III GETTING ON TRACK

Part III considers the overarching measures which bring all the pieces together and lead beyond 2020. It includes recommendations on how to use financing strategies and national building renovation strategies.

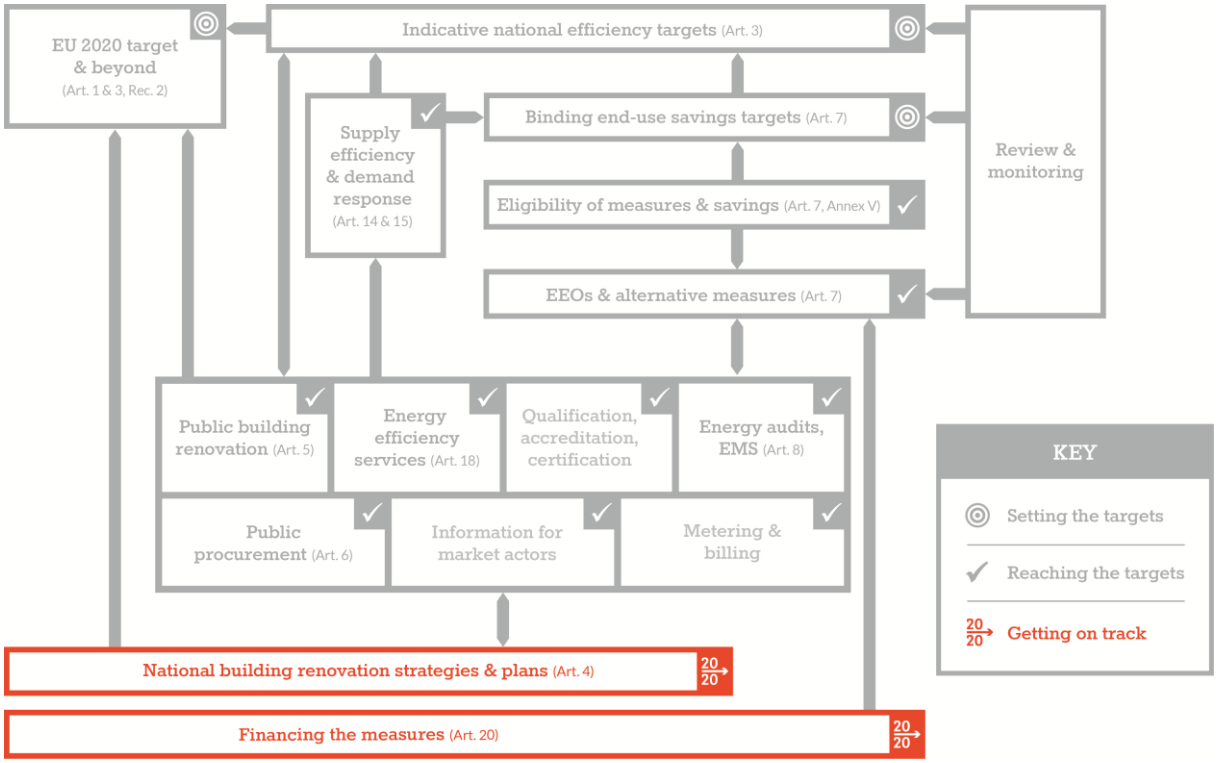

Figure 26 – Guidebook Overview Map: Getting on track

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III.1 National building renovation strategies and plans (Article 4)

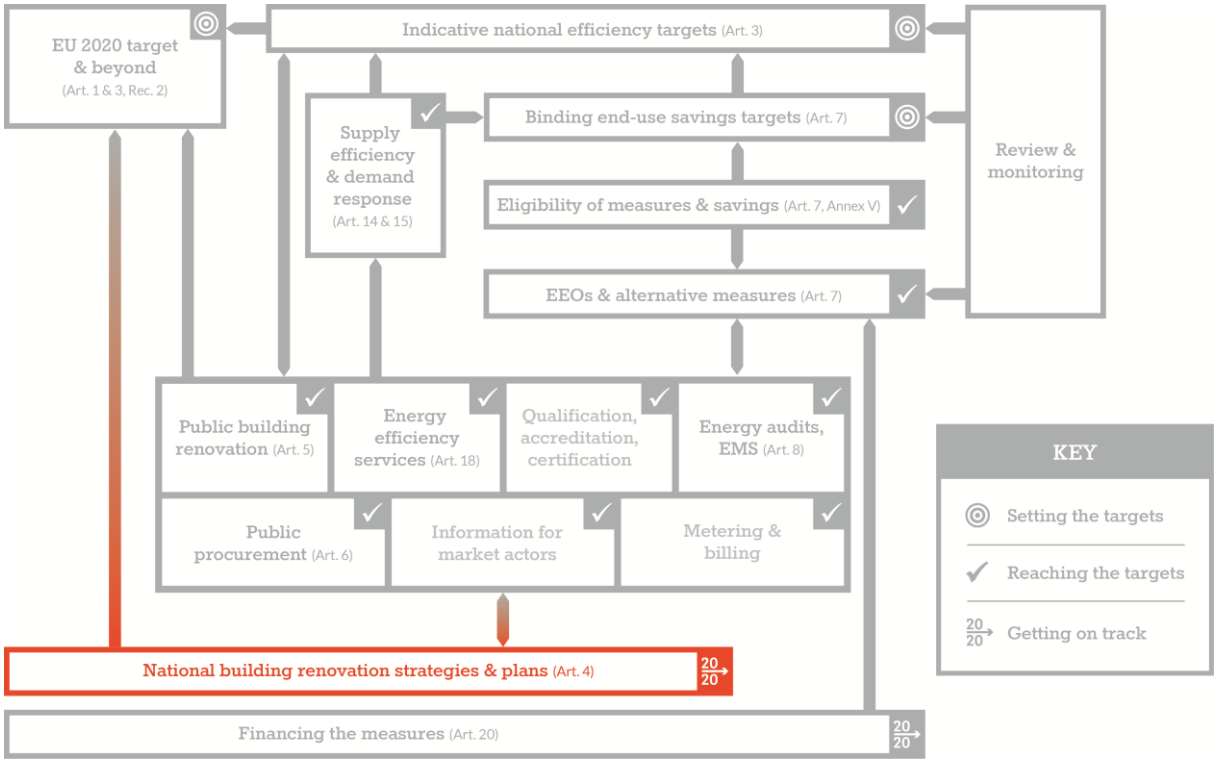

Figure 27 – Guidebook Overview Map: National building renovation

III.1.1 Summary

Article 4 of the EED requires MSs to define long-term strategies for stimulating renovations in their building sector. This provides them the opportunity to realise the full savings potential of their entire building stock (not just the public buildings emphasised in Article 5). The Coalition believes that the aim of the comprehensive national renovation roadmaps should be to provide a well-planned, realistic yet ambitious approach, to increase with immediate effect the historically low renovation rates, and ultimately reduce significantly the energy consumption of the building stock by 2050.

The national renovation strategies must be robust and designed to put all actors on the right track towards reaching an 80% reduction of the energy demand of the EU's buildings by 2050, as recommended by the European Parliament, the Renovate Europe Campaign and other authorities. This will be done by:

- Developing an overview, which should be understood as an inventory, of the entire national building stock. This should be formulated in coordination with the inventory of public buildings required in Article 5;
- Assessing the impact of renovation approaches (techniques) and proposed policies and measures, including those to stimulate deep and staged deep renovations;
- Assessing empirically the expected energy savings for all building types, including wider benefits, to enable better planning and monitoring of the likely impact of enacted policies;
- Designing new long-term financing mechanisms, plans and perspectives as a way to ensure a stable investment climate for market actors; and

- Engaging all relevant stakeholders (multi-party political groups, relevant government departments, building professionals, ESCOs, financial institutions, civil society, etc.) in the development of the roadmaps.

The development of the long-term renovation roadmaps set out in Article 4 is to be viewed in coordination with the public buildings renovation requirements established in Article 5, which should be aimed at kick-starting the market and providing best practice cases through the public sector. The long-term perspective provides the predictability to all stakeholders needed to unlock investments and support institution and capacity building and training. It is important to note that the renovation roadmaps are dynamic tools that will need to be adapted to future developments.

Two recent reports, *A guide to developing strategies for building renovation* prepared by Building Performance Institute Europe (BPIE)[1] and *Renovation Roadmaps for Buildings*[2] prepared for the European Insulation Manufacturers Association (Eurima) by The Policy Partners, elaborate in detail actions to be considered when designing renovation strategies.

MSs must draft their national renovation strategies by 30 April 2014 and update them every three years as part of their National Energy Efficiency Action Plans (NEEAPs).

III.1.2 Background

While the EED is meant to help the EU reach its 20% energy saving target by 2020, Article 1 acknowledges that the EED should "pave the way for further energy efficiency improvements beyond that date". Article 4 on building renovation is perfectly in line with this longer term perspective, as it provides guidance for future energy efficiency and savings policies in the building sector. Article 4 requires that MSs draft national renovation strategies by 30 April 2014 with a perspective far beyond 2020.

Article 5 on its own is insufficient to grasp the full energy saving potential of the built environment. Article 4 therefore seeks to bridge that void and stimulate stronger and more comprehensive action.

With a focus on the entire building stock (public and private), Article 4 mandates and indeed encourages MSs to develop a coherent long-term national strategy for mobilising investment streams to renovate existing buildings. This strategy should provide tailor-made guidance adapted to specific categories of buildings (residential, commercial and public buildings). It should also include policies, programmes and measures that ensure the integration and proper functioning of markets and value chains in the built environment. Overall, it should provide a well-planned, realistic yet ambitious approach, to increase with immediate effect the historically low renovation rates and ultimately reduce significantly the energy demand of the existing building stock up to 2050.

Recital 16 recalls the huge potential of buildings in contributing to growth and employment opportunities, climate goals, energy security and energy savings and efficiency objectives. In other words, the renovation strategies are a key tool to drive economic recovery and at the same time help the EU achieve its decarbonisation objectives.

III.1.3 Requirements

Article 4 specifically says that:

> *"Member States shall establish a long-term strategy for mobilising investment in the renovation of the national stock of residential and commercial buildings, both public and private. This strategy shall encompass:*

[1] *A guide to developing strategies for building renovation,* Building Performance Institute Europe, 02.2013.
[2] Klinckenberg, F., McAndrew, L. and Pirie, M. F., *Renovation Roadmaps for Buildings*, The Policy Partners, London, 01.2013.

(a) an overview of the national building stock based, as appropriate, on statistical sampling;

(b) identification of cost-effective approaches to renovations relevant to the building type and climatic zone;

(c) policies and measures to stimulate cost-effective deep renovations of buildings, including staged deep renovations;

(d) a forward-looking perspective to guide investment decisions of individuals, the construction industry and financial institutions;

(e) an evidence-based estimate of expected energy savings and wider benefits."

The strategy will be updated every three years. This three-year reporting cycle provides a valuable tool for review of progress and for refinement of intermediary milestones included in the roadmaps, as experience with their implementation is acquired.

III.1.4 Good practice recommendations

1. **Advocate for an 80% energy consumption reduction target for the building stock to be achieved through improvement of the energy performance of buildings by 2050. This will also provide investor confidence.**

At EU level, the European Commission's *Roadmap for moving to a competitive low carbon economy in 2050* has set an overall long-term target for the building sector of 88-91% reduction of CO_2 emissions by 2050. The timeframe for the renovation strategies set out in Article 4 should be linked to this EU policy initiative and others, such as the Energy Roadmap 2050[3] and the Roadmap to a Resource Efficient Europe to 2050[4]. Examples of long-term national strategies with the same timeframe are already available at national level (e.g. in Germany[5], Ireland[6], and Denmark[7]), some of which also focus on the built sector.

Once the far-reaching target of 2050 is set, a back-casting exercise should allow the fixing of intermediate quantitative targets (for 2030, 2040 and beyond) and covering different building types (residential, commercial, public and private); these intermediate targets will be instrumental to the achievement of the longer-term goal and will help evaluate whether a recalibration of the strategy is needed at a certain point.

There are numerous empirical examples and modelling results showing the economic rationale for approaching the 80% range of energy performance improvement[8]. Germany, for instance, has already committed to an 80% reduction in the primary energy demand in the building sector by 2050[9].

This level of reduction target could generate a real change in long-term investor confidence by creating a stable and lower-risk investment climate over the long term.

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[3] European Commission Communication 2011/0885 *Energy Roadmap 2050*, 15.12.2011.
[4] European Commission Communication 2011/0571 Roadmap to a Resource Efficient Europe, 20.09.2011.
[5] 'The Energy Concept and its accelerated implementation', *German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety*, 10.2011.
[6] *Residential energy roadmap 2050*, Sustainable Energy Authority of Ireland (SEAI), 2010.
[7] *Energy Policy of Denmark*, Danish Energy Agency, 12.2012.
[8] Ecofys, *Renovation Tracks for Europe up to 2050 - Building renovation in Europe - what are the choices?*, 10.2012.
Building Performance Institute Europe, Europe's Buildings Under the Microscope – A country-by-country review of the energy performance of buildings, 11.2011.
Center for Climate Change and Sustainable Energy Policy, *Employment Impacts of a Large-Scale Deep Building Energy Retrofit Programme in Hungary*, Central European University, Budapest, 08.06.2010.
Center for Climate Change and Sustainable Energy Policy, *Employment Impacts of a Large-Scale Deep Building Energy Retrofit Programme in Poland*, Central European University, Budapest, 01.2012.
Hermelink, A. and Müller, A., *Economics of deep renovation: Implications of a set of case studies*, Ecofys, 12.2010.
Hermelink, A., How deep to go: Remarks on how to find the cost-optimal levels for building renovation, Ecofys, 13.08.2009.
[9] Federal Ministry of Economics and Technology, Second National Energy Efficiency Action Plan (NEEAP) of the Federal Republic of Germany, 10.2011.

2. **The public buildings inventory should be expanded to an inventory of the whole building stock.**

To be able to set long-term energy reduction objectives and develop the renovation strategies, MSs need to have a clear picture of the current energy performance of their entire building stock (and not just the public buildings required in Article 5). Therefore, carrying out the "overview of the national building stock" should be understood as setting up an inventory, which leads to a mapping of the current energy performance of existing buildings, showing useful floor space and actual consumption (e.g. in kWh/m^2 per annum).

The inventory is also a prerequisite to implement the available and future policies and measures tailored to the specific national circumstances of the building stock. The outcome of the requirement should again be publicly available (including both the results and methodology).

3. **Strategies should include clearly defined renovation approaches and expected energy savings for all building types, in order to capture the benefits of long-term investments and improve policy monitoring.**

MSs should do reliable, stratified, sectoral savings potential assessments based on calculations that take account of long-term costs and multiple benefits. These should be cost effective, as explained in chapter II.3. Only then will it be possible to fully capture the returns and benefits of long-term investments involved in building renovations. MSs should bear in mind the lock-in effect that could result from undertaking sub-optimal renovations. This has been demonstrated by numerous studies[10].

At the same time, the policies and measures to realise these cost-effective savings potentials and the tools to implement them should be well defined. The expected savings for the different policies and measures should be assessed and benchmarked against the long-term savings potential of the entire national building stock. This should also be done in correlation with the suggested targets established by the European Commission's *Roadmap for moving to a competitive low carbon economy in 2050* for buildings.

Moreover, the impacts of new policies, measures and approaches in terms of increasing productivity and lowering costs during the course of the strategy should be carefully analysed and quantified. For example, cost-effective renovation approaches that are linked to economies of scale can, *inter alia*, impact the dimensioning of technical system requirements, such as heating and cooling supply and thus reduce energy demand significantly. Therefore, it is important to have up-scaled renovation programmes and co-ordinated efforts rather than several "isolated" small programmes. "Bottom-up" schemes, e.g. different initiatives, renovation plans and goals being developed at local level, should also be supported and coordinated within the national renovation roadmaps in order to help create a coherent framework.

Methods to track progress and measure and verify results should also be incorporated. Further guidance is required on measurement and verification of savings. This can be provided by the several existing studies on this subject financed by the Commission, like EMEEES[11], as well as the JRC ISPRA's methodology for measuring energy savings in buildings, which is actually already being used by many MSs[12].

The outcomes planned to be delivered through the renovation strategies should be clearly communicated to all actors.

4. **Encourage MSs to develop a policy landscape that stimulates cost-effective deep renovations of the building stock.**

[10] Among others: Global Buildings Performance Network and the Centre for Climate Change and Sustainable Energy Policy – Central European University, *Best Practice Policies for Low Carbon & Energy Buildings, Based on Scenario Analysis,* 05.2012
Hermelink, A. and Müller, A., *Economics of deep renovation – Implications of a set of case studies*, Ecofys, 12.2010.
[11] EMEEES project, Evaluate Energy Savings EU.
[12] Institute for Energy and Transport, Joint Research Centre, 02.04.2013.

Because the EED stipulates that national renovation strategies include policies and measures to stimulate cost-effective deep renovations of buildings, MSs must go beyond individual measures for "mobilising investment" and implement a broad policy mix supported by a broad political spectrum. Policies and measures included in the EED should also be taken into account. For instance, the National Energy Efficiency Funds foreseen in Article 20 should be designed to promote mainly deep and staged deep renovations.

When developing the policies and measures within their long-term renovation strategies, MSs should also take into account their obligation to develop policies and measures to stimulate the transformation of buildings into nearly zero-energy buildings under Article 9 of the EPBD (2010/31/EU).

Deep & staged deep renovation (see Annex C)

Recital 16 of the EED states that deep renovations "lead to a refurbishment that reduces both the delivered and the final energy consumption of a building by a significant percentage compared with the pre-renovation levels leading to a very high energy performance" and that "such deep renovations could also be carried out in stages."

In poorly performing buildings, deep renovation has been shown to improve the energy performance by on average a factor of four and within a range of between 65% and 95% compared with pre-renovation levels, primarily by reducing final energy consumption. This should bring the energy performance level of the renovated building as close as possible to requirements for new built or nearly zero energy-buildings.

The successful implementation of a staged renovation requires the definition of a holistic renovation plan to avoid that any stage of the renovation increases significantly the overall costs or precludes subsequent stages in the course of the standard renovation cycle. This renovation plan will look at the building as a whole (including envelope, control systems, technical systems and equipment), and define the sequence of the renovation stages with a view to reach the final goal (the significant reduction of energy consumption).

Policies and measures fostering deep renovation include, *inter alia*:

- Incentives to look at the building as a whole (including envelope, control systems, technical systems and equipment) and to carry out more than one renovation measure at a time;
- Encouragement to carry out deeper renovation work whenever there is a change of owner in the building, e.g. through differentiation in taxation;
- Requirements to improve first the worst energy performing properties in a market segment[13];
- Minimum improvement level conditions (in % of energy gains) when granting public subsidies, soft loans or default guarantees;
- Incentives for longer-term contracts such as Energy Performance Contracting (EPCs), enabling deeper renovations;
- Improved governance laws in multi-family housing;
- Incentive schemes which address split incentives while avoiding regressive social impact;
- Independent technical and financial advice for building owners and occupants;
- Improvement and further harmonisation of standards and certification systems for buildings and building elements;
- Measures to increase collaboration between all parts of the building chain; and

[13] For instance, the UK's 2011 Energy Act outlaws the letting of F and G rated residential and commercial properties after April 2018.

- Encouragement to deploy best-available technologies, including those designed for monitoring and verification of the building's energy performance.

5. The multiple benefits arising from building stock renovation should be clearly quantified and communicated.

In order to build and nurture the buy-in of all actors concerned, including the various administrative levels (national, regional, local), MSs need to be able to identify, quantify and communicate not only the energy savings but also the wider benefits (co-benefits) of buildings renovated to high energy performance standards to the broader economy. This should include quantification of societal benefits whenever possible. The Commission should assist in gathering knowledge on which MSs are already beginning to use long-term calculation models and why. For a truly sustainable building sector, linkages with other relevant aspects like resource efficiency should be considered as well.

Examples of multiple benefits of buildings renovations

The benefits and co-benefits of building renovations whereby greater ambition leads to greater benefits for individual owners and for society have been substantiated in various studies:

- An analysis of the KfW building refurbishment programme, elaborated by Jüllich Research Centre, demonstrated that, by creating or safeguarding some 340,000 jobs only in 2010, building renovation brought immediate benefits to public authorities (4 to 5 Euro for each Euro invested) in terms of increased tax revenues and avoided unemployment subsidies.
- Recent research from Ecofys analysed three possible tracks for the renovation of the EU building stock for the horizon 2050 and demonstrated that the deep renovation of the EU building stock delivers the highest record in environmental benefits and energy savings (more CO_2 savings and far less energy consumption than the other tracks), and provides higher job creation at costs similar to the other options.
- The Irish Residential Energy Roadmap 2050 states that the deepest decarbonisation of Ireland's residential sector (about 90% of current levels by 2050) could be achieved with very high levels of energy efficiency retrofits, among other measures.
- Research on the employment impacts of a large-scale deep renovation programme in Poland showed that "deep renovation will create by 2020 around 250,000 net additional jobs per year, as opposed to the approximately 40,000 forecasted in the suboptimal scenario."
- A recent study by Copenhagen Economics on the ancillary benefits of building renovation demonstrated that renovating Europe's buildings could boost GDP by €291 billion by 2017.

6. Ask for stable funding for renovations.

A strong long-term policy framework is a prerequisite to stimulate building renovations and financing is a key pillar of this framework. Therefore, providing comprehensive solutions to enable financing for building retrofits should be included in the renovation roadmaps under Article 4.

Innovative financial mechanisms will be required in order to overcome the traditional barriers to the availability of upfront capital for renovation. A number of actors have to be involved, from state-owned banks and other finance providers to the final customer asking for a mortgage to renovate his or her house. Innovative financial mechanisms need to be supported by enabling frameworks, such as state guarantees (these are discussed in the following chapter of this guide).

MSs should engage all relevant interested parties in this process and consider the creation of long-term agreements with different stakeholders in order to provide long-term policy signals and contribute towards a sustainable renovation strategy. A common understanding and commitments involving the various stakeholders (building professionals, industry, financial

institutions, etc.) and the political groups represented nationally will be key elements in order for the strategies to survive changes in government.

7. Ensure coordination with other Articles in the Directive.

By putting buildings – the sector with the biggest energy saving potential – under the spotlight for energy efficiency and savings policies beyond 2020, Article 4 offers the opportunity to coordinate other measures, including:

- Article 5: Article 4 was conceived to complement this article (covering the whole building stock, not just public buildings). Therefore, from this perspective, the public building renovation obligation under Article 5 should be perceived as a "kick start" for long-term strategies;
- Article 7: Energy Efficiency Obligations can be used to support and finance renovation strategies;
- Article 8: Energy audits can provide valuable information about the current level of consumption of different types of buildings, as well as possible measures to take; and
- Article 20: Financing mechanisms and national EE Funds must help to develop the required investments.