurement framework and drive tangible progress towards sustainability goals. However, the effectiveness of this approach remains constrained by the absence of binding targets, enforcement mechanisms, and cross-sectoral coherence.

In this context, the EED 2023 emerges as a critical case study in understanding how public procurement is used to promote sustainability through sectoral legislation. As the next chapter will explore, EED 2023 represents a significant step forward in the EU's efforts to align public procurement with its climate neutrality aspirations by introducing a more comprehensive and integrated legislative (EP and CEU, 2023). By examining the key features of EED 2023, such as the 'Energy Efficiency First' (EE1st) principle, ambitious energy consumption reduction targets, and the heightened emphasis on GPP, the following chapter aims to shed light on the potential of targeted sectoral legislation to bridge the gap between policy objectives and tangible outcomes in the pursuit of a more sustainable and energy-efficient Europe.

Key Features of Directive 2023/1791 for Energy Efficiency

The EED 2023 represents a pivotal step in the EU's journey towards greener public procurement and closer alignment with its climate neutrality aspirations (EP and CEU, 2023). The Directive's emphasis on the public sector's role in leading energy efficiency efforts is a defining feature, repositioning public entities as pioneers of sustainable practices.

Article 3 of EED 2023 underpins the 'Energy Efficiency First' (EE1st) principle with newfound legislative rigour, mandating its prioritisation in energy-related actions by MS. The Directive's dual focus targets high-value projects while recognising the cumulative impact of smaller initiatives. The inclusion of a review system for financial thresholds ensures the Directive's ongoing relevance, while standardised cost-benefit methodologies provide a consistent yet flexible evaluation process. Importantly, EED 2023 acknowledges the social implications of energy policy, particularly regarding energy poverty (Articles 3 and 8) and equitable application (Article 3(5)). The designation of monitoring entities and explicit reporting mandates reinforce the principle's operational integrity and facilitate empirical assessment of its enactment efficacy.

EED 2023 sets ambitious targets for energy consumption reduction, with Article 4 delineating a collective reduction target of 11.7% in primary and final energy consumption compared to the PRIMES 2020 reference scenario. This target is distributed among MS via a calculated formula that considers economic, industrial, and environmental factors. Article 8 complements this by imposing a scalable

energy savings obligation, escalating from 0.8% in 2021 to 1.9% by 2030. The Directive emphasises transparency and accountability through robust monitoring and reporting obligations, demanding regular updates to the National Energy and Climate Plans (NECPs). The Commission's oversight function, equipped with the authority to propose supplemental measures and adjust contributions, ensures that MS adhere to their commitments and that the collective goal remains within reach. The Directive's flexibility, encouraging a diversified mix of energy efficiency obligation schemes and alternative policy measures, respects the diversity of national energy landscapes and champions the democratisation of energy conservation efforts.

Article 5 outlines the framework for reducing the combined energy consumption of public bodies, prescribing a cumulative annual reduction of at least 1.9% against the 2021 baseline. The public sector's significant consumption, accounting for 5% to 10% of the Union's total final energy consumption (Recital 33), makes targeting efficiency in this area both logical and impactful. The Directive grants MS discretion to exempt specific sectors and introduces sector-specific actions to support the comprehensive reduction target. The commitment to transparency is evident in the annual reporting protocols mandated by Article 5, creating a basis for ongoing strategic planning by regional and local authorities.

A cornerstone of EED 2023 is the concept of nearly Zero-Energy Buildings (nZEB), which aligns building renovations with nZEB standards as part of the overarching Renovation Wave Strategy (European Commission, 2020b). Article 6 of EED sets forth renovation obligations for buildings owned or occupied by central public bodies, stipulating an annual renovation rate of at least 3% of the total floor area to meet nZEB standards as defined by Article 9 of Directive 2010/31/EU (EP and CEU, 2010). The 2023 EED amplifies these requirements, broadening the scope to encompass public buildings that are heated and/or cooled and incorporating the progressive zero-emission building (ZEB) standard envisioned in the forthcoming recast of the Energy Performance of Buildings Directive (EPBD) (EP, 2023; EP and CEU, 2023; European Commission, 2021).

EED 2023 manifests a heightened sense of responsibility toward public procurement as an efficacious lever for achieving the EU's energy and climate objectives. Article 7 and Annex IV consolidate the public procurement process with energy efficiency and sustainability goals. The Directive prioritises high energy-efficiency performance in public contracts and concessions, removing conditionalities related to cost-effectiveness and economic feasibility. This non-negotiable commitment to energy efficiency resonates with the 'energy efficiency first principle,' highlighting an integrative policy alignment that is both clear and progressive.

The heightened emphasis on GPP encourages MS to ensure that contracting authorities consider a range of criteria, encompassing wider sustainability, social and environmental factors, and circular economy aspects (Article 7(5)). This holistic view on public procurement is further reflected in Annex IV, which lays down explicit requirements for energy efficiency in public contracts. The Directive outlines exceptions and flexibilities where energy efficiency obligations may not apply, reflecting a nuanced understanding of the complex exigencies that governments may face (Article 7(2)). However, these carve-outs might be too open-ended, inviting loose interpretations that could dilute the Directive's efficacy.

EED 2023 promotes long-term energy performance contracts, emphasising the assessment of their feasibility, especially for service contracts with a significant energy component (Article 7(3)). This approach fosters a longer-term perspective, ensuring that procured solutions demonstrate tangible energy efficiency in practice. Annex IV casts a spotlight on 'nearly zero-energy level' buildings, signalling a significant shift towards more sustainable infrastructural investments.

In conclusion, EED 2023 represents a significant step forward in the EU's efforts to align public procurement with its climate neutrality aspirations. However, a critical analysis of the Directive reveals several challenges and areas for improvement that may hinder its effectiveness in driving widespread adoption of energy efficiency measures. While EED 2023 sets ambitious targets and introduces progressive provisions, such as the 'Energy Efficiency First' (EE1st) principle and the heightened emphasis on GPP, the Directive's success is contingent upon addressing the identified shortcomings. These include economic and technological disparities among MS, potential sovereignty concerns, bureaucratic complexities, ambiguity in key terms, and the risk of inequitable application due to exemptions and derogations. Moreover, the non-mandatory nature of GPP criteria and the lack of stringent enforcement mechanisms emerge as significant barriers to the Directive's efficacy. As the following chapter will explore, these challenges underscore the need for a more nuanced and adaptive regulatory framework that can keep pace with the dynamic nature of technology, market demands, and the socio-economic landscape of the EU.

General Observations - Challenges and Potential for Improvement in the EED 2023

The EED 2023 presents an ambitious framework for enhancing energy efficiency across the EU, particularly in the context of public buildings. However, the Directive's effectiveness in addressing the complex web of market failures that hinder energy efficiency improvements in this sector is hampered by several challenges and areas for potential improvement.

Firstly, the economic and technological disparities among MS can stall uniform progress towards energy efficiency targets in public buildings, as highlighted in Articles 4 and 8. These disparities exacerbate the existing market failures, such as information asymmetries and split incentives, which are more pronounced in countries with limited resources and expertise (Altwies and Nemet, 2013; Gillingham *et al.*, 2009). The Commission's oversight, as delineated in Article 4, might stir sovereignty concerns, requiring a delicate equilibrium between national independence and EU-wide consistency in energy policies for public buildings.

Secondly, the bureaucratic complexities associated with monitoring and reporting (Art. 4 and 7) could be particularly demanding for smaller MS and public bodies, further impeding their ability to address market failures effectively. The ambiguity in terms such as "high energy-efficiency performance" (Art. 7) can lead to inconsistent applications, with the Directive's vagueness risking disparate practices across MS. This lack of clarity can perpetuate information asymmetries and hinder the development of a harmonised approach to tackling market failures in public buildings (Mazzucato, 2023b; Mazzucato and Penna, 2016).

Thirdly, potential inequities arise from exemptions in Article 5 and derogations for Cyprus and Malta in Article 8. These provisions may inadvertently create an uneven playing field, allowing some MS to continue operating with suboptimal energy efficiency levels in their public buildings. This not only undermines the EU's overall energy efficiency goals but also fails to address the negative externalities associated with energy use in these buildings ((Diana Üрге-Vorsatz *et al.*, 2012; González-Torres *et al.*, 2022; Levesque *et al.*, 2021).

Furthermore, inconsistencies in data quality and reporting can impede the effectiveness of monitoring, as underpinned by Articles 4, 8, and Annex IV. Accurate and reliable data is essential for identifying and quantifying the extent of market failures in public buildings, as well as for assessing the impact of policy interventions (Amaxilatis *et al.*, 2017; Mazzucato, 2020, 2023b). The commitment to current standards detailed in Annex IV could inadvertently hinder innovation, calling for adaptive mechanisms that match the pace of technological progress and address the dynamic nature of market failures.

The revisions to EED 2023, specifically through Article 7 and Annex IV, mark a significant legislative stride towards embedding energy efficiency within public procurement frameworks. However, the uptake of sustainability measures has been slow despite the availability of GPP criteria. The current EED 2023 fails to make GPP criteria mandatory, a significant missed opportunity to address the public good nature of energy efficiency in public buildings and correct the misalignment of incentives (McFarlane *et al.*, 2021). Article 7 and Annex IV do not cover some critical aspects required for achieving the EU's climate ambitions, particularly in targeted industries such as construction. The requirement for MS and Contract Authorities (CAs) to contribute 3% towards the renovation of their public buildings annually lacks penalties for non-compliance, and few MS have achieved this indicator (Kurmayer, 2023). This reflects a systemic problem within the Directive—a lack of stringent, enforceable criteria that could compel consistent and comprehensive adherence across all CAs and effectively internalise the environmental externalities associated with energy use in public buildings (González-Torres *et al.*, 2022; Kontokosta *et al.*, 2020a; Levesque *et al.*, 2021).

The development of GPP criteria for buildings in line with the Level(s) framework and EU Taxonomy presents an ideal opportunity to establish mandatory core criteria that encompass not only energy efficiency but all aspects of making buildings green (Donatello *et al.*, 2022). However, CAs requiring nZEB in technical specifications may pose risks due to a lack of awareness and knowledge about checking and testing complex performance standards requirements (Buftic, 2023). This highlights the persistent information asymmetries and the need for capacity building to enable public authorities to effectively harness GPP as a tool for addressing market failures (Altwies and Nemet, 2013; Gillingham *et al.*, 2009). The appeal to "make best efforts" in GPP and the voluntary adoption of "shall" wording in Annex IV(c) fall short of mandatory enforcement, reflecting a voluntary approach criticised by academic discourse for its insufficient drive towards widespread adoption (Sapir *et al.*, 2022). The non-mandatory status of GPP, alongside the European Commission's critique of the Clean Vehicles Directive (2018), highlights a systemic issue where voluntary measures lack the impetus to instigate widespread change (Blažo, 2019) and fail to adequately address the complex market failures that hinder energy efficiency improvements in public buildings.

While the EED 2023 revisions present a progressive framework, their effectiveness in tackling market failures in public buildings is hampered by non-mandatory GPP criteria and insufficient enforcement provisions. Addressing these gaps by implementing binding regulations and clearer guidelines could significantly enhance efforts to meet the EU's energy efficiency and climate objectives and create a more conducive environment for overcoming the persistent market failures in this sector. The integration of these additional arguments reveals the need for nuanced regulations that acknowledge the dynamic nature of technology, market demands, and the socio-economic landscape of the EU, as well as the complex interplay of market failures that obstruct the realisation of energy efficiency potential in public buildings.

Conclusion

The Directive 2023/1791 EED represents a significant milestone in the EU's efforts to align public procurement with its climate neutrality objectives and promote energy efficiency in public buildings. The Directive's ambitious energy consumption reduction targets, emphasis on the public sector's leadership role, and introduction of the 'Energy Efficiency First' principle demonstrate a clear commitment to leveraging public procurement as a strategic tool for driving sustainability.

However, a critical examination of the Directive reveals that it falls short of fully capitalizing on the opportunity to mandate GPP criteria through sectoral legislation. While the Directive marks a step closer to this goal by introducing progressive provisions and emphasizing the importance of

considering sustainability factors in public contracts, its effectiveness is hampered by the non-mandatory nature of GPP criteria and the lack of stringent enforcement mechanisms.

The absence of binding targets and penalties for non-compliance, coupled with the potential for loose interpretations of key terms and the risk of inequitable application due to exemptions and derogations, underscores the limitations of the Directive in ensuring widespread adoption of GPP practices. These shortcomings perpetuate the persistent market failures that hinder energy efficiency improvements in public buildings, such as information asymmetries, split incentives, and the undervaluation of environmental externalities.

To truly seize the opportunity presented by public procurement as a driver of sustainability, the EU must move beyond voluntary measures and establish a more robust and enforceable framework for GPP. This requires the introduction of mandatory core criteria that encompass all aspects of making buildings green, as well as the development of clear guidelines and support mechanisms to facilitate compliance and capacity building among MS.

Furthermore, the Directive's effectiveness in promoting energy efficiency in public buildings is contingent upon addressing the economic and technological disparities among MS, ensuring accurate and reliable data for monitoring and evaluation, and fostering a regulatory environment that keeps pace with the dynamic nature of technology and market demands.

In light of these challenges, Directive 2023/1791 EED represents a step closer to leveraging public procurement for sustainability, but it falls short of being a transformative opportunity for mandating GPP criteria through sectoral legislation. To fully realize the potential of public procurement in driving the EU's climate neutrality goals, policymakers must build upon the Directive's progressive provisions and address its limitations through the introduction of binding targets, stringent enforcement mechanisms, and a more adaptive and evidence-based regulatory framework.

As the EU continues to navigate the path towards a greener and more sustainable future, the ongoing evaluation and refinement of policies like Directive 2023/1791 EED will be crucial. By fostering a robust dialogue between policymakers, academics, and industry stakeholders, and prioritizing the development of a comprehensive and enforceable GPP framework, the EU can capitalize on the opportunity presented by public procurement to drive transformative change in the energy efficiency of public buildings and beyond.

References:

- Ahlrichs, J., Rockstuhl, S., Tränkler, T. and Wenninger, S. (2020), "The impact of political instruments on building energy retrofits: A risk-integrated thermal Energy Hub approach", *Energy Policy*, Elsevier Ltd, Vol. 147, doi: 10.1016/J.ENPOL.2020.111851.
- Altwies, J.E. and Nemet, G.F. (2013), "Innovation in the U.S. building sector: An assessment of patent citations in building energy control technology", *Energy Policy*, Vol. 52, doi: 10.1016/j.enpol.2012.10.050.
- Amaxilatis, D., Akrivopoulos, O., Mylonas, G. and Chatzigiannakis, I. (2017), "An IoT-based solution for monitoring a fleet of educational buildings focusing on energy efficiency", *Sensors (Switzerland)*, Vol. 17 No. 10, doi: 10.3390/s17102296.
- Andhov, M., Caranta, R., Stoffel, T., Grandia, J., Janssen, W.A., Vornicu, R., Czarnecki, J.J., et al. (2020), "Sustainability Through Public Procurement: The Way Forward – Reform Proposals", *SSRN Electronic Journal*, doi: 10.2139/ssrn.3589168.
- Auffhammer, M. (2018), "Quantifying economic damages from climate change", *Journal of Economic Perspectives*, Vol. 32, doi: 10.1257/jep.32.4.33.
- Backlund, S., Thollander, P., Palm, J. and Ottosson, M. (2012), "Extending the energy efficiency gap", *Energy Policy*, Vol. 51, doi: 10.1016/j.enpol.2012.08.042.
- Blažo, O. (2019), "Reform of the Clean Vehicles Directive: From performance criteria to target values", *Strani Pravni Zivot*, No. 4, doi: 10.5937/spz63-24029.
- Bleda, M. and Chicot, J. (2020), "The role of public procurement in the formation of markets for innovation", *Journal of Business Research*, Vol. 107, doi: 10.1016/j.jbusres.2018.11.032.
- Caranta, R. (2023), "Towards Mandatory SPP for Buildings/Works", *EUROPEAN JOURNAL OF PUBLIC PROCUREMENT MARKETS*, Vol. 1 No. 4, doi: 10.54611/ojan5022.
- Charlier, D. (2015), "Energy efficiency investments in the context of split incentives among French households", *Energy Policy*, Elsevier Ltd, Vol. 87, pp. 465–479, doi: 10.1016/J.ENPOL.2015.09.005.
- COMBI. (2018), *WP6 Macro-Economy, Macro-Economic Impacts of Energy Efficiency*, Copenhagen .
- Diana Ürge-Vorsatz, Nick Eyre, Peter Graham, Danny Harvey, Edgar Hertwich, Yi Jiang, Christian Kornevall, et al. (2012), "End-Use: Buildings", *Global Energy Assessment*, Cambridge University Press, Cambridge, UK, pp. 649–760.
- Donatello, S., Arcipowska, A. and Perez, Z. (2022), *Background Research for the Revision of EU Green Public Procurement Criteria for Buildings*.
- Economidou, M., Della Valle, N., Melica, G. and Bertoldi, P. (2023), "The role of European municipalities and regions in financing energy upgrades in buildings", *Environmental Economics and Policy Studies*, Springer, doi: 10.1007/S10018-023-00363-3.
- Enker, R.A. and Morrison, G.M. (2020), "The potential contribution of building codes to climate change response policies for the built environment", *Energy Efficiency*, Springer, Vol. 13 No. 4, pp. 789–807, doi: 10.1007/S12053-020-09871-7.

- EP. (2023), *Amendments Adopted by the European Parliament on 14 March 2023 on the Proposal for a Directive of the European Parliament and of the Council on the Energy Performance of Buildings (Recast) (COM(2021)0802*.
- EP and CEU. (2002), *Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the Energy Performance of Buildings*, Official Journal , pp. 65–71.
- EP and CEU. (2006a), *Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on Energy End-Use Efficiency and Energy Services and Repealing Council Directive 93/76/EEC*, Official Journal of the European Union.
- EP and CEU. (2006b), *Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on Batteries and Accumulators and Waste Batteries and Accumulators and Repealing Directive 91/157/EEC*, Official Journal of the European Union.
- EP and CEU. (2008), *Regulation (EC) No 106/2008 of the European Parliament and of the Council of 15 January 2008 on a Community Energy-Efficiency Labelling Programme for Office Equipment (Recast Version)*, Official Journal of the European Union.
- EP and CEU. (2009), *Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 Establishing a Framework for the Setting of Ecodesign Requirements for Energy-Related Products (Recast)*, Official Journal of the European Union.
- EP and CEU. (2010), *Directive 2010/31/EU on the Energy Performance of Buildings*, Official Journal of the European Union, pp. 1–23.
- EP and CEU. (2011), *Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 Laying down Harmonised Conditions for the Marketing of Construction Products and Repealing Council Directive 89/106/EEC*, Official Journal of the European Union.
- EP and CEU. (2012), *Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on Energy Efficiency, Amending Directives 2009/125/EC and 2010/30/EU and Repealing Directives 2004/8/EC and 2006/32/EC Text with EEA Relevance*, Official Journal of the European Union, pp. 1–56.
- EP and CEU. (2014), *Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on Public Procurement and Repealing Directive 2004/18/EC*, Official Journal of the European Union, pp. 1–178.
- EP and CEU. (2018a), *Directive (EU) 2018/844 Amending Directive 2010/31/EU on the Energy Performance of Buildings and Directive 2012/27/EU on Energy Efficiency*, Official Journal of the European Union.
- EP and CEU. (2018b), *Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018 Amending Directive 2012/27/EU on Energy Efficiency*, Official Journal of the European Union, pp. 1–21.
- EP and CEU. (2019), *Directive (EU) 2019/1161 of the European Parliament and of the Council of 20 June 2019 Amending Directive 2009/33/EC on the Promotion of Clean and Energy-Efficient Road Transport Vehicles*, Official Journal of the European Union.
- EP and CEU. (2023), *DIRECTIVE (EU) 2023/1791 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 September 2023 on Energy Efficiency and Amending Regulation (EU) 2023/955 (Recast)*, Official Journal of the European Union , pp. 1–111.

- EPSR. (2020), *Energy Security in the EU's External Policy*, doi: 10.2861/10775.
- European Commission. (2021), *Proposal for a Directive of the European Parliament and of the Council on the Energy Performance of Buildings (Recast) COM/2021/802 Final*.
- European Commission. (2022a), *Proposal for a Regulation of the European Parliament and of the Council Establishing a Framework for Setting Ecodesign Requirements for Sustainable Products and Repealing Directive 2009/125/EC*.
- European Commission. (2022b), *Proposal for a Regulation of the European Parliament and of the Council Laying down Harmonised Conditions for the Marketing of Construction Products, Amending Regulation (EU) 2019/1020 and Repealing Regulation (EU) 305/2011*.
- Freire-González, J. (2020), "Energy taxation policies can counteract the rebound effect: analysis within a general equilibrium framework", *Energy Efficiency*, Springer, Vol. 13 No. 1, pp. 69–78, doi: 10.1007/S12053-019-09830-X.
- Gerarden, T.D., Newell, R.G. and Stavins, R.N. (2017), "Assessing the energy-efficiency gap", *Journal of Economic Literature*, Vol. 55 No. 4, doi: 10.1257/jel.20161360.
- Gillingham, K., Newell, R.G. and Palmer, K. (2009), *Energy Efficiency Economics and Policy*, No. 15031, Cambridge.
- González-Torres, M., Pérez-Lombard, L., Coronel, J.F., Maestre, I.R. and Yan, D. (2022), "A review on buildings energy information: Trends, end-uses, fuels and drivers", *Energy Reports*, doi: 10.1016/j.egy.2021.11.280.
- Halleux, V. (2023), *New EU Regulatory Framework for Batteries Setting Sustainability Requirements*.
- Jaffe, A.B. and Stavins, R.N. (1994), "The energy-efficiency gap What does it mean?", *Energy Policy*, Vol. 22 No. 10, doi: 10.1016/0301-4215(94)90138-4.
- Janssen, W. and Caranta, R. (2023), *Mandatory Sustainability Requirements in EU Public Procurement Law Reflections on a Paradigm Shift, Mandatory Sustainability Requirements in EU Public Procurement Law*, Bloomsbury Publishing, doi: 10.5040/9781509963980.
- Kontokosta, C.E., Spiegel-Feld, D. and Papadopoulos, S. (2020a), "The impact of mandatory energy audits on building energy use", *Nature Energy*, Nature Research, Vol. 5 No. 4, pp. 309–316, doi: 10.1038/S41560-020-0589-6.
- Kontokosta, C.E., Spiegel-Feld, D. and Papadopoulos, S. (2020b), "Mandatory building energy audits alone are insufficient to meet climate goals", *Nature Energy*, Nature Research, Vol. 5 No. 4, pp. 282–283, doi: 10.1038/S41560-020-0603-Z.
- Kurmayer, N.J. (2023), "Renovation rates in Germany collapse amid spiralling costs", *Euractiv.Com*, 26 July, available at: <https://www.euractiv.com/section/energy-environment/news/renovation-rates-in-germany-collapse-amid-spiralling-costs/> (accessed 4 November 2023).
- Lember, V., Kattel, R. and Kalvet, T. (2014), *Public Procurement, Innovation and Policy: International Perspectives, Public Procurement, Innovation and Policy: International Perspectives*, doi: 10.1007/978-3-642-40258-6.

- Levesque, A., Pietzcker, R.C., Baumstark, L. and Luderer, G. (2021), "Deep decarbonisation of buildings energy services through demand and supply transformations in a 1.5°C scenario", *Environmental Research Letters*, Vol. 16 No. 5, doi: 10.1088/1748-9326/abdf07.
- Martinez Romera, B. and Caranta, R. (2017), "EU Public Procurement Law: Purchasing Beyond Price in the Age of Climate Change", *European Procurement & Public Private Partnership Law Review*, Vol. 12 No. 3, doi: 10.21552/eppl/2017/3/10.
- Mata Pérez, M. de la E., Scholten, D. and Smith Stegen, K. (2019), "The multi-speed energy transition in Europe: Opportunities and challenges for EU energy security", *Energy Strategy Reviews*, Vol. 26, doi: 10.1016/j.esr.2019.100415.
- Mazzucato, M. (2018), "Mission-oriented innovation policies: Challenges and opportunities", *Industrial and Corporate Change*, Vol. 27 No. 5, doi: 10.1093/icc/dty034.
- Mazzucato, M. (2020), *Mission-Oriented Public Procurement: International Examples*.
- Mazzucato, M. (2023a), *Public Procurement for Net-Zero Digital Research Infrastructure: A Mission-Oriented Approach for UK Research and Innovation*.
- Mazzucato, M. (2023b), "Governing the economics of the common good: from correcting market failures to shaping collective goals", *Journal of Economic Policy Reform*, doi: 10.1080/17487870.2023.2280969.
- Mazzucato, M. and Penna, C.C.R. (2016), "Beyond market failures: the market creating and shaping roles of state investment banks", *Journal of Economic Policy Reform*, Vol. 19 No. 4, doi: 10.1080/17487870.2016.1216416.
- McFarlane, A., Li, J. and Hollar, M. (2021), "Building Codes: What Are They Good For?", *Cityscape*, Vol. 23 No. 1.
- Nilsson Lewis, A., Kaaret, K., Torres Morales, E., Piirsalu, E. and Axelsson, K. (2023), *Accelerating Green Public Procurement for Decarbonization of the Construction and Road Transport Sectors in the EU*, Stockholm, doi: 10.51414/sei2023.007.
- OECD. (2023), *Government at a Glance 2023*, Paris.
- Pouikli, K. (2021), "Towards mandatory Green Public Procurement (GPP) requirements under the EU Green Deal: reconsidering the role of public procurement as an environmental policy tool", *ERA Forum*, Vol. 21, Springer, pp. 699–721.
- Renda, A., Pelkmans, J., Egenhofer, C., Schrefler, L., Luchetta, G., Selçuki, C., Ballesteros, J., et al. (2012), *THE UPTAKE OF GREEN PUBLIC PROCUREMENT IN THE EU27*.
- Rosell, J. (2021), "Getting the green light on green public procurement: Macro and meso determinants", *Journal of Cleaner Production*, Vol. 279, doi: 10.1016/j.jclepro.2020.123710.
- Sanchez Graells, A. (2014), "Public Procurement and the EU Competition Rules, 2nd Edition", *Public Procurement Law Review*, No. 2, pp. 93–114.
- Sapir, A., Schraepen, T. and Tagliapietra, S. (2022), "Green Public Procurement: A Neglected Tool in the European Green Deal Toolbox?", *Intereconomics*, Vol. 57 No. 3, doi: 10.1007/s10272-022-1044-7.
- The Coalition for Energy Savings. (2023), *Planning for the 2023 EED: Are EU Countries up to the Task?*

Ürge-Vorsatz, D., Kelemen, A., Tirado-Herrero, S., Thomas, S., Thema, J., Mzavanadze, N., Hauptstock, D., *et al.* (2016), "Measuring multiple impacts of low-carbon energy options in a green economy context", *Applied Energy*, Vol. 179, doi: 10.1016/j.apenergy.2016.07.027.

Westerholm, N. (2020), *State of Play for Circular Built Environment in Europe*.

Yilmazoglu, M.Z. (2017), "Decreasing energy consumption and carbon footprint in a school building: a comparative study on energy audits", *International Journal of Global Warming*, Inderscience Publishers, Vol. 13 No. 2, p. 237, doi: 10.1504/IJGW.2017.10007164.