SmarterEPC

D5.3-Roadmap for achieving the mandatory SRI target for buildings with heating capacity of over 290kW

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Deliverable leader	Theoklitos Klitou (EUP)		
Other Authors	Paris Fokaides (EUP)		
Quality Reviewers	Sophie Dourlens-Quaranta, Cécile Barrère (R2MF) Mija Sušnik (DEMO)		

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Acronyms

Acronyms	Description
BACS	Building Automation and Control Systems
CINEA	European Climate, Infrastructure and Environment Executive Agency
DG ENER	Directorate-General for Energy (European Commission)
EC	European Commission
EED	Energy Efficiency Directive
EPC	Energy Performance Certificate
EPBD	Energy Performance of Buildings Directive
ESCO	Energy Service Company
EU	European Union
HVAC	Heating, Ventilation, and Air Conditioning
kW	Kilowatt
MS	Member State
REPowerEU	European Plan for Energy Independence and Sustainability
RED	Renewable Energy Directive
SRI	Smart Readiness Indicator

EXECUTIVE SUMMARY

This deliverable outlines the strategic pathway for implementing the Smart Readiness Indicator (SRI) in large non-residential buildings, as mandated by Article 15 of Directive (EU) 2024/1275. According to the directive, the European Commission is required to prepare a dedicated report—drawing on national test phase results and relevant EU-funded projects—that will inform the adoption of a delegated act by 30 June 2027. This delegated act will establish the mandatory application of the common Union scheme for rating the smart readiness of buildings with heating or combined HVAC systems exceeding 290 kW. In this context, the present report contributes directly to this policy process by providing a high-level roadmap—Fit for 290!—designed to support policy harmonisation, operational readiness, and coordinated implementation across the EU.

The present report begins by offering a structured overview of the legislative and technical evolution of the SRI, highlighting milestones such as the 2018 EPBD revision, the 2020 Commission Regulations, and the establishment of the SRI Platform (webpage and support team) by the European Commission. Building on this foundation, the document develops a comprehensive roadmap composed of six core elements: initiatives, milestones, dependencies, metrics, stakeholder engagement, and a visual representation.

Key initiatives include mandatory supporting steps such as: legislative transposition, institutional strengthening, expert training, digital infrastructure development, and incentive design. A sequenced milestone framework aims at guiding the national actions from 2024 through post-2027. Dependencies highlight and address horizontal and vertical coordination needed across institutions, while the KPIs proposed would ensure measurable implementation progress. The roadmap also introduces a robust stakeholder engagement plan, with the project's Advisory Board serving as a core consultative body throughout the process.

This work contributes directly to the goals of the SmarterEPC project by preparing Member States for the SRI's legal enforcement. It aims at supporting the alignment of the national strategies with the EU requirements, enhancing digital capacity, and fostering sectoral dialogue to support the broader objective of a smarter andmore efficient building stock across Europe.

This roadmap will be updated in February 2026. The second version of this deliverable will integrate the Advisory Board members' feedback and include additionnal project results.

DISCLAIMER OF WARRANTIES

INTRODUCTION

Europe's commitment to climate neutrality and energy resilience has placed the building sector at the centre of policy transformation. The SmarterEPC project contributes to this agenda by addressing the role of digitalisation, automation, and smart services in improving building performance. In this context, Deliverable 5.3 focuses on developing a strategic roadmap to support the mandatory implementation of the Smart Readiness Indicator (SRI) for a specific segment of buildings—those with heating systems above 290 kW.

The need to address large non-residential buildings is grounded in their outsized impact on energy demand and emissions. Recognising this, Article 15 of Directive (EU) 2024/1275 requires the European Commission, by 30 June 2026, to submit a report to the European Parliament and the Council on the testing and implementation of the SRI on the basis of the available results of the national test phases and other relevant projects. Taking into account the outcome of that report, the Commission shall, by 30 June 2027, adopt a delegated act mandating the application of the SRI for this category of buildings. This shift from optional to obligatory deployment represents both a regulatory milestone and a technical challenge. SmarterEPC responds to this challenge through the elaboration of the 'Fit for 290!' roadmap. It wishes to be not only forward-looking but also implementation-oriented, with the aim to guide Member States through the process of policy adaptation, system readiness, and market engagement.

The roadmap builds on the foundations laid by the EPBD recast, as well as earlier legislative instruments including the 2018 EPBD amendment, Commission Delegated Regulation 2020/2155, and Implementing Regulation 2020/2156. These texts define the SRI's purpose, structure, and operational parameters, but leave the pathways to implementation open to national interpretation. As such, a harmonised roadmap is necessary to ensure convergence, compliance, and equity across the EU. This roadmap is intended to help Member States navigate the technical, legal, and institutional dimensions of SRI enforcement.

Rather than restating known legislative provisions, this deliverable provides strategic guidance in the form of six interlocking elements: initiatives, milestones, dependencies, metrics, stakeholder engagement, and visual representation. Each element is structured to offer clarity of purpose, facilitate comparability across national contexts, and encourage targeted action.

The present deliverable corresponds to a preliminary version of the roadmap. It was developed using a combination of regulatory analysis and empirical data from ongoing test phases. Direct input from stakeholders will be considered in the final version of the roadmap. Notably, the project's Advisory Board will play an active role in shaping the strategic direction of the document. Their participation will help align the roadmap with real-world constraints, sectoral priorities, and administrative feasibility.

Moreover, this work is integrated within the broader objectives of the SmarterEPC project, which aims to accelerate the adoption of enhanced energy performance certification schemes that account for smart readiness. In this regard, the roadmap draws from and feeds into parallel work on assessment methodologies, interoperability frameworks, and stakeholder engagement strategies.

Crucially, the roadmap goes beyond outlining the conditions necessary for 2027 compliance, it anticipates the post-implementation landscape. It integrates feedback loops, monitoring indicators, and upscaling scenarios to ensure the SRI remains effective as policy evolves. This forward-oriented design strengthens the project's role in driving long-term decarbonisation, digital transformation, and user empowerment in the building sector.

By combining strategic foresight with operational detail, this deliverable offers to the Member States and EU institutions a realistic, coherent, and adaptable guide for advancing the smart readiness of Europe's non-residential buildings. The second version of the document, to be delivered in February 2026, will bridge policy ambition with implementation capability, thereby supporting the broader goals of the European Green Deal [1], the Renovation Wave [2], and the Digital Decade [3].

1. History and Current Status of the Smart Readiness Indicator

The Smart Readiness Indicator (SRI) was introduced as an EU instrument for assessing and improving the smart capabilities of buildings. Its development has been closely linked to EU energy efficiency policies, particularly the Energy Performance of Buildings Directive (EPBD). The SRI is designed to evaluate a building's ability to adapt to occupant needs, enhance energy efficiency, and integrate with smart grids. Over the years, the SRI has undergone several key technical, regulatory, and implementation phases, leading to its current status.

1.1 Development of the SRI: Key Milestones

2017 – 2018: Initial Studies and Definition

The European Commission (EC) initiated the first SRI technical study in March 2017, led by VITO, WSEE, ECOFYS, and OFFIS.

This study provided a preliminary definition of the SRI, draft calculation methodology, and extensive stakeholder consultation.

The 2018 revision of the EPBD (EPBD III) [4] officially introduced the SRI as an optional assessment scheme for EU Member States.[1]

2019 – 2020: Refinement and Regulatory Adoption

A second SRI technical study was conducted between 2018 and 2020, focusing on fine-tuning the definition and calculation methodology.

Based on this work, the Commission Delegated Regulation (EU) 2020/2155 and the Commission Implementing Regulation (EU) 2020/2156 were adopted:

- Delegated Regulation (EU) 2020/2155 established the official SRI definition and methodology. [5]
- Implementing Regulation (EU) 2020/2156 outlined the qualification and accreditation of SRI assessors and the requirements for issuing SRI certificates. [6]

2021 – 2022: Testing and Stakeholder Engagement

The SRI Platform was set up by the European Commission in 2021 to support testing, implementation, and stakeholder engagement.

[1] See in SmarterEPC deliverable D3.2 Adapting Smarter EPC tool to the requirements of the EPBD a more detailed record of the EPBD's evolution since 2002.

Several EU Member States began conducting voluntary test phases to assess the feasibility and impact of SRI implementation.

The platform also fostered knowledge exchange and discussions on technical and regulatory aspects of the SRI through a dedicated working group format.

2024: EPBD Recast and the Path to Mandatory SRI

The EPBD recast (Directive (EU) 2024/1275, referred to as EPBD IV in the present document), published in April 2024, reinforced the SRI framework by:

- Keeping the SRI as an optional scheme, allowing Member States to adopt it voluntarily or mandatorily.
- Mandating the European Commission
    - to submit a report to the European Parliament and the Council, by 30 June 2026, on the testing and implementation of the SRI on the basis of the available results of the national test phases and other relevant projects,
    - and, taking into account the outcome of that report, to adopt a delegated act by 30 June 2027, making the application of the SRI mandatory for non-residential buildings with heating/cooling systems over 290 kW.

1.2 Current Status of SRI Implementation in the EU

As of 2024, the SRI is in a transition phase from voluntary testing to potential mandatory application for large non-residential buildings. The status includes:

1. **Voluntary testing in several Member States**
    - Multiple countries have initiated non-committal test phases to assess the feasibility of integrating the SRI into national energy performance frameworks.
    - Some Member States have already incorporated the SRI into their building certification schemes—for instance, France has integrated SRI pilot assessments into its existing EPC framework—while others are still in the evaluation or preparatory stage.
2. **Regulatory alignment with the EPBD recast**
    - The mandatory application of the SRI for non-residential buildings (>290 kW) by 2027 is driving discussions on harmonising SRI assessments with existing Energy Performance Certificates (EPCs) and regulations of Building Automation and Control Systems (BACS).
    - The SRI Platform continues to provide guidance and best practices to facilitate widespread adoption.
3. **Challenges and future considerations**
    - Standardisation and interoperability remain key concerns for Member States considering full-scale SRI implementation.

- Training and accreditation of SRI assessors are being addressed to ensure high-quality assessments and compliance.
- Integration with digital building models is being explored to streamline the SRI assessment process.

The SRI has evolved from a conceptual framework to an officially recognised EU scheme, undergoing technical refinements, regulatory adoption, and voluntary test phases. With the EPBD recast mandating SRI application for large non-residential buildings by 2027, the current focus is on standardising methodologies, increasing adoption, and integrating the SRI into national energy policies. Moving forward, collaboration between the European Commission, national governments, and industry stakeholders will be critical to ensuring effective implementation and maximising the benefits of smart-readiness assessments.

2. EPBD Recast and Its Implications for Non-Residential Buildings Exceeding 290 kW

The EPBD IV [7] introduces specific regulatory requirements for non-residential buildings with heating, ventilation, and air-conditioning (HVAC) systems exceeding 290 kW. These measures aim to enhance energy efficiency, improve smart-readiness, and integrate automation technologies into building infrastructure.

2.1 Mandatory SRI Application

The EPBD IV reaffirms the SRI framework as an optional scheme, allowing Member States to implement it voluntarily or mandatorily. However, by June 30, 2027, the European Commission is required to adopt a delegated act, taking into account the results of a report following national test phases and other relevant projects, making the SRI assessment mandatory for all non-residential buildings with an effective rated output exceeding 290 kW. This marks a significant shift towards standardised smart-readiness evaluation across the EU, promoting digitalisation, automation, and data-driven building management.

2.2 BACS Requirements

To improve operational efficiency, the EPBD IV mandates the installation of Building Automation & Control System (BACS) in large non-residential buildings, according to the following timeline:

- **By December 31, 2024**: All non-residential buildings with HVAC systems exceeding 290 kW must be equipped with building automation and control systems (BACS) where technically and economically feasible.
- **By December 31, 2029**: This requirement extends to buildings with an effective rated output exceeding 70 kW.

The integration of BACS enables real-time monitoring, automated energy management, and enhanced building performance, aligning with the EU's energy efficiency goals.

2.3 Automatic Lighting Control Requirements

In addition to BACS, the EPBD IV establishes new standards for automatic lighting controls to further optimise energy efficiency:

- **By December 31, 2027:** Non-residential buildings exceeding 290 kW must be equipped with automatic lighting controls that are suitably zoned and capable of occupancy detection.
- **By December 31, 2029:** The requirement extends to buildings exceeding 70 kW.

The implementation of automated lighting systems reduces unnecessary energy consumption, contributing to a more sustainable building operation strategy.

2.4 Inspection Requirements for Large Building Systems

To maintain high energy performance standards, the EPBD IV sets minimum inspection frequencies for HVAC systems:

- General building systems must be inspected at least every five years.
- Systems with generators exceeding 290 kW must undergo inspections at least every three years.

These inspections ensure ongoing compliance, efficiency optimisation, and identification of potential energy-saving measures, reinforcing the long-term sustainability of large non-residential buildings.

2.5 Summary

The EPBD IV introduces critical obligations for non-residential buildings with HVAC systems exceeding 290 kW, focusing on:

- Mandatory SRI application by 2027 (depending on the conclusions of the report to be elaborated by the European Commission on the test phase).
- Implementation of BACS by 2024 for large buildings and by 2029 for medium-sized buildings.
- Integration of automatic lighting controls by 2027 for large buildings.
- Regular inspections for energy efficiency compliance.

These measures accelerate the transition towards smarter, more energy-efficient buildings across the EU, supporting the decarbonisation of the built environment while ensuring compliance with sustainability and energy efficiency targets.

The enforcement of these requirements will have a direct impact on large-scale non-residential buildings, requiring energy audits, automation upgrades, and smart-readiness assessments. Note that the deployment of the EPBC requirements are slower than expected, and despite the potential of these systems to improve energy efficiency, their deployment remains limited: in France, according to GIMELEC, only 15% of buildings subject to the BACS decree comply with the regulation in January 2025.

3. Building Stock in Europe for Non-Residential Buildings with Heating/Ventilation Systems >290 kW

The non-residential building stock in Europe plays a crucial role in the continent's overall energy consumption and emissions. Given the increasing focus on energy efficiency, decarbonisation, and smart readiness, large-scale non-residential buildings—particularly those with heating, ventilation, and air conditioning (HVAC) systems exceeding 290 kW—have become a significant focus of regulatory frameworks such as EPBD IV. This section provides an estimation of the number and distribution of such buildings across EU Member States, their energy intensity, and the impact of building automation and control systems (BACS) on their efficiency.

3.1 Total Non-Residential Building Stock

The European Commission estimates that non-residential buildings account for approximately 25% of the total floor area of buildings in the EU [2]. These include offices, educational institutions, hospitals, hotels, commercial spaces, industrial facilities, and warehouses.

- According to BPIE (Buildings Performance Institute Europe), the total floor area of non-residential buildings in Europe exceeds 9.6 billion square meters. [8]
- The proportion of large-scale non-residential buildings (>2,900 m²), which typically require HVAC systems over 290 kW, is estimated at 30-35% of this total area.
- Based on these estimates, a reasonable projection suggests that 2.9 to 3.4 billion square meters of non-residential floor space fall within this category.

3.2 Building Size and Heating Capacity Correlation

To estimate the number of buildings exceeding 290 kW heating/ventilation capacity, a correlation between building size and HVAC demand can be established [2]:

- **Small Non-Residential Buildings (<1,000 m²):** Typically below 100 kW heating capacity.
- **Medium-Sized Non-Residential Buildings (1,000–2,900 m²)**: Heating capacity 100–290 kW.
- **Large Non-Residential Buildings (>2,900 m²):** Heating capacity exceeding 290 kW.

According to this classification, an estimated **30-40% of non-residential buildings in the EU have heating and ventilation systems exceeding 290 kW [2][8]**. This would correspond to **roughly 600,000 to 800,000 buildings** across Europe.

However, estimating this number with high precision presents several challenges. Firstly, centralised data on system capacities is lacking in many Member States. Furthermore, climate variability across Europe affects HVAC sizing requirements, with higher demand in colder regions. Retrofits and system upgrades also complicate categorisation, as older buildings may now operate below initial design capacities. Finally, differences in national EPC systems—many of which do not record HVAC output data—reduce comparability.

To address these limitations, the EPBD IV and the evolving SRI framework aim to harmonise building data collection and reporting. The future establishment of an EU-wide database will be crucial for improving tracking, ensuring compliance, and supporting decarbonisation strategies. In the meantime, large non-residential buildings with >290 kW systems remain a key regulatory focus due to their substantial contribution to overall energy use.

3.3 Sectoral Distribution of Large Non-Residential Buildings

The distribution of large non-residential buildings (>290 kW HVAC) varies across economic sectors:

- Commercial Buildings (Retail, Shopping Malls, Office Complexes): ~40%
- Industrial Buildings & Warehouses: ~25%
- Educational & Healthcare Facilities (Universities, Schools, Hospitals): ~20%
- Hospitality & Public Administration (Hotels, Conference Centers, Government Buildings): ~15%

This sectoral breakdown reflects the fact that large shopping malls, hospitals, airports, and logistics hubs are among the primary energy consumers within the non-residential sector. [8]

4. Status of SRI Implementation Across EU Member States

The Smart Readiness Indicator (SRI) is a European Union initiative designed to assess and promote the intelligent capabilities of buildings, supporting enhanced energy efficiency, occupant comfort, and system adaptability. Implementation and testing of the SRI vary across EU Member States, with each country adopting distinct approaches based on national priorities, technical capacity, and institutional frameworks.

This section provides an overview of the SRI implementation status in 16 EU Member States for which verified data is currently available and where official test phases have been launched or completed. The table includes details on the Implementing Body, Overall Assessment of the SRI Test Phase, Coordination of the SRI Test Phase, Timeline, and Activities Carried Out.

Additional Member States will be included in the second version of this deliverable, as further national data becomes available through ongoing project activities and stakeholder engagement.

Figure 1. SRI Implementation Progress Tracker

Table 1. SRI Test Phase Implementation Status Across EU Member States

Country	Implementing Body	Status	Coordination	Timeline	Activities Carried Out
Austria	Österreichisches Institut für Bautechnik (OIB)	Ongoing	Led by Austrian Institute of Construction Engineering (OIB) & Austrian Climate Ministry (BMK), supported by AEE Intec & BOKU.	Started Sep 2021, 2-3 years	Assessed 17 buildings, tested energy flexibility & load shift.
Belgium	The EPBD implementing body differs from region to region in Belgium. For Flanders, it is Vlaams Energie- en Klimaatagentschap (VEKA)	Ongoing	Led by Energy and Climate Agency of Flanders (VEKA).	Training phase, roll-out 2025	Test phase recently started, no additional details.

Bulgaria	Sustainable Energy Development Agency	Ongoing	Led by Ministry of Energy, supported by LIFE project Smart Square & SRI-ENACT	Started mid-2024, duration unknown	Adapted SRI methodology, auditor training, tested 130 buildings.
Croatia	The Ministry of Physical Planning, Construction and State Assets	Ongoing	Led by Ministry of Physical Planning, supported by Energy Institute Hrvoje Pozar (EIHP) & LIFE projects (SRI2MARKET, SRI-ENACT, tunES).	Recently started, no details	Test phase recently started, no additional details.
Cyprus	Ministry of Energy, Commerce, and Industry	Ongoing	Led by Ministry of Energy, Commerce, and Industry, supported by Smart Square, SRI2MARKET, easySRI, SmarterEPC.	Started mid-2024, lasts 10 months	Adapted SRI for Cyprus, assessed 20 buildings, verified 100.
Czech Republic	The Ministry of Industry and Trade (MTO)	Ongoing	Led by Ministry of Industry and Trade (MPO), supported by Czech Technical University (CTU) & SRI-ENACT.	Started Jun 2022, lasted 1 year	Applied standard SRI, tested 11 buildings, evaluated methodology.
Denmark	The Danish Energy Agency (DEA)	Finalised	Led by Danish Energy Agency (DEA), supported by Danish Technological Institute (DTI).	Started Dec 2021, completed 2023	Assessed 27 buildings, owner interviews, proposed adaptations.
Finland	The Ministry of the Environment	Ongoing	Led by Ministry of Environment, supported by MOTIVA Ltd & SmarterEPC.	Started Q4 2022, ends Q2 2024	Training for assessors, assessed 100-150 buildings.
France	The Ministry for Ecological Transition	Finalised	Led by Ministry for Ecological Transition, supported by CEREMA & SRI2MARKET.	Started Q3 2022, completed Q1 2024	Assessed 30+ buildings, followed standard methodology.
Germany	The BAFA – Federal Office for Economic Affairs and Export Control is the EPBD	Ongoing	Led by Karlsruhe Institute of Technology,	Recently started, no details	Investigated SRI application for real estate & smart grids.

	implementing body in Germany.		supported by Smart Square.		
Greece	Center for Renewable Energy Sources	Ongoing	Led by Ministry of Environment and Energy, supported by Smart Square, easySRI, SRI-ENACT, SRI2MARKET.	Started mid-2024, lasts 12 months	Assessed residential & non-residential buildings, tested EPC link.
Italy	Italian National Agency for New Technologies, Energy and Sustainable Economic Development	Ongoing	Led by Ministry of Environment and Energy Security, supported by the National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)	Started in March 2025, lasts 12 months	Testing service catalogue, weighting factors, and national adaptation.
Poland	Instytut Techniki Budowlanej	Ongoing	Led by Ministry of Economic Development and Technology, supported by University of Science & Technology & tunES.	Aligned with national R&D project	Developed national SRI framework, trained assessors, tested 50+ buildings.
Portugal	Agência para a Energia	Ongoing	Led by ADENE - Agência para a Energia, supported by SRI2MARKET.	Started Nov 2024, ends Oct 2025	Tested SRI tool on all building types, adapted national framework.
Slovenia	Ministry of Infrastructure	Ongoing	Led by Ministry for Environment, Climate, and Energy, supported by Jožef Stefan Institute & tunES.	Started 2023, lasts 2 years	Assessed 50 buildings, trained assessors, evaluated typologies.
Spain	Instituto para la Diversificación y el Ahorro Energético (IDAE)	Ongoing	Led by Ministry for Ecological Transition, supported by CENER, easySRI, SRI-ENACT, iEPB.	Started 2023, lasts 21 months	Trained EPC assessors, assessed 50 buildings.

The implementation of the Smart Readiness Indicator (SRI) across EU Member States reveals a heterogeneous landscape in terms of adoption, coordination, and timelines. While

countries such as Austria, Belgium (Flanders), Bulgaria, and others are actively engaged in test phases, only Denmark and France have completed them. Conversely, several Member States—including Hungary, Romania, the Netherlands, and others—have yet to initiate formal testing, with no official test phase launched to date.

Institutional arrangements also vary. Some Member States have centralised coordination through national ministries, while others rely on regional or specialised agencies, potentially impacting consistency and pace of deployment. Test phase timelines differ significantly, with most beginning between 2021 and 2024; however, several lack defined end dates, making progress difficult to assess uniformly.

These variations pose challenges to EU-wide harmonisation. Differing methodologies, governance structures, and stakeholder engagement models may delay standardisation. Nonetheless, early implementers such as Denmark and France can serve as practical models for others.

With the 2027 deadline approaching, intensified coordination and support will be critical. Addressing current gaps and fostering collaboration among national authorities, technical partners, and the SRI Platform will be essential to ensure effective and timely rollout. Achieving this will enhance building performance, accelerate digitalisation, and contribute to the EU's broader sustainability objectives.

5. Main Elements of the Roadmap: Fit for 290!

5.1 Initiatives: Aligning National Policies with the Delegated Act

Considering the EPBD IV and the delegated act to be adopted by the European Commission by June 30, 2027, the SmarterEPC project must articulate structured initiatives that will align national policy frameworks with the Union-wide SRI scheme. The following initiatives are proposed:

5.1.1 Legislative Integration

Legislative review: Each Member State should initiate a comprehensive review of their national building codes, energy performance standards, and renovation strategies. This review must explicitly identify gaps between current national frameworks and the obligations outlined in the SRI Delegated Regulation (EU) 2020/2155 and Implementing Regulation (EU) 2020/2156. For example, countries such as France and Denmark, which have already concluded formal SRI test phases, provide useful references in integrating smart readiness into existing legal instruments such as energy performance certificates (EPCs) and automation system mandates.

Legislative amendments: To operationalise legal alignment, national legislative instruments such as building renovation acts, digitalisation of buildings bills, or green public procurement regulations should be amended to reflect SRI provisions. Germany's national approach to integrating building automation into real estate law could serve as a replicable model for broader legislative inclusion. Similarly, Austria's framework for including SRI-relevant provisions within the regional implementation of the EPBD under the OIB guidelines is a viable case study.

Legislative updates: Countries should prepare updated legislative texts for parliamentary or ministerial approval to enable formal transposition by 2026. This process should be supported by structured consultations with national legal advisory bodies and aligned with the overall EPBD transposition process. To facilitate harmonised uptake, the European Commission may issue model legislative templates, while the SRI Platform can offer country-specific support on draft text development and regulatory interpretation.

These legislative actions must be iterative and adaptive, considering lessons learned from pilot phases, stakeholder feedback, and updates to the EU-level SRI methodology. Alignment with digital building logbook initiatives and BACS-related legislation will further ensure cross-policy consistency and maximise administrative efficiency.

5.1.2 Institutional Strengthening

SRI National Committees must be established or reinforced as formal coordination bodies responsible for national strategy formulation, cross-ministerial alignment, and stakeholder mobilisation. These bodies should include technical experts, legal advisors, public building authorities, and representatives from the private sector. The committees will also manage the interface with the European Commission and the SRI Platform and ensure that Member States' contributions are reflected in EU-level revisions of the SRI framework.

5.1.3 Capacity Building and Training

To ensure timely implementation, capacity-building initiatives for SRI assessors, energy auditors, EPC experts, and facility managers must be launched. National training programs should be developed in collaboration with universities and vocational training centres. The goal is to certify a critical mass of professionals by 2026, enabling Member States to meet their obligations once the delegated act becomes effective.

5.1.4 Digital Infrastructure and Interoperability

Developing robust digital platforms to manage, report, and verify SRI assessments is essential. These platforms must be interoperable with existing EPC databases and align with the EU digital building logbook initiative. Public investment and technical support from the European Data Space for Smart Energy Services should be leveraged to accelerate development.

5.1.5 Policy Synergies and Incentive Alignment

To enhance the relevance of the SRI, Member States should design incentives that promote the adoption of smart technologies. Financial instruments such as tax credits, green loans, and renovation grants could be linked to SRI scoring. Additionally, national plans should integrate SRI objectives with the Renovation Wave, REPowerEU, and Digital Decade targets, creating a unified policy ecosystem.

5.2 Milestones: Roadmap Timeline for Achieving SRI Mandatory Application

This section outlines key milestones necessary for achieving the mandatory application of the SRI for non-residential buildings with heating and cooling capacities above 290 kW, as defined in the EPBD IV. These milestones are structured to reflect a phased, strategic approach based on progressive alignment with EU requirements, development of institutional readiness, and technical capacity-building. They are grounded in the guiding objective of SmarterEPC's 'Fit to 290!' roadmap: to support Member States in preparing for the mandatory implementation of the SRI by 2027.

First half of 2025: Laying the Foundation

This period is focused on preparatory actions that will underpin all subsequent developments. The goal is to establish a robust factual and institutional baseline:

- Finalisation of national inventories of non-residential buildings exceeding 290 kW capacity, using harmonised criteria.
- Gap analysis of national legislation, institutional capacity, and technical readiness in relation to EU SRI regulations.
- Initiation of voluntary SRI test phases, including data gathering and procedural testing.
- Engagement of key stakeholders through interviews and national workshops. These activities will create the evidence base needed to inform national policy adjustments and capacity needs.

Second half of 2025: Policy Formulation and Initial Scaling

This period marks the beginning of formal integration efforts and the piloting of regulatory mechanisms:

- Pilot implementation of the SRI calculation methodology in buildings across selected regions.
- Drafting and submission of national SRI strategies, structured around EU-provided templates and informed by 2024 findings.
- Publication of model legislative texts to guide Member States in transposition of delegated regulations.
- Evaluation of the effectiveness of early training programs for assessors and auditors to refine capacity-building modules. This stage ensures that legal, procedural, and professional components begin to take shape in a coherent manner.

2026: Consolidation and Readiness Validation

This phase focuses on verifying full operational readiness before the delegated act becomes legally binding:

- Launch of full-scale SRI registries and certification.
- Completion of training for a critical mass of experts (target: at least 80% of national requirements).
- Technical interoperability between SRI and EPC systems confirmed in national digital infrastructure.
- Legislative endorsement of transposition texts by national parliaments or competent authorities. The aim is to ensure that Member States are institutionally and technically prepared to implement the SRI at scale.

2027: Full Regulatory Activation

This is the pivotal year in which the delegated act enters into force:

- By June 30, 2027, the mandatory application of the SRI for large non-residential buildings becomes effective.
- All Member States must be legally compliant and operationally capable.
- Launch of comprehensive national monitoring and reporting mechanisms.
- First comparative benchmarking reports issued at EU level. This milestone is critical not only for compliance but also for measuring the initial impact of the regulation.

Post-2027: Continuous Improvement and Expansion

Following full implementation, efforts will shift toward optimisation and scaling:

- Annual monitoring reports submitted to the European Commission with key performance indicators (described in chapter 5.4).
- Gradual inclusion of medium-scale buildings (>70 kW) as technical feasibility improves.
- Continuous updates to calculation tools and methodological guidance based on field experience.
- Long-term policy feedback loops established between national SRI committees and the EU SRI Platform.

The logic of these milestones reflects the operational demands and political realities of policy implementation across a multi-national regulatory environment. By defining a clear temporal framework, the roadmap supports structured progress tracking, facilitates mutual learning, and ensures that Member States move in synchrony toward the 2027 mandate.

5.3 Dependencies: Coordinating Actors and Interlinked Frameworks

Achieving the Fit for 290! objective requires coordination across multiple governance levels, technical domains, and regulatory mechanisms. The following dependencies must be addressed to ensure coherent and effective implementation both before and after the 2027 deadline:

5.3.1 Institutional Coordination

Successful delivery depends on vertical and horizontal alignment between EU institutions, national governments, regional authorities, and city-level energy departments. National Ministries of Energy and Infrastructure must lead inter-ministerial committees involving representatives from digitalisation, environment, and housing portfolios. Post-2027, these institutional networks will evolve into permanent governance mechanisms responsible for

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maintaining compliance, updating methodologies, and integrating additional building segments (e.g., those with systems >70 kW).

5.3.2 SRI Platform and European Commission

The SRI Platform, managed under the guidance of the European Commission, will provide regulatory updates, methodological refinements, and peer-learning opportunities. National bodies must coordinate their testing and implementation strategies with SRI Platform recommendations to ensure EU-wide consistency. After 2027, the platform's role will likely expand to include oversight of advanced digital tools, AI-enabled diagnostics, and the integration of SRI metrics into broader policy instruments such as the Digital Product Passport.

5.3.3 Technical Infrastructure

Dependencies include access to digital tools for conducting and verifying SRI assessments. These tools must comply with EU cybersecurity, data protection, and interoperability standards. Alignment with existing EPBD data ecosystems and integration with smart meter data, building automation systems, and digital logbooks is essential. Following full implementation, technical systems will need to support continuous updates, allow third-party data integration, and enable real-time SRI analytics for building operators and policymakers alike.

5.3.4 Cross-Directive Linkages

The SRI must be implemented in synergy with other EU directives including:

- The Energy Efficiency Directive (EED) for auditing and renovation.
- The Renewable Energy Directive (RED) for integrating on-site renewables.
- The EPBD IV for EPCs and BACS. Post-2027, further convergence with circular economy legislation and green taxonomy criteria will be important to leverage the SRI as a metric for building sustainability and investment eligibility.

5.3.5 Market Readiness and Skills

Availability of trained professionals, certified assessors, and market-ready service providers is a foundational dependency. Efforts must focus on incentivising private sector uptake and ensuring the continuous upskilling of professionals across the EU. Beyond 2027, market readiness will increasingly depend on advanced technical skills, including proficiency in digital twin models, AI-driven optimisation tools, and cross-domain energy management strategies.

These dependencies underline the complexity of coordinated implementation and the necessity for harmonised planning among Member States. By anticipating their evolution

beyond 2027, the roadmap helps ensure the sustainability and scalability of the SRI framework in the years ahead.

5.4 Metrics: Key Performance Indicators for SRI Uptake

Monitoring the progress and performance of the Fit for 290! roadmap requires robust, comparable, and periodically updated key performance indicators (KPIs). The metrics proposed in this section are primarily designed to support EU-level tracking of implementation progress across Member States, providing a harmonised basis for comparison and policy evaluation.

At the same time, Member States are encouraged to adopt and adapt these KPIs at the national level to assess their own readiness, identify implementation gaps, and align with the targets set out in the delegated act. The KPIs will be discussed and validated with stakeholders—including the project's Advisory Board—and may be refined in the second version of the roadmap (to be delivered in February 2026) to reflect both EU-wide requirements and country-specific needs.

5.4.1 Legislative Metrics

- Number of Member States that have completed legal transposition of SRI-related requirements. **Target: 27 by Q2 2027.**
- Average time taken to complete national legislative procedures. **Benchmark: < 18 months from delegated act publication.**
- Percentage of countries aligning SRI with national renovation strategies. **Target: 80% by end of 2026.**

5.4.2 Capacity Metrics

- Number of accredited experts trained in SRI assessment methodology. **Target: 3,000 EU-wide by 2026.**
- Number of technical institutions offering certified SRI courses. **Target: 1 national programme per Member State by 2025.**
- Proportion of trained experts relative to estimated national demand. **Benchmark: 75% coverage of projected need.**

5.4.3 Implementation Metrics

- Total number of non-residential buildings >290 kW assessed under the SRI methodology. **Target: 50% by 2027.**
- Share of SRI assessments integrated into national EPC registries. **Target: 100% of new assessments by the end of 2027.**

- Percentage of Member States with functional digital platforms supporting SRI reporting. **Target: 100% by Q1 2027.**

5.4.4 Impact Metrics

- Average change in SRI scores across assessed buildings over time. **Benchmark: 10% improvement within first 3 years.**
- Reduction in annual energy consumption attributable to SRI recommendations. **Target: 8–12% efficiency gain per building.**
- Uptake of recommended smart-readiness upgrades (e.g., sensors, BACS). **Target: at least 20% of assessed buildings implement 2+ upgrades.**

5.4.5 Engagement Metrics

- Participation rates in national SRI committees and working groups. **Benchmark: active representation from at least 5 stakeholder groups per Member State.**
- Frequency of public-private partnership initiatives supporting SRI. **Target: 2 flagship initiatives per Member State by 2026.**
- Stakeholder satisfaction as measured via periodic consultation surveys. **Benchmark: 75% satisfaction or higher.**

Together, these KPIs form the backbone of a transparent, performance-driven monitoring framework that supports adaptive management, early identification of implementation gaps, and consistent EU-level reporting. While primarily intended for EU-level aggregation and benchmarking, they also serve as a reference framework for Member States to define national targets and evaluate their own progress toward the mandatory application of the SRI.

5.5 Stakeholder Engagement Plan: Building Consensus and Capacity

The transition to a mandatory SRI regime for non-residential buildings >290 kW depends heavily on inclusive and strategic stakeholder engagement. The roadmap must be underpinned by an engagement plan that builds consensus, ensures market readiness, and communicates value.

5.5.1 Identification of Key Stakeholders

The engagement strategy must target a broad group of stakeholders, including:

- National and local government bodies
- Building owners and facility managers

- Energy service companies (ESCOs)
- Technology providers and automation system vendors
- Universities, training bodies, and accreditation institutions

5.5.2 Stakeholder Forums and Consultation Mechanisms

Each Member State should host regular stakeholder roundtables, technical working groups, and sectoral forums. These mechanisms will allow for real-time feedback, clarification of responsibilities, and sector-specific dialogue.

5.5.3 Communication and Outreach Strategy

A coordinated communication campaign should be launched using EU-wide messaging and branding. This campaign must emphasise the benefits of SRI: improved operational efficiency, increased building value, and alignment with ESG and green finance criteria.

5.5.4 Capacity-Building Partnerships

Strategic partnerships with LIFE, Horizon Europe, and Erasmus+ programmes will enable training development, international peer exchange, and knowledge transfer. Universities and vocational schools should be engaged to mainstream SRI content into existing curricula.

5.5.5 Enabling Structures and Incentives

Public procurement rules should include SRI requirements for large public buildings. Financial incentives, such as grants or tax deductions, should be tied to high SRI scores to accelerate market pull. Special attention should be given to the role of municipalities and public real estate agencies as early adopters.

SmarterEPC's Advisory Board is to be actively involved as a key stakeholder group. Their engagement will ensure that strategic guidance, policy alignment, and industry perspectives are integrated into the roadmap development. Feedback and insights gathered through this engagement will be consolidated and presented in the second version of the roadmap in February 2026, thereby reinforcing transparency and stakeholder-driven decision-making.

Through a comprehensive stakeholder engagement strategy, the roadmap will create an enabling environment that maximises policy acceptance, market readiness, and systemic impact.

5.6 "Fit for 290!" Roadmap

To consolidate the strategic vision of the Fit for 290! initiative and enhance communication with stakeholders, a visual roadmap infographic has been developed. This timeline-based diagram illustrates the sequential phases of implementation from 2025 through the post-2027 horizon, in alignment with EPBD IV and the forthcoming delegated act on SRI.

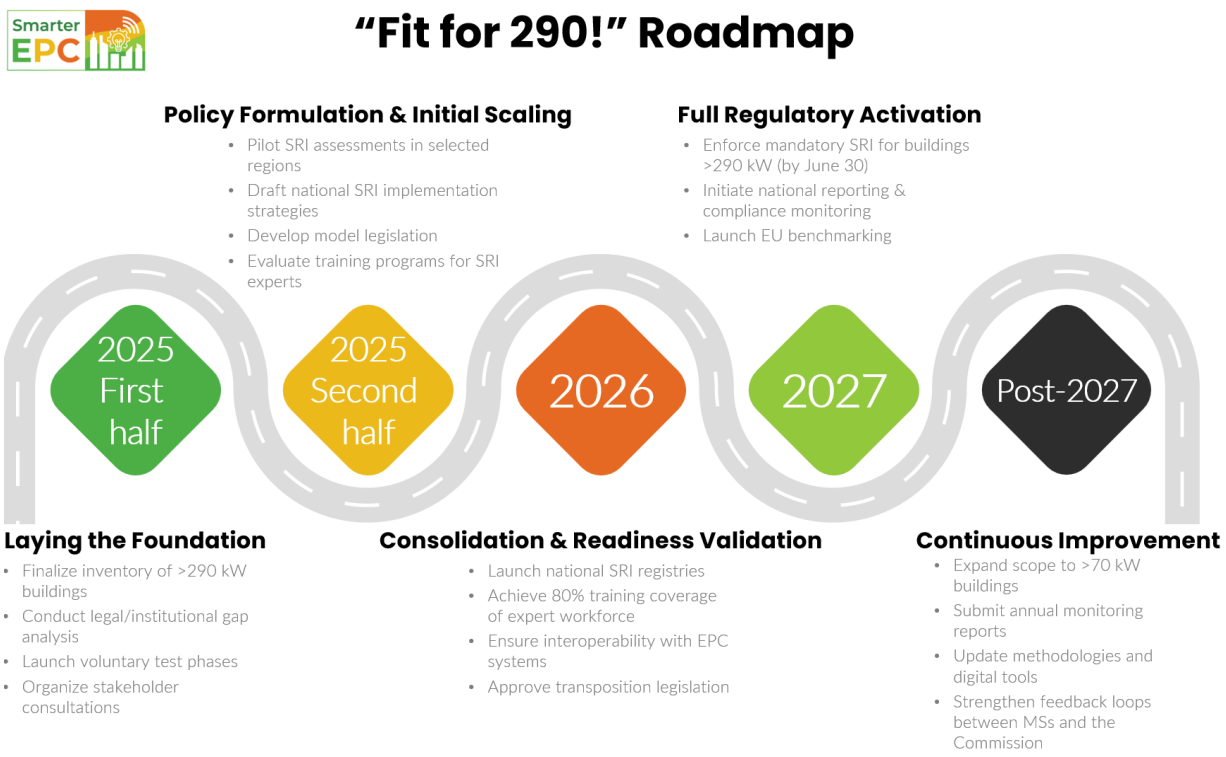

Figure 2 "Fit for 290!" Roadmap

The infographic serves as a high-level communication and coordination tool, enabling policymakers, technical stakeholders, and national authorities to visualise the temporal structure of initiatives and milestones outlined in Chapter 5.2. It complements the detailed narrative by presenting the roadmap in an accessible, structured format that supports strategic alignment and implementation planning across Member States.

CONCLUSIONS

This report has outlined a structured roadmap for the mandatory implementation of the SRI in non-residential buildings with systems exceeding 290 kW, in line with the EPBD IV. Through six integrated components—initiatives, milestones, dependencies, metrics, stakeholder engagement, and visual representation—Deliverable D5.3 provides a coherent strategy to support national-level preparedness and EU-wide convergence.

The main findings emphasise that successful implementation relies on early legislative alignment, institutional coordination, digital infrastructure, and sustained capacity-building. Pilot activities already underway in Member States demonstrate promising momentum, though varying levels of readiness persist. The roadmap offers mechanisms to address these disparities while promoting synchronisation across policy and practice.

Critically, the report acknowledges that technical readiness alone will not ensure effective deployment. Stakeholder engagement, particularly through the Advisory Board and national committees, is essential for legitimacy and practical implementation. The integration of the SRI into broader digital and decarbonisation agendas—such as EPC reform, smart metering, and green finance—will further enhance its systemic value.

Looking forward, the findings in this deliverable will directly inform the second iteration of the roadmap in February 2026, where additional insights from Member States and the Advisory Board will be incorporated. The outcomes will also be linked to other project activities, including tool development, legislative guidance, and harmonisation of assessment practices.

Different degrees of EPC and SRI integration will also be considered, as well as the different scenarios listed in SmarterEPC deliverable D2.2 EPC and SRI current coverage and uptake policies: foreseeable future of EPCs and SRI, and predictive future EPC and SRI coverage trajectories (2025–2040). Key aspects of the EPBD IV implementation as listed in D3.2 Adapting Smarter EPC tool to the requirements of the EPBD will also be taken into account.

Ultimately, the 'Fit for 290!' roadmap is both a strategic instrument and a catalyst for embedding smart readiness into the future of Europe’s building sector

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