

## Annex C. Status of initiatives under the 2014 Energy Renovation of Buildings Strategy

The numbering of the initiatives below is the same as that in the 2014 Energy Renovation of Buildings Strategy

Initiative under the Energy Renovation of Buildings Strategy	Status of initiative
Requirements relating to building components in the Building Regulations	
1.1	<p><b>Upgrade the energy requirements for the building envelope, apart from windows</b></p> <ul style="list-style-type: none"> <li>Upgrade the energy requirements for building-envelope components so that they reflect future demands and expected energy prices.</li> </ul>
1.2	<p><b>Upgrade the energy requirements for windows</b></p> <ul style="list-style-type: none"> <li>Upgrade the energy requirements for window replacement in 2015, to reflect the published future requirements for 2015.</li> <li>Upgrade the energy requirements for window replacement in 2020, to reflect the energy requirements for windows in Building Class 2020.</li> <li>Set new targets for future energy requirements for windows after 2020.</li> <li>Produce information material on the choice of energy-efficient window solutions which also takes into account architectural aspects and conservation-status windows, as well as light and noise conditions.</li> </ul>
1.3	<p><b>Upgrade the energy requirements for installations in buildings</b></p> <ul style="list-style-type: none"> <li>Review the energy requirements for installations in buildings with a view to upgrading them, and consider whether to introduce requirements relating to the automation and control of the installations.</li> <li>Analyse the interplay between installations in buildings and the 'smart grid', and use this to assess the possibility of introducing special requirements for the installations in the buildings to exploit the benefits of the smart grid.</li> <li>Examine the advantages and drawbacks of introducing requirements for the use of ventilation with heat recovery in new single-family houses.</li> <li>Examine the possibility of introducing requirements for the use of commissioning in some types of large buildings with complex installations.</li> </ul>

1.4	<p><b>Ensure greater compliance with the Building Regulations</b></p> <ul style="list-style-type: none"> <li>• Make the rules in the Building Regulations easier to understand.</li> <li>• Provide more information on the Building Regulations, e.g. by developing sets of examples.</li> <li>• Monitor compliance with the energy requirements for existing buildings in the Building Regulations on a regular basis, including reviews of compliance every other year.</li> </ul>	<p>Steps have been taken to improve information on requirements in the Building Regulations, which is provided for instance via Sparenergi.dk, the Energy Agency's website.</p> <p>Steps have also been taken to carry out monitoring of compliance with the requirements.</p> <p>The results of this will feed into a long-term energy policy review that will take place in connection with the conclusion of a new energy agreement for the post-2020 period.</p>
1.5	<p><b>Introduce voluntary energy classes for existing buildings</b></p> <ul style="list-style-type: none"> <li>• Launch an analysis of the level of demand and viability with regard to energy conditions in existing buildings and introduce voluntary energy classes for existing buildings in the 2015 Building Regulations that correspond to the classification of buildings on a scale from A to G in the energy-labelling scheme for buildings.</li> <li>• Amend the requirements for existing buildings in the Building Regulations so that building owners carrying out renovations can opt for compliance with a voluntary energy class instead of the energy requirements for certain building components.</li> </ul>	<p>Voluntary energy classes for new buildings were introduced in the 2015 Building Regulations.</p> <p>Building owners renovating existing buildings may opt for compliance with a voluntary energy class instead of compliance with the component-specific requirements in the Building Regulations.</p>
<p><b>Requirements relating to new buildings in the Building Regulations</b></p>		
1.6	<p><b>Upgrade the energy requirements for new buildings</b></p> <ul style="list-style-type: none"> <li>• Evaluate the energy requirements in the low-energy classes.</li> <li>• Convert the energy conditions in Low-Energy Class 2015 into requirements from 2015 and assess the component requirements on the basis of an evaluation.</li> <li>• Assess the need to adjust the requirements for Building Class 2020.</li> <li>• Carry out initiatives to promote compliance with the airtightness requirements in new buildings, placing greater emphasis on the advantages of making new buildings airtight.</li> </ul>	<p>The experience gained with Low-Energy Class 2015 and Building Class 2015 has been evaluated. On the basis of these evaluations, new requirements for new buildings have been laid down in the 2015 Building Regulations (BR 15).</p> <p>Moreover, the requirements relating to buildings in Building Class 2020 are under review.</p> <p>A new rule on airtightness testing has been introduced in BR15, providing an incentive to have pressure tests carried out for buildings.</p>
<p><b>Information on energy-efficiency for building owners and businesses</b></p>		
1.7	<p><b>Step up information and communication activities about energy renovation and energy efficiency in the building industry</b></p> <ul style="list-style-type: none"> <li>• Step up the information activities about energy-efficiency so that they provide greater support for the energy renovation of buildings.</li> </ul>	<p>SparEnergi.dk, the Danish Energy Agency's energy-savings website, has been developed. This includes new information tools providing building owners with information on the scope for energy renovation, such as:</p>

	<ul style="list-style-type: none"> <li>• Develop new, targeted information tools emphasising an all-round view of energy renovation, including the indoor climate, comfort, health, architectural considerations, and radon and PCB problems, etc.</li> <li>• Support municipalities' efforts to boost energy efficiency, including the establishment of partnerships to run information activities.</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Bygningsguiden</i> (Building Guide), which contains information on energy-saving opportunities, the indoor climate, sustainability, etc. for the 15 most common building types (<a href="#">click</a>).</li> <li>• <i>Energiløsninger</i> (Energy Solutions), which contains a description of opportunities for energy savings when renovating individual building components (<a href="#">click</a>)</li> </ul> <p>In the context of the 'Energy-Efficient and Intelligent Buildings' initiative, municipalities have been granted funding to set up partnerships for promoting energy efficiency. The experience gained from these projects will be summarised and made available to municipalities with a view to strengthening local energy efficiency partnerships in the longer term.</p> <p>Funding has been made available to the Videncenter for Energibesparelser i Bygninger (Knowledge Centre for Energy Savings in Buildings), whose purpose is to provide information on improving the energy efficiency of buildings to builders and other contractors in the construction sector (<a href="#">click</a>).</p>
<b>Work done by energy companies</b>		
1.8	<p><b>Target energy-saving efforts by energy companies</b></p> <ul style="list-style-type: none"> <li>• Discuss with the energy companies whether it is possible to introduce a target for the proportion of their energy savings to be achieved in existing buildings.</li> </ul>	<p>Up to 2016, energy companies in Denmark were obliged to make energy savings equating to 12.1 PJ per year.</p> <p>They are free to choose how and in which sectors to take action. In the new agreement on such action that was concluded in 2016, energy savings in buildings are made by insulating building envelopes and pipes, and greater importance is attached to window replacement than previously in buildings supplied with district heating.</p> <p>The latest records of work done by the companies show that the savings achieved as a result of buildings-related initiatives accounted for at least 35 % of the savings reported by the companies in 2015.</p>
<b>Energy labelling of buildings (Energy Performance Certificate)</b>		
1.9	<p><b>Maintain an effective and targeted energy-labelling scheme for buildings</b></p> <ul style="list-style-type: none"> <li>• Increase the use of energy labelling of buildings by setting up a website where building owners and tenants can use energy labels to gain an overall view of the energy-saving potential in their buildings and obtain specific information and guidance on carrying out energy renovations.</li> <li>• Make background data on buildings from the energy labels available via the Danish Energy Agency website.</li> </ul>	<p>An information campaign on the energy labelling of buildings has been conducted, targeting building owners. There is also a requirement for a building's energy label to be disclosed when it is advertised for sale or for rent. As a result, the energy label has an impact on the value of a property equating to about DKK 500 per m<sup>2</sup> when it moves up a step on the A-G scale for energy labelling. This has been documented in an independent analysis (<a href="#">click</a>).</p>

	<ul style="list-style-type: none"> <li>• Draw up guidelines and examples of how energy labelling can assist with building maintenance and the renovation of property portfolios.</li> <li>• Strive to make continuous improvements to the quality of the energy labels for buildings, simplify the rules and reduce the costs of energy labelling.</li> <li>• Pursue the dialogue with building owners, tenants, consultants, tradespeople, energy companies, financial institutions and other market operators on ways in which energy labelling can best support energy saving efforts.</li> </ul>	<p>Moreover:</p> <ul style="list-style-type: none"> <li>• A SparEnergi.dk website had been set up, where data on the energy labelling of buildings is published (<a href="#">click</a>).</li> <li>• The Building Guide (<i>Bygningsguiden</i>) on SparEnergi.dk, shows how the energy label of a building can be improved by means of specific savings initiatives (<a href="#">click</a>).</li> <li>• As part of the 'Energy efficient and intelligent buildings' initiative, it is being assessed how background data from energy labelling can be used more effectively as a basis for promoting the energy efficiency of buildings (<a href="#">click</a>).</li> <li>• A dialogue has been launched with interested parties regarding the scope for making energy labelling more efficient and improving the quality of the labelling.</li> </ul>
<p><b>Data and technical tools for promoting energy efficiency</b></p>		
<p>1.10</p>	<p><b>Provide better data and tools for decisions on energy renovation</b></p> <ul style="list-style-type: none"> <li>• Carry out an analysis of the various parties' need for data, technical tools, etc. to support the energy renovation of buildings.</li> <li>• Develop a method to calculate and document energy savings from energy renovation.</li> <li>• Draw up a plan to develop data, technical tools, guidelines, etc. to promote energy renovation of buildings in collaboration with the parties involved.</li> </ul>	<p>As part of the 'Energy efficient and intelligent buildings' initiative, an analysis has been made of data for promoting the energy efficiency of buildings, with a view to identifying which data is needed and clarifying the data requirements for fostering the commercial development of smart, data-driven solutions for boosting the energy efficiency of buildings. Specific initiatives will be launched in 2017 and 2018 on the basis of this analysis.</p> <p>A project has been implemented to develop a general method by which developers can ensure that a credible basis is put in place both for making decisions on the scope for improving the energy efficiency of large buildings in the context of renovation and for how renovation should be approached so as to ensure that energy savings are achieved. The result will be published as a guidance note to developers in June 2017.</p>
<p><b>Analyses of financing conditions</b></p>		
<p>1.11</p>	<p><b>Promote favourable conditions for financing energy renovation</b></p> <ul style="list-style-type: none"> <li>• Analyse whether the housing market is sufficiently transparent so that the pricing reflects the energy status of the buildings and thus ensures that worthwhile energy renovations retain their value when the property is to be sold, and assess whether greater account can be taken of energy factors when banks and mortgage lenders give advice on loans and when properties are valued.</li> <li>• Analyse the extent to which demolition and possible rebuilding are a better alternative to energy renovation where the cost of the latter is disproportionately high in relation to the cost of demolition and rebuilding.</li> </ul>	<p>A large number of analyses have been carried out of the issues referred to (<a href="#">click</a>, see section on 'Advice on energy savings' on the website).</p>

	<ul style="list-style-type: none"> <li>Analyse the promotion of financing via mortgages and bank loans as part of the <i>Bedre Bolig</i> [Better Housing] scheme.</li> <li>Analyse how the development of the property market affects investment behaviour in terms of energy renovation</li> </ul>	
<b>Development of a building policy strategy</b>		
1.12	<p><b>Produce a building policy strategy</b></p> <ul style="list-style-type: none"> <li>Produce a building policy strategy to set out the Climate, Energy and Building Ministry's overall policy for the construction sector and address the challenges facing the industry to help to promote growth, productivity and employment in the building industry.</li> </ul>	In November 2014, the Government of the day published a building strategy entitled 'The path to a stronger construction sector in Denmark - the Government's building policy strategy' ( <a href="#">click</a> )
<b>Promote energy renovation by providing advice</b>		
2.1	<p><b>Promote energy renovation in single-family houses via the <i>Bedre Bolig</i> scheme</b></p> <ul style="list-style-type: none"> <li>Launch and market the <i>Bedre Bolig</i> scheme in 2014, to create a one-stop shop for home-owners to go to for energy renovation. The scheme will be rolled out progressively based on experience from a number of selected municipalities.</li> </ul>	<p><i>Bedre Bolig</i>, an approval scheme for consultants who can give qualified advice to building owners on making homes more energy-efficient, has been developed and launched.</p> <p>Building owners can contact approved <i>Bedre Bolig</i> consultants for advice on improving the energy efficiency of their buildings and find out, for instance, what measures can be implemented, how much energy they will save, what investments are needed and what the consequences for the indoor environment, comfort, etc. will be (<a href="#">click</a>).</p>
<b>Promote alternatives to oil- and gas-fired boilers based on renewable energy</b>		
2.2	<p><b>Promote more widespread use of alternatives to oil- and gas-fired boilers based on renewable energy</b></p> <ul style="list-style-type: none"> <li>Run demonstration projects to test solutions that incorporate renewable energy in buildings and highlight the interaction between conversion to renewable energy and the need for energy renovation.</li> </ul>	<p>In 2014, demonstration projects were implemented for new business models for increasing the use of heat pumps in buildings.</p> <p>On the basis of these projects, a special initiative has been taken for the period 2016-2019 to promote heat pumps, with grants being made to undertakings for the installation of heat pumps in single-family houses subject to special conditions whereby the building owner pays only for the supply of heat from the heat pump and the supplier covers the investment costs and pays for routine maintenance. The aim is to promote new models for more widespread use of heat pumps under which building owners do not have to cover the investment costs for the installation of heat pumps.</p>
<b>New model for energy renovation based on energy savings guarantees</b>		
3.1	<p><b>Promote energy renovation of large buildings by means of public tenders with guarantees</b></p>	Following more detailed analysis, the state-led development of new models for carrying out energy renovations with a guarantee was found not to be appropriate.

	<ul style="list-style-type: none"> <li>• Launch a model for energy renovation with energy savings guarantees in apartment and office buildings, etc. and test it in a number of actual construction projects.</li> <li>• Evaluate the experience gained with the model and assess the need for its enhancement to establish an overview of the total energy consumption of buildings, e.g. some types of process energy.</li> </ul>	<p>Instead, efforts have been made to provide information on the application of the ESCO model when renovating large public buildings.</p>
<p>Promote the energy renovation of social housing, owners' and tenants' associations' properties and rented business premises.</p>		
3.2	<p><b>Promote energy renovation of social housing</b></p> <ul style="list-style-type: none"> <li>• Reduce the financial uncertainty for residents of existing social housing when major energy renovations are carried out by developing a special model whereby the housing organisations' special reserve funds can be used to provide a guarantee for energy savings, in addition to a guarantee from a technical adviser or any other party to the building project.</li> <li>• Promote energy renovation work in existing social housing by developing a flexible digital energy-renovation platform with a coordinated collection of instructions and planning and calculation tools that can be used to plan, project-manage, implement and operate major energy-saving exercises. The platform will be developed together with the social housing sector and will be continuously expanded on the basis of experience from e.g. trials and demonstration projects.</li> </ul>	<p>A model under which housing organisations provide guarantees for energy savings via a special reserve fund was not found to be appropriate. Housing organisations are not seeking such an arrangement, and ring-fencing investment in energy savings from other areas of renovation is considered to be problematic.</p> <p>No basis has been identified for an energy renovation platform for public-sector building. Experience of energy renovation in the public housing sector is exchanged within the AlmenNet network, and it was not considered appropriate to establish a competing platform.</p>
3.3	<p><b>Promote energy renovation of private rental and cooperatives and owners' associations' properties</b></p> <ul style="list-style-type: none"> <li>• Carry out an analysis of the use of property managers in private rental properties, private housing cooperatives and housing associations, including the extent to which agreements are entered into on energy control and optimisation in management contracts or agreements on the use of energy consultants inside or outside the owner's or administrator's business.</li> <li>• Discuss with owners and tenants what measures can be taken to ensure that energy control and energy renovation receive greater emphasis in the running of properties, and to what extent this can be achieved via management contracts.</li> </ul>	<p>It was decided to await implementation of amendments designed to simplify and modernise laws in order to avoid any clash with the implementation of the aforementioned energy renovation initiatives. This process is not yet complete as it has been decided to incorporate an evaluation phase.</p> <p>An evaluation of the energy-savings package (legislative amendments from 2014) is also under way.</p>
3.4	<p><b>Promote energy renovation of commercial rental property</b></p> <ul style="list-style-type: none"> <li>• Present a bill to amend the Commercial Rental Act to make it easier for landlords of properties leased for business use only to enter into agreements with tenants on the energy renovation of the properties and on an associated increase in rent.</li> </ul>	<p>The Commercial Rental Act has been amended to make it possible for landlords to demand a rent increase for works that result in energy savings for tenants of their properties, under certain circumstances.</p>

## Energy renovation of public buildings

3.5	<p>Promote energy-efficient public buildings</p> <ul style="list-style-type: none"> <li>• Revise the Circular on improving energy efficiency in Danish state institutions</li> <li>• Carry out analyses of ways in which the energy renovation of the state's total property portfolio can be carried out in the most cost-effective way and hence shed light on the marginal costs of extra energy renovations.</li> <li>• Discuss the establishment of new conditions for energy-saving efforts in municipalities and regions with Local Government Denmark and Danish Regions, the aim being that energy-saving efforts will be governed by the same principles at municipal and regional level as at state level.</li> <li>• Support cross-cutting cooperation with state, regional and municipal building owners aimed at promoting the energy-efficient running of the public property portfolio.</li> <li>• Develop a digital tool and a database to record and display energy consumption in public buildings.</li> </ul>	<p>The Circular on energy-efficiency measures in state institutions was last revised in July 2014. Parts of Article 5 of the EED were implemented as a result of that revision.</p> <p>A comprehensive study of energy-saving efforts in state institutions has been carried out, and all ministries evaluated their energy-saving efforts in 2016. On this basis, consideration will be given to a fresh revision of the Circular on energy-efficiency measures in state institutions.</p> <p>Discussions have taken place with representatives of municipalities and regions (Local Government Denmark and Danish Regions) on the conditions for energy-saving efforts in municipalities and regions, respectively. It has been decided not to conclude an agreement on energy efficiency. On the other hand, there have been discussions on a number of initiatives for improving conditions and tools for energy-saving efforts in municipalities and regions, with cooperation having been launched on a revision of the energy labelling scheme for municipalities and regions so as to improve it as a tool for promoting energy savings and the energy-efficient running of public building portfolios.</p> <p>In 2016, the Danish Energy Agency launched the digital tool <a href="#">Offentligt Energiforbrug</a> [Public Energy Consumption]. This tool makes it possible to see how much electricity, heat and water the state, including ministries and subordinate institutions, consume and allows comparisons to be made between them. <i>Offentligt Energiforbrug</i>, in addition to making consumption data visible to the public, serves as a tool for ministries' energy-saving efforts.</p> <p>All ministries are obliged, on the basis of the Circular, to submit an annual report to the database on their electricity, water and heat consumption, and on the area occupied and number of FTEs.</p>
-----	---	--

## Individual energy metering

3.6	<p><b>Update the requirements for the metering and visibility of energy consumption in buildings</b></p> <ul style="list-style-type: none"> <li>• Update the requirements for the individual metering of heat, gas, cooling and water consumption in buildings containing multiple residential or commercial units, in connection with implementation of the EED, based on analyses of the economic and energy-related consequences.</li> <li>• Conduct an information campaign to ensure that the relevant parties are familiar with the rules.</li> </ul>	<p>The requirements for the individual metering of energy in buildings containing multiple residential or commercial units have been updated and a revised order on this subject has been issued.</p> <p>Information about this new order was provided when it was issued.</p>
-----	---	--

Raising of skills etc.

4.1	<p><b>Improve training and skills development within energy renovation.</b></p> <ul style="list-style-type: none"> <li>• Launch an analysis of the need for training in energy efficiency and renewable energy in the building industry.<sup>1</sup></li> <li>• Ensure that teaching materials and tools are developed for the training of bank staff responsible for providing advice, making it possible to actively market financing for energy renovation.</li> <li>• Ensure that information materials and tools are developed which equip sales staff at DIY stores with the skills to guide building owners on energy-efficient energy renovation solutions.</li> </ul>	<p>An assessment has been made of the skills required for the energy renovation of buildings. On this basis, further training for energy consultants has been developed under the <i>Bedre Bolig</i> scheme.</p> <p>In collaboration with Danske Byggecentre (the sectoral association for builders' merchants and DIY stores), an online course on energy renovation for builders' merchants' staff has been developed. Steps have also been taken to provide builders' merchants' staff with information on the potential for energy renovation etc.</p> <p>On the basis of dialogue with Finance Denmark (association of banks and mortgage lenders), cooperation with the Financial Sector Training Centre (FU) has been launched to develop teaching material for their 'Buying a home' and 'Construction and Renovation' training courses. Information material is also being drawn up for banks' private customer advisers on improving energy efficiency.</p>
<b>Promoting research and innovation, etc.</b>		
4.2	<p><b>Enhance research, innovation and demonstration of energy renovation</b></p> <ul style="list-style-type: none"> <li>• Support the establishment of a social partnership for innovation called the 'Innovation centre for world-class building renovation'. By way of broad cooperation between public and private sector operators, the partnership will develop and demonstrate solutions for sustainable building renovation using less energy and fewer resources. The future Danish Innovation Fund will be responsible for its practical implementation in 2014.</li> </ul>	<p>The Innovation Fund has tendered out to social partnerships the development of framework conditions and processes for the energy renovation of existing buildings with a view to reducing energy consumption in buildings by 50 % and resource consumption by 30 %, and to increasing renovation process productivity by 20 %. The project involves private businesses, knowledge institutions and public authorities.</p>