Roadmap for energy efficiency

Danish Ministry of Climate,
Energy and Utilities

Note that this is an English translation of the Danish roadmap Køreplan for Energieffektivitet. The Content of the Danish version will be applicable at all times.

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Content

The Minister's foreword

For decades, Denmark has been a frontrunner when it comes to energy efficiency - and we need to maintain that position. Energy efficiency is practically a Danish tradition, as we have been working on this issue since the oil crisis in the 1970s and Danish enterprises are among the global leaders in this area. Based on our Danish experiences, we have succeeded in pushing for an ambitious approach to energy efficiency both in the EU and globally. This has been good for the climate, our way of using energy and for the everyday lives of people in Denmark, and it has also created large markets for Danish enterprises. The Danish energy efficiency efforts have meant that we were able to keep consumption levels steady despite a significant amount of growth over the past three decades. The efforts to reduce energy consumption have long been a contributing factor to meeting the Danish climate targets.

As energy becomes greener, the contribution of energy efficiency savings to climate targets decreases - and this is in itself a success story. Denmark is therefore in a different position compared to many other countries where energy savings are still an important contributor to the national climate initiatives. The final margins of savings in the consumption of green energy will not necessarily reduce the Danish carbon emissions, but they may support the security of supply, allow for the green transition and result in financial savings if a household or enterprise chooses to invest in energy-saving initiatives. Energy savings can also result in the green energy being freed up for use elsewhere in society. This effort is therefore still important.

The Danish energy efficiency efforts may not have changed compared to how we started in the 1970s, but the rest of our energy policy has. As a country, we are in a situation where both our electricity, district heating and gas consumption are expected to be covered by green energy in a few years. In light of this, there is a need to further develop the area and build upon the work of the past few decades, and now is the time to do this. We need to become even more focused on using energy in a smart way and with careful thought as this plays a vital role in an energy system based on green energy. It can reduce costs for consumers and enterprises, improve the security of supply and potentially create large new export markets for Danish enterprises.

This situation requires a new and broader approach than before. It is therefore now time for us to look ahead and reconsider what energy efficiency is and how it can best contribute to the green transition in a green energy system. As other countries will be in the same situation as us in a few years, Denmark and Danish enterprises can be ready to help them cross the finish line.

The goal, as mentioned, is for us to get the most out of the entire energy system to promote the green transition and security of supply. This requires a smarter and more efficient energy consumption in which we ensure that energy consumption better matches energy production. This roadmap specifies the core principles of a new approach to energy efficiency which is to help reconsider the role of energy efficiency in a green energy system.

This new understanding of energy efficiency does not mean that energy savings that might, for example, be achieved through energy efficiency renovations are not still important. Denmark is good at this and we must continue to be so. In recent years, there has been launched many initiatives and, among other things, there has been allocated billions of euros to reduce energy consumption, including the allocation of more than 1 billion euros to a long list of subsidy pools. Now we need to begin implementing the Energy Performance of Buildings Directive (EU EPBD) and the energy efficiency requirements for the public sector (EU EED).

Lars Aagaard
Minister of Climate, Energy and Utilities

The existing energy efficiency efforts

The existing Danish energy efficiency efforts currently consist of a large number of initiatives that can be divided into three general types:

- Financial instruments (for example, carbon taxes for industry, energy taxes, subsidy pools for energy savings and conversions)
- Regulatory instruments (for example, requirements for the energy efficiency of buildings)
- Informational instruments (for example, informational campaigns)

In recent years, Denmark has entered into a number of political agreements that contribute to significant energy savings widely distributed across sectors. Among other things, this includes the Danish Energy Agreement (2018), The Danish Agreement on Green Tax Reform (2020) and the Danish Climate Agreement for Energy and Industry, etc. (2020), the Danish Agreement on the Green Transition of Road Transport (2020), the Danish Climate Agreement on Green Electricity and Heating (2022), the Danish Agreement on Green Tax Reform for Industry, etc. (2022), the Danish Agreement on Winter Assistance (2022), the Danish Agreement on Inflation Aid (2023) and various Danish government budget agreements, etc.

In addition, Denmark has for a long time had a focus on boosting the energy efficiency agenda on a European level in relation to product regulation such as eco design and energy labelling requirements. A coordinated EU effort for the entire common market has a greater impact on energy consumption and behaviour than national initiatives. The work also promotes the competitive advantages of Danish business stakeholders dealing with energy-efficient and environmentally friendly products.

The roadmap is based on already-decided policy initiatives and current energy efficiency initiatives.

A new energy efficiency framework

The Danish focus on energy efficiency started with the oil crisis of the 1970s where oil prices rose considerably and marked the beginning of a longer recession in Denmark. At the time, the vast majority of Danish energy consumption was based on oil. Therefore, there was an urgent need to make Denmark less dependent on oil and this led to the development of a multi-pronged strategy for energy production and consumption. This strategy had a particular focus on energy savings, as a more efficient use of energy was a quick, sure and cheap way of reducing the dependence on oil. In the short run there was introduced car-free Sundays, industrial oil was restricted, stores were banned from lighting windows and households were encouraged to reduce their energy consumption. Since then, a wide range of policy measures have been developed to broadly reduce energy consumption across society, including energy taxes, energy saving schemes, subsidy schemes, informational initiatives and requirements for buildings, such as windows, insulation and heating systems, etc. These measures have contributed to Danish energy consumption remaining unchanged despite significant economic growth over the past three decades.

The Danish energy efficiency efforts have traditionally focused on reducing the final energy consumption in society in order to reduce the use of and phase out fossil fuels in the energy system. The purpose of reducing energy consumption has been to reduce carbon emissions from fossil fuel use, contribute to security of supply by reducing energy demand and support low energy costs for consumers and enterprises. This is also a characteristic of the EU directives in this area, which primarily focus on energy savings in the final energy consumption. Energy efficiency efforts have focused to a limited extent on when the energy is consumed and what type of energy is being consumed, and this focus should be maintained in the future so that we can benefit from more flexibility in the energy system where the energy consumption matches the expansion of renewable, fluctuating energy production and the growing electrification of society.

In the 'Klimastatus og -fremskrivning 2024 (KF24)' report ('Climate Status and Projections 2024'), it is estimated that the district heating sector in Denmark will be very limited in 2030 due to the expansion of renewable energy and the overall green transition in Denmark's energy system. As a result, the climate externalities associated with electricity and heating production will be very limited. The production of green gas is estimated to exceed the total Danish consumption of pipeline gas from 2029, and thus in terms of calculated emissions, there will be none from gas consumption from 2029 onwards. This means that after 2030 there will be practically no carbon emission reductions to be gained from reducing either electricity, district heating or gas consumption.

Figure 1

Greenhouse gas emissions from the electricity and district heating sectors, million tonnes of CO_2 (KF24)

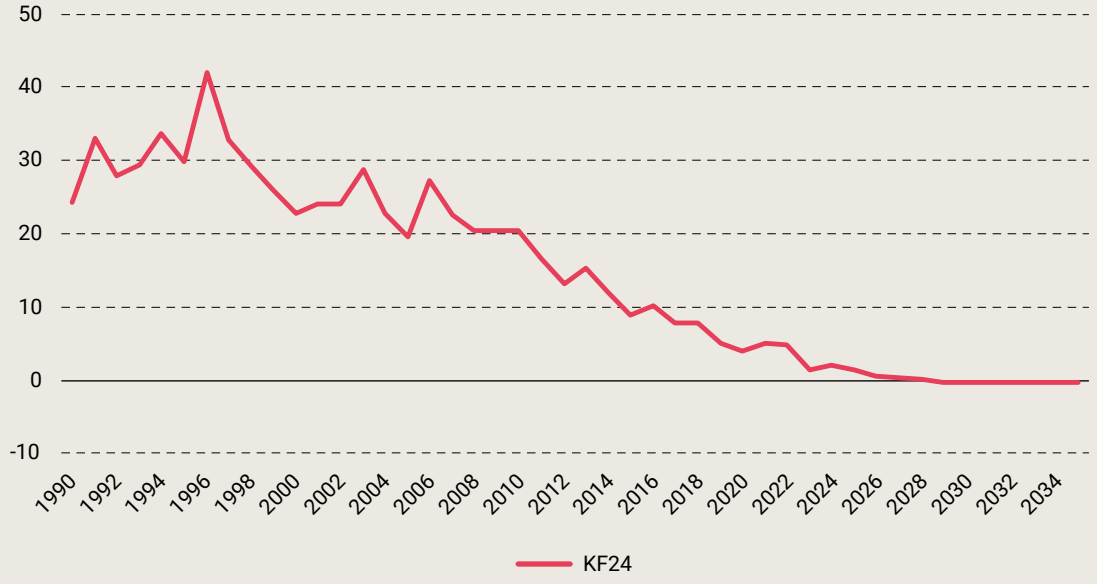
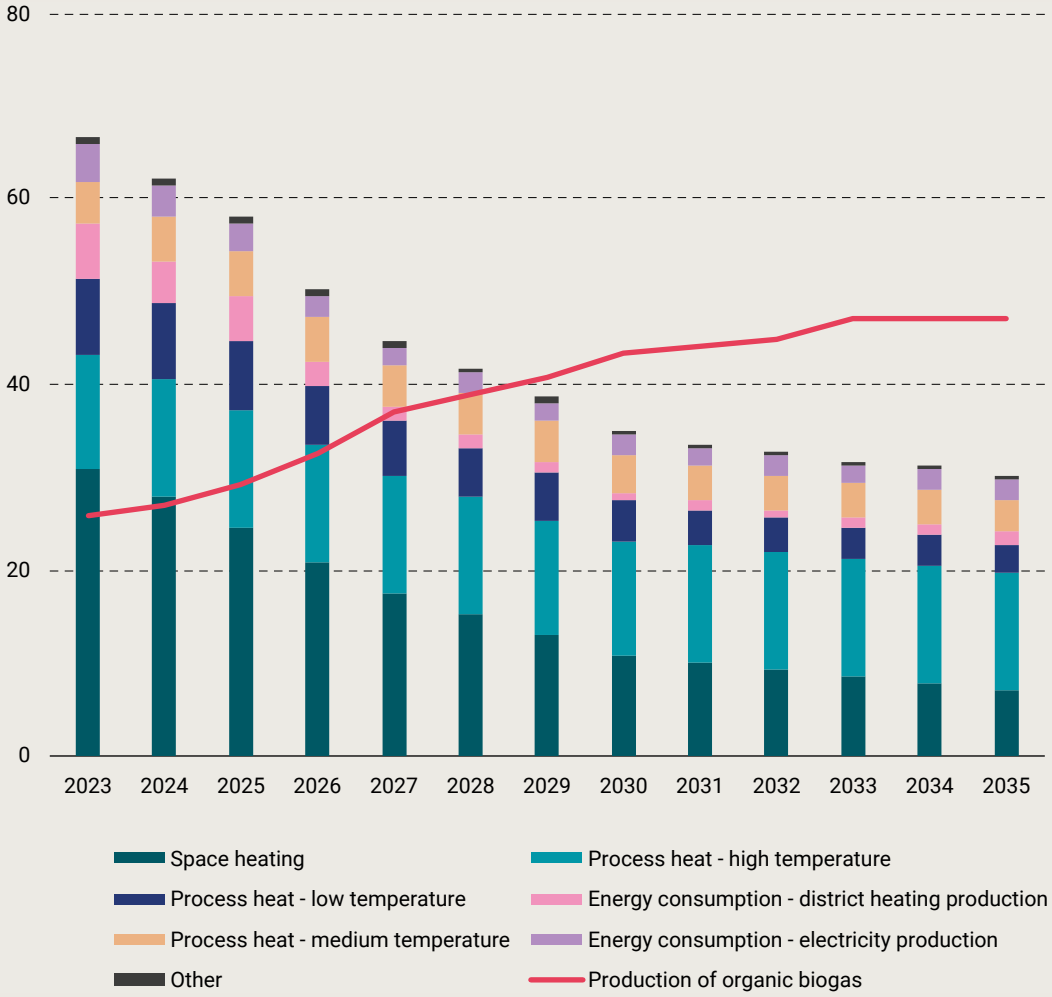


Figure 2

Gas consumption distributed by type in relation to the production of bio natural gas, PJ (KF24)



A major challenge in an energy system based on renewable energy is therefore no longer just carbon emissions but also that renewable sources of energy reach peak production when the sun shines or the wind blows. This amplifies the time-related challenge in ensuring a balancing in the energy system as the political objectives related to the green transition are gradually fulfilled. This new situation will also result in new requirements and opportunities for consumers who will now increasingly have to react to fluctuating energy prices. As Denmark realises the green transition of its energy system, it will be crucial for energy efficiency to increasingly become a means of supporting a cohesive, efficient and robust energy system.

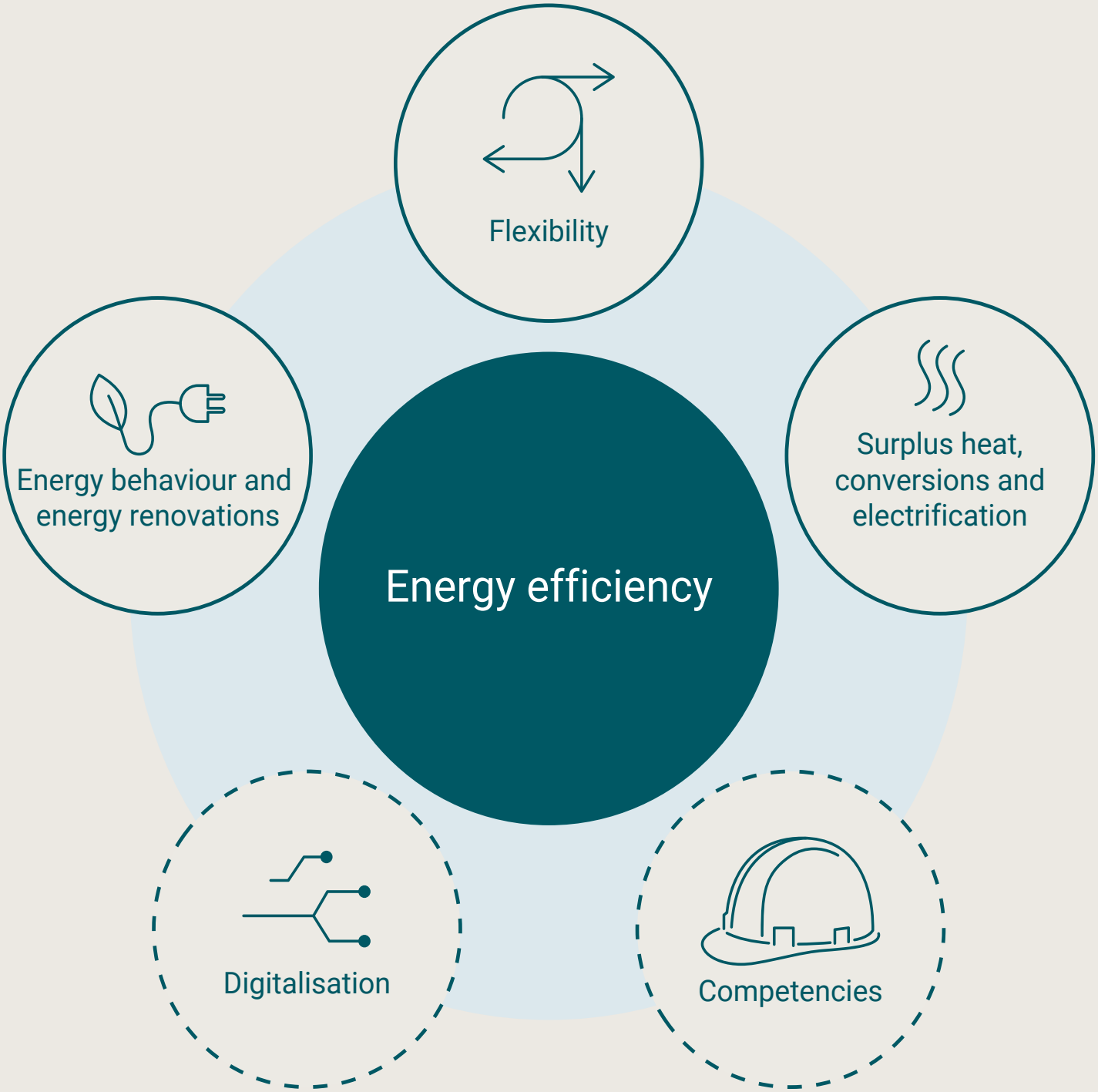
A new framework for energy efficiency

The energy efficiency efforts must therefore contribute to supporting a better balance between the renewable energy that is being produced and the energy that consumers demand. This development will result in great demands for a more digital, efficient and integrated energy system where the energy consumption is electrified - which is more energy efficient compared to fossil fuels. At the same time, the energy must be used flexibly at all stages so that energy consumption can increasingly be managed based on the production of renewable energy. This requires that the energy efficiency efforts are put into a framework based on a systemic understanding of how much, when, and which kind of energy is produced. It is therefore necessary for energy efficiency to be thought of as more than just energy savings - energy efficiency should instead be viewed as a number of supporting measures. The purpose is to support the overall energy system.

Going forward, energy efficiency is to be framed as a collective term wherein energy behaviour and energy renovations, electrification, conversions and surplus heat, and flexibility supported by digitalisation and competencies contribute together to ensuring that we get the most out of the overall energy system.

Figure 3

A new framework for energy efficiency



The next steps

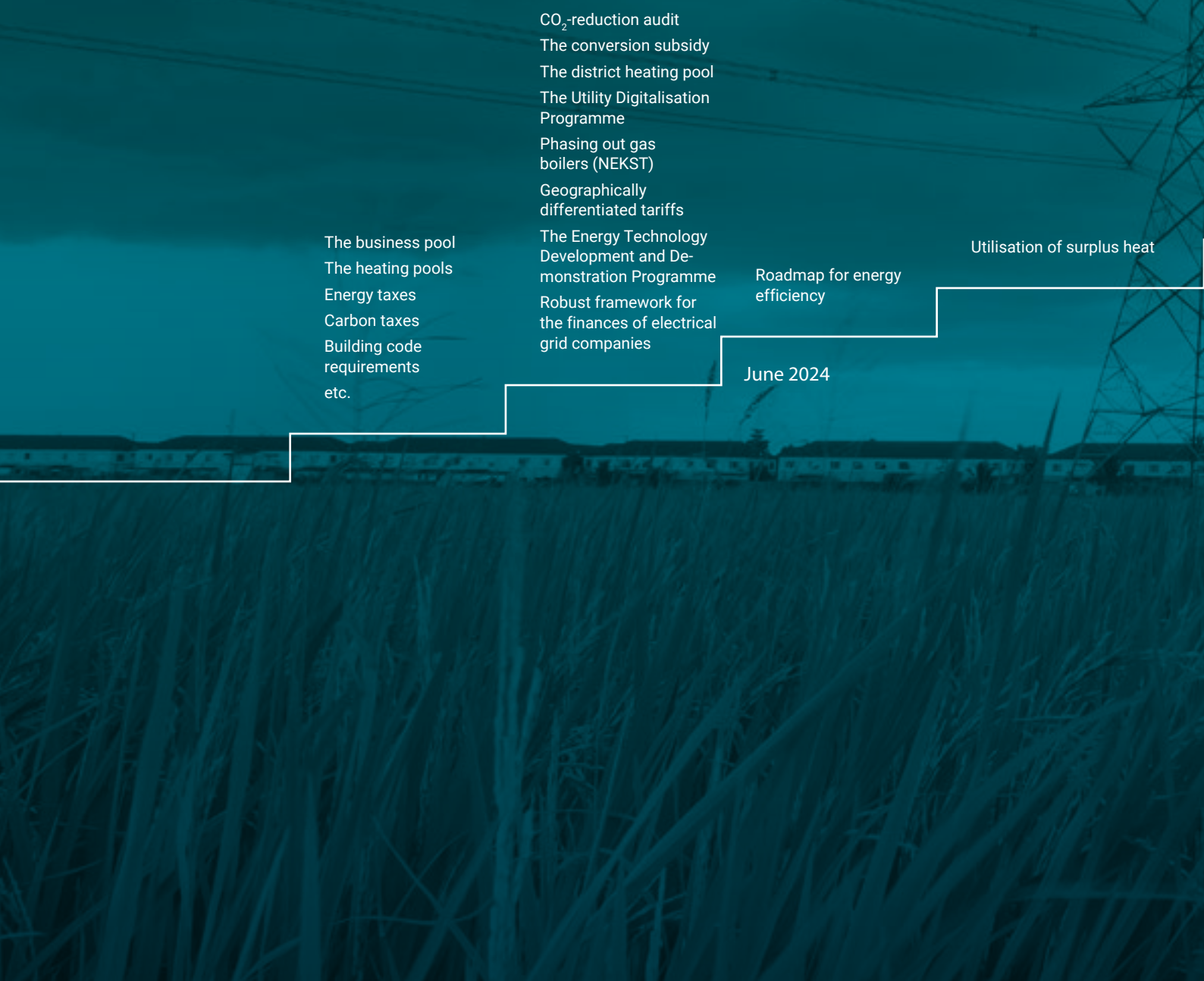
With this roadmap, the government is taking the initial steps towards this new understanding and the roadmap should be seen in the context of the government platform text which states the goal of "Ensuring a strong focus on improving the energy efficiency of both private homes, enterprises and public sector buildings" as well as the government's desire to support the green transition across the whole of the EU and globally. The work on the new understanding of energy efficiency was further underlined at the International Energy Agency (IEA) conference on energy efficiency in Sønderborg in 2022 where the Sønderborg Action Plan was launched. The work also draws on a wide range of inputs from industry.

The roadmap outlines the ongoing and upcoming work on energy efficiency in the coming years, including the implementation of relevant EU directives. Adding a broader meaning to energy efficiency does not mean, for example, that energy savings achieved through energy renovations or improved energy behaviour are not important. Energy savings must remain a central part of Danish energy policy, and the purpose of the new framework is to look ahead and help to ensure that energy efficiency efforts are also reconsidered, expanded and adapted in line with the green transition. The energy efficiency area should be seen as a staircase, where the roadmap is only a step on the staircase representing the overall needed energy efficiency effort. The energy efficiency efforts will be evaluated in 2026.

An example where a similar development is already underway is in the evolving construction sector. Whereas previously the focus has been on reducing energy consumption in the operation of the building, there is now also a strong focus on the embedded CO_2 emissions throughout the building's lifecycle, including from the production of building materials. To this end, a political agreement was reached in May 2024 that specifies stricter climate requirements for construction projects from 2025.

Figure 4

The energy efficiency efforts as a staircase




The EU electricity market reform
Security of electric supply
NEKST-recommendations for the electrical grid
Follow-up on the Utility Digitalisation Programme
Requirements for the public sector from the Energy Efficiency Directive
The Buildings Directive
2026
Reporting and status on energy efficiency
The next steps

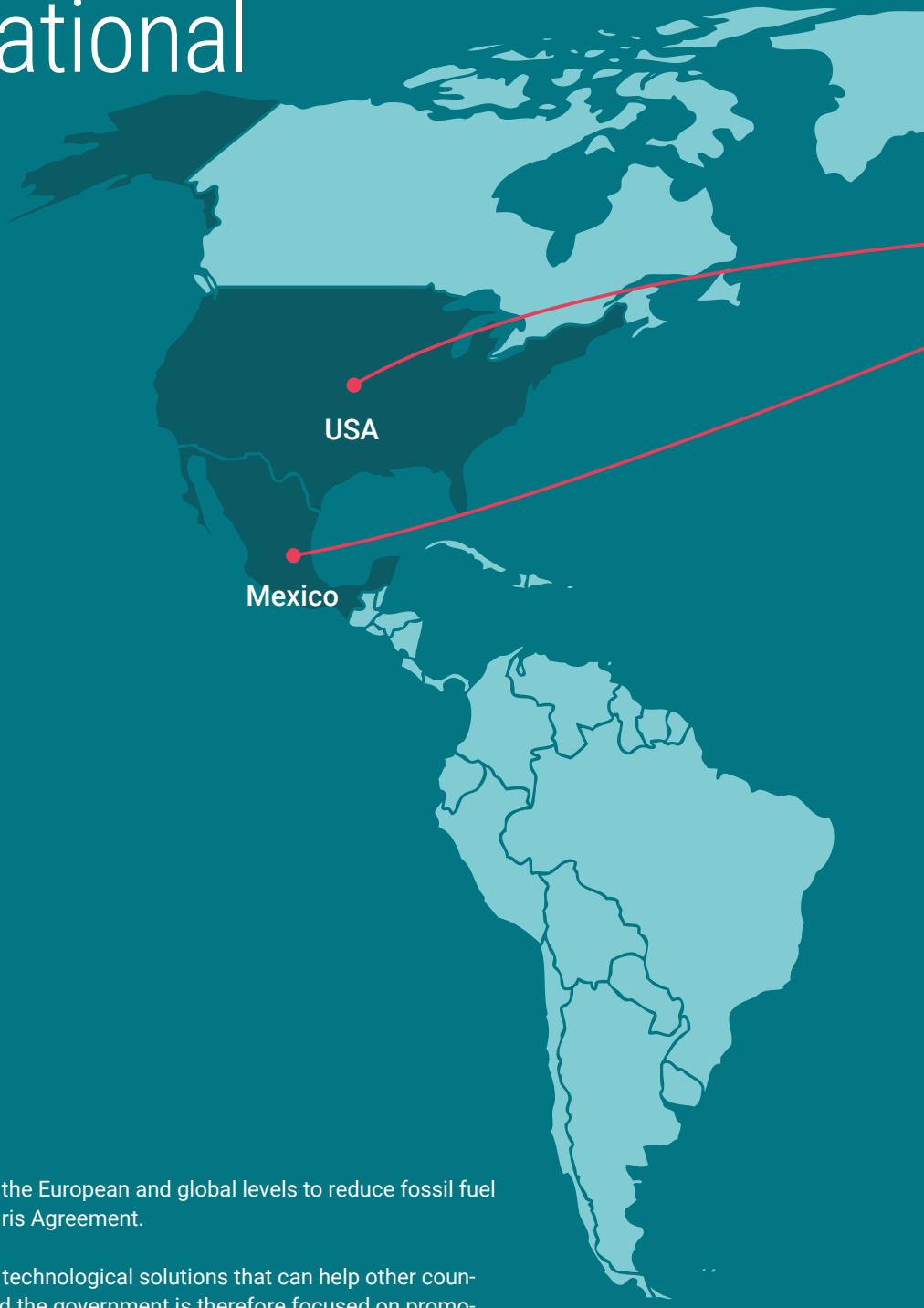
Consumer and socio-economic considerations in the context of energy efficiency

Reductions in energy consumption can be achieved through two main approaches: Reductions can either be achieved through behaviours that conserve energy, such as turning off lights and heating when not needed, or they can be achieved via improved energy efficiency which, however, often involves investing in new energy-saving installations.

Danish consumers - households, public institutions as well as private enterprises - are constantly making energy-efficient decisions, including investing in buildings, replacing petrol or diesel cars with electric cars or purchasing equipment that can increase the efficiency of industrial processes. It is up to the individual consumer to find the optimal balance between the investment cost and the ongoing benefit from lower energy consumption while it is up to the government to ensure that the necessary framework is in place.

From a societal perspective, it is crucial that the price of energy is set correctly so that it covers the socio-economic costs of energy production, transportation and consumption. This includes costs to produce energy, costs to transport energy, costs to maintain energy infrastructure and costs to cover climate and environmental impacts, for example, emissions of CO_2, SO_2, NOx, etc. and thereby reflect political objectives.

Energy efficiency in an international context



Energy efficiency in particular is a key tool at the European and global levels to reduce fossil fuel consumption and achieve the goals of the Paris Agreement.

Denmark has the knowledge, experience and technological solutions that can help other countries achieve their energy efficiency goals, and the government is therefore focused on promoting the energy efficiency agenda at the European and global levels and thereby boosting other countries' approaches to energy efficiency. This can be seen in the negotiations for the COP28 summit and in the negotiations in the EU on the Energy Efficiency Directive and the Energy Performance of Buildings Directive, where Denmark has worked to specify more ambitious goals.

Denmark has bilateral collaborations on energy efficiency with authorities around the world (ten countries on four continents, including Mexico, the UK, Indonesia, the United States and Ukraine). In these collaborations, the Danish Energy Agency advises government officials and other relevant stakeholders based on Danish experiences with energy efficiency such as energy labelling, energy audits, informational campaigns, surplus heat and the roll-out of heat pumps.

The Danish business community is in a strong position when it comes to energy efficiency and around 48,000 Danes are employed in this area. Danish enterprises are market leaders in pump technologies, district heating solutions, insulation materials and energy-efficient windows. In 2023, total exports of products for energy savings, energy distribution and energy storage amounted to 5.5 billion euros and exports have increased by 27 percent since 2020.

These efforts remain important to mitigate climate change on a global level, and it is therefore crucial that the Danish business community rolls out energy-efficient solutions across the globe.

Energy behaviour and energy renovations

Through energy efficient behaviour and energy renovations on the building stock, energy bills for consumers are reduced, energy productivity for enterprises is increased and energy consumption is reduced across society. This can be done, for example, by having improved energy management systems so that consumers and enterprises become aware of appropriate projects which are, among other things, identified through energy labelling or energy management systems. In addition, energy renovations are key to ensuring healthy buildings with a good indoor climate.

Objectives and reporting on energy efficiency progress

With the EU Energy Efficiency Directive, Denmark has three requirements for energy efficiency that must be followed up on: the energy savings obligation, requirements for energy reductions in the public sector and the EU's common energy saving targets. These are the three key requirements that the government will continuously follow up on.

The Ministry of Climate, Energy and Utilities will: provide a status on the fulfilment of these goals every second year. This will make us better able to evaluate the Danish energy efficiency efforts.

Fulfilling the energy savings obligation

With the revised Energy Efficiency Directive, the energy savings obligation has been increased and Denmark must realise energy savings corresponding to a total of 386.1 PJ accumulated during the 2021-2030 period. In effect, this means that Denmark must reduce its energy consumption by approximately 1.5 percent annually.

Denmark has been a trailblazer in terms of energy efficiency since the oil crisis of the 1970s and it has implemented a large number of major energy savings initiatives which have reduced Danish energy consumption. These include initiatives such as taxes on energy and carbon emissions, an adjusted car taxation scheme and a number of subsidy pools targeted towards energy efficiency improvements and the phasing out of fossil fuels and replacing them with more energy-efficient technologies.

These efforts mean that Denmark is estimated to meet the commitment without launching new initiatives, which also reflects that Denmark is at the forefront of this work and has been ambitious with the national energy saving efforts for a long time.

Table 1

Overview of initiatives reported to fulfil the increased energy savings obligation

Activity

Funding	Taxation initiatives	Regulation, information and advice
The energy renovation pool - subsidies	Climate Agreement 2020 and Green Tax Reform 2020	Energy efficiency in the public sector
The scrapping scheme - subsidies for phasing out oil and gas boilers	Carbon emissions tax on industry, etc.	Existing buildings, building code requirements, etc.
The business pool - subsidies for the industry	Initiatives from the agreement on the green transition of road transport	
Renovation of social housing (Green Housing Agreement 2020)	Kilometre-based road taxes for trucks	
Conversions due to funding, tax changes, etc.	Energy taxes above the EU minimum rate	
The conversion subsidy	Increase in the diesel tax	

The government will: notify the European Commission that Denmark is expected to fulfil the increased energy savings obligation by using existing instruments, including various pools, carbon taxes and existing energy taxes that have been and continue to be a key incentive to save energy.

Energy renovations in the public sector

From October 11, 2025 through 2030, Denmark must implement energy savings in public buildings as a result of the revised Energy Efficiency Directive.

Specifically, Denmark must ensure that at least 3 percent of publicly owned buildings larger than 250 m^2 are energy renovated each year. The requirement is based on public buildings across the state, municipalities and regions which as of January 1, 2024 are classified as below the level of 'nearly zero-energy buildings' (NZEB), of which 3 percent must be renovated up to that level every year.

The requirement must be fulfilled based on informed decision making. Many regional and municipal buildings are not energy labelled today and there is not a sufficient overview of the condition of public buildings. Better data is needed before a decision is made. The development of better data will also enable the requirement to be met in the context of overlapping requirements for public buildings in the recently adopted Energy Performance of Buildings Directive (EPBD), including, for example, the Energy Performance of Buildings Directive's requirements on minimum energy performance standards (MEPS) for non-residential buildings.

The government will: continue the dialogue with the public sector about a cost-effective implementation of the renovation requirement for the remainder of 2024 and ensure the necessary analyses are done in order to make a final decision in 2025.

Energy reduction targets in the public sector

Denmark must ensure that the public sector energy consumption is reduced annually from October 11, 2025 through 2030.

Specifically, with the revised Energy Efficiency Directive, Denmark must achieve an annual energy reduction of 1.9 percent (compared to energy consumption in 2021) for the public sector's final consumption. The reduction requirement applies to all public bodies, including municipalities and regions that were not previously covered by the directive.

In 2021, the public sector's total energy consumption amounted to 31.1 PJ, and this must be reduced to 27.9 PJ in 2030. Projections of public sector energy consumption based on the 'Klimastatus og -fremskrivning 2024 (KF24)' report ('Climate Status and Projections 2024') and data from Statistics Denmark show that the national energy savings target is expected to be met for each year up to and including

2028. Based on the projection, the reduction target will not currently be met in 2029 and 2030 as the expected energy consumption in the public sector will be 28.7 PJ in 2030.

The government will: highlight that the public sector in Denmark meets the energy reduction target for the public sector up until the end of 2028.

The EU's common energy savings targets

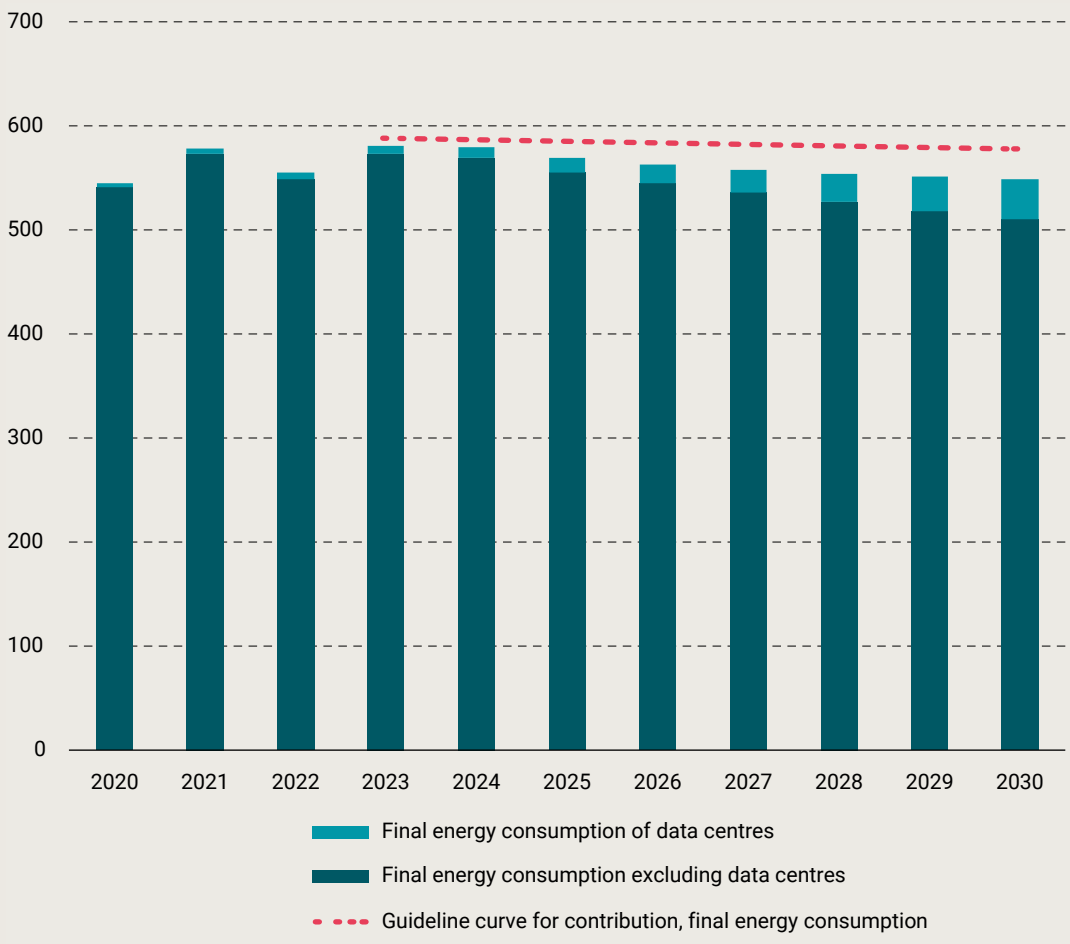
With the revised Energy Efficiency Directive, a higher common EU energy savings target has been adopted which means that energy consumption in the EU as a whole must be reduced by 11.7 percent in 2030 compared to a reference scenario for 2020. To meet the target, Denmark must have a maximum final energy consumption of 575 PJ in 2030

Denmark has long been working to reduce energy consumption across society and Denmark is expected to contribute sufficiently to the common energy savings target. In addition, the 'Klimastatus og -fremskrivning 2024 (KF24)' report ('Climate Status and Projections 2024') estimates that Denmark will have a final energy consumption of 550 PJ in 2030.

The government will: notify the EU Commission that Denmark expects to fulfil its obligations in relation to the EU's common energy savings targets.

Figure 5

Denmark's contribution to common binding EU targets, PJ



Informational efforts on energy efficiency

The revised Energy Efficiency Directive and the revised Energy Performance of Buildings Directive specify requirements for Denmark's information-related obligation concerning energy efficiency improvements.

The government will: make an announcement on future informational efforts during 2024.

The Energy Performance of Buildings Directive

The revised Energy Performance of Buildings Directive came into force on May 28, 2024 and must be implemented by May 29, 2026. The ambition of the Energy Performance of Buildings Directive is that all new buildings, by 2030 at the latest, and existing buildings, by 2050 at the latest, should be zero-emission buildings. This means that the buildings' energy needs must both be minimised through energy efficiency improvements and be operated using renewable energy sources.

To support this ambition, the Energy Performance of Buildings Directive introduces a number of requirements for the building stock, which includes renovation requirements. This means that for commercial and public buildings there will be minimum energy performance standards (MEPS) for existing buildings and it is also expected that building standards will be raised and that buildings with the worst energy efficiency must be renovated first. The requirement for public buildings overlaps with the requirement for public buildings in the Energy Efficiency Directive and should therefore be viewed in this context.

For private homes, the directive also includes requirements to reduce energy consumption in the building stock but the requirements are focused on the total housing stock as a whole and not as an obligation on the individual private homeowner.

In addition, the directive requires the energy labelling scheme to be updated and made more digital for both public and private owners of large buildings as well as private homeowners. With the implementation of the directive, it will also be explored whether building automation technologies can be included in the energy labelling methods to a greater extent.

Finally, there are new requirements for the installation of solar panels on the roofs of new buildings, public sector buildings and commercial buildings. This includes ensuring that all new buildings are designed to optimise their potential for producing solar energy.

During the negotiations, Denmark has worked to influence the directive in an ambitious and balanced direction with a focus on ensuring flexibility in its implementation due to the diverse building stocks in EU countries.

We have two years to implement the requirements of the Energy Performance of Buildings Directive which, among other things, allows for time to analyse how the requirements are implemented in the context of other overlapping EU regulations. The implementation of the Energy Performance of Buildings Directive in a Danish context can help reduce the barriers, (including potential market failures) that slow down the implementation of energy savings projects (or energy renovation projects) in buildings.

The Ministry of Climate, Energy and Utilities will: engage in a dialogue with the sector about the implementation of the Energy Performance of Buildings Directive after the summer of 2024. In addition, the ministry has begun analysing the renovation requirements and will continue to work with public authorities and others on an updated energy labelling scheme.

Electrification, conversions and surplus heat

Energy consumption from heating, transport and industry is reduced through electrification, conversions and the utilisation of surplus heat. The electrification of our society is currently well under way - for example, by using heat pumps for heating or using electric cars which are significantly more energy efficient than their fossil fuel alternatives. Surplus heat from, for example, industrial processes, CCS plants and data centres should be utilized where this makes sense.

In addition, the Danish Government has already initiated measures to push for electrification and thus a more energy-efficient consumption pattern.

Transition support

With the Agreement on Green Tax Reform for Industry, etc. of June 2022, the parties involved agreed on a higher and more uniform carbon tax on emissions from industry, etc. At the same time, the parties involved agreed to allocate approximately 270 million euros of transition support during a transitional period for the enterprises that find it hardest to transition and are hit hardest by the tax. The purpose of the transition support is, among other things, to help the covered sectors to convert their production to less carbon intensive energy sources. A higher degree of electrification in the private sector will contribute to a more efficient use of energy in Denmark as a whole.

The government has: allocated 130 million euros and approximately 122 million euros for, respectively, an operational support scheme and an investment support scheme with the Agreement on the implementation of the transition support from the Green Tax Reform for Industry, etc. of March 2024. The target group is carbon-intensive enterprises in most of the industries affected by the new carbon tax.

CO_2-reduction audit

With the Agreement on green tax reform for industry, etc. of June 2022, the parties involved agreed to expand the existing energy review to a CO_2-reduction audit. Specifically, this means an additional focus on identifying measures involved in reducing CO_2 emissions at the enterprises subject to the audit requirement. The parties to the agreement also agreed to introduce a CO_2-reduction audit requirement to qualify for transition support.

The government has: proposed legislation that implements the new EU requirements for energy audits and energy management systems as well as the expansion of the energy audit to become a CO_2-reduction audit.

Energy audits and CO_2-reduction audits require enterprises subject to this requirement to prepare an action plan that identifies measures to implement each recommendation found in the audit where technically or financially feasible. This means that in the action plan, enterprises will have to account for the implementation of the measures identified in the energy audit and will also be encouraged to describe what measures need to be in place for the enterprise to implement them. Enterprises are encouraged to indicate whether they intend to implement the project or not. This will be described in more detail in future guidelines.

The specific content of the CO_2-reduction audit will be specified in a Danish executive order. The executive order is expected to enter into force on July 1, 2024.

The district heating pool

The district heating pool provides funding for the roll-out of the district heating network through conversion projects and can result in more projects being profitable for district heating companies to implement. The pool supports conversions that replace gas and oil boilers as heat sources.

A total of 55.3 million euros has been allocated to the district heating pool in 2024 and a total of 54.4 million euros has been applied for as of May 1, 2024. The 52.7 million euros allocated to the district heating pool in 2023, including repayment funds, was fully allocated. The district heating pool funds in 2021 and 2022 were also fully allocated.

The government has:

- Allocated 20 million euros to the district heating pool in 2024 with the Danish Budget Act for 2024
- Allocated a total of 60 million euros to the district heating pool with the Green Fund spread over 2024-2025, including 25.7 million euros in 2025.

Surplus heat

From the 2018 Energy Agreement onwards, a number of broad agreements have been adopted that aim to promote the utilisation of surplus heat. This applies to the Agreement on Increased Utilisation of Surplus Heat 2019, the Climate Agreement for Energy and Industry 2020 and the Follow-up Agreement in connection with the Climate Agreement for Energy and Industry, etc. 2021.

With the Climate Agreement for Energy and Industry 2021, a broad majority of parties agreed on a model for a price cap on surplus heat, a triviality limit and an energy efficiency scheme. Several heating utility companies and sector organisations have criticised the current regulation with the price cap, stating that it hinders the utilisation of surplus heat.

As a follow-up to the criticism of the price cap for surplus heat, the Ministry of Climate, Energy and Utilities has conducted an industry and stakeholder dialogue during the winter of 2024 and has initiated an analysis of the impacts of a potential changed regulation of surplus heat in order to remove barriers in the price regulation for the utilisation of surplus heat.

The government will: present a proposal for a potential change in regulation to handle potential barriers in the current regulation of surplus heat for political discussion among the parties to the agreement.

Phasing out gas boilers in household heating

To encourage the phasing out of gas boilers, a number of initiatives have been implemented based on the Climate Agreement on Energy and Industry, etc. 2020 and the Climate Agreement on Green Power and Heating 2022, which have accelerated the phasing out of gas boilers. These include subsidy pools for, among other things, phasing out oil and gas boilers as well as tax and regulation changes. To further accelerate the rollout of district heating in areas using gas heating, the social democrat government at the time entered into an agreement with KL (an organisation managing the interests of Danish municipalities) in 2022. The agreement required municipalities to establish the planning basis in 2022 and 2023 so that district heating - where appropriate - is rolled out by 2028.

The government platform also established the National Energy Crisis Task Force (‘nationale energikrisestab’ or NEKST), which has been charged with accelerating the green transition in Denmark. NEKST is a new way of working and a new working group where relevant actors are invited into the room where solutions are created and collaborate to ensure fast action and to solve urgent green challenges.

The government has: established the NEKST work track Goodbye to gas in Danish homes to remove barriers that prevent a faster roll-out of green heating and propose solutions to speed up the phase-out of gas in Danish homes.

The working group delivered 30 recommendations in March 2024. Among other things, the working group has had a number of recommendations for municipal and private actors to provide a better practice and optimised process for the roll-out of green heating, including district heating and individual heat pumps. The working group has also prepared a guide with a number of recommendations for an optimised process flow, and at the request of the working group, the Danish Energy Agency has prepared guidelines for the interpretation of existing regulation. In addition, there are a number of recommendations aimed at the government, including:

- Establishing a national legal basis for disconnecting gas customers from the gas system
- Starting to work on optimising the existing subsidy pools for phasing out oil and gas boilers
- Establishing a targeted approach to phasing out gas boilers and clarifying whether biogas can be a green alternative in places where the conversion away from gas boilers is difficult.

Work is underway to follow up on the recommendations.

NEKST - A faster expansion of the electrical grid

The Danish Climate Act's goal of reducing greenhouse gas emissions by 70 percent by 2030 and the government's goal of achieving climate neutrality by 2045 will require a significant electrification of Danish society. According to the 'Klimastatus og -fremskrivning 2024 (KF24)' report ('Climate Status and Projections 2024'), it is estimated that Danish electricity consumption will double by 2035 and a broad majority in the Danish Parliament has set ambitious targets for the expansion of renewable energy on both land and sea. Therefore, it must be ensured that electrification is done efficiently and that barriers to grid expansion are removed.

Significant investments in the grid are already planned to support increasing electricity production and consumption. However, grid expansion is time-consuming and challenged by both capacity and price pressures in the construction sector. The need for expansion depends, among other things, on the extent to which electricity production and consumption are co-located and how power consumption will be organised over the course of the day in the future. A faster expansion of the electrical grid, new tariff methods, co-location of renewable energy production and electricity consumption as well as flexibility in consumption and production are key tools to ensure the integration of renewable energy and a growing electricity consumption.

The government has: established the NEKST work track Faster expansion of the electrical grid to come up with concrete solutions that can accelerate the green transition by removing barriers to a faster and more efficient expansion of the electrical grid. The working group is working on recommendations to streamline and shorten grid expansion processes and to ensure a closer and faster collaboration between all relevant stakeholders with a role in grid expansion and alternatives to grid expansion. The working group is expected to deliver their final recommendations in the second half of 2024.

Flexibility

With electrification, it will be a challenge to manage the time difference between the production and consumption of electricity - which is expected to increase because energy production is increasingly based on fluctuating, renewable energy. At the same time, the grid is challenged by many new connections and there is a need for new solutions to ensure the robustness of the power system. Flexibility solutions in households, business and industry can make it easier to ensure that electricity consumption is increasingly scheduled for the periods where it is most appropriate for the electrical system such as when the green power is being produced. This will support the energy system in maintaining sufficient power and grid capacity as well as maintaining system security.

Security of electricity supply

Denmark currently has a high level of security of electricity supply compared to other countries. The security of electricity supply will be challenged in the future as existing controllable electricity capacity, such as gas power plants, is phased out. This will happen as higher shares of renewable, intermittent energy sources such as solar and wind are added to the energy system while at the same time electricity consumption is expected to increase as a result of electrification.

A number of measures have already been decided on and implemented that support the security of electricity supply in terms of ensuring sufficient grid capacity. These include geographically differentiated consumption and production tariffs, voluntary limited grid access and direct lines between electricity production and consumption, which are expected to reduce pressure on the electrical grid. In addition, as a follow-up to the Climate Agreement on Green Power and Heating 2022, analyses have been initiated to promote flexibility markets and flexible grid connection terms and grid products. The analyses are expected to be reported on in 2024.

However, without additional new measures to ensure power adequacy, the number of outage minutes is expected to increase.

Denmark is currently focusing on early interest management in relation to future EU regulation of the energy sector. In particular, the flexibility agenda is a high-priority topic for Denmark in relation to new EU policies from the upcoming Commission.

The government will: present a proposal to address the challenges of efficiency adequacy.

Implementation of the EU electricity market reform

With the EU electricity market reform, which enters into force in 2024, Denmark is obliged to continuously assess our flexibility needs and specify a non-binding target for non-fossil fuel flexibility every two years for a 5-10 year period in order to ensure European security of supply. In addition, a framework must be established for flexible grid connection agreements that promote a more efficient use of existing capacity in the electrical grid. Finally, the Electricity Market Directive gives electricity consumers the right to have multiple electricity contracts with different electricity trading companies in the same household. This means, for example, that electricity consumers can have an agreement for the supply of electricity for their electric car with one electricity trading company and another agreement for the supply of electricity for their heat pump with another electricity trading company. The aim is to enable consumers to be more active in the market by engaging with multiple suppliers.

The government will: implement the Electricity Market Directive by presenting proposed legislation in October 2024.

The Energy Technology Development and Demonstration Programme

With the agreements on the distribution of research reserves, etc. in 2024, there has been allocated 40 million euros to the Energy Technology Development and Demonstration Programme ('Energiteknologiske Udviklings- og Demonstrationsprogram' or EUDP). Of these funds, 8 million euros will be targeted towards the development and demonstration of electricity storage to develop new solutions for the integration into Danish energy planning and for export to support the security of supply in a green power system.

The government has: used the research reserve to allocate 40 million euros to the Energy Technology Development and Demonstration Programme, including a target of 8 million euros for the development and demonstration of electricity storage in 2024.

In addition, 3.3 million euros per year has been allocated to the ELFORSK pool, which supports research and innovation projects that promote energy efficiency and flexibility solutions through data processing, digitalisation and sector coupling across, for example, the electricity, district heating and transport sectors.

Intelligent control of buildings (Energy Performance of Buildings Directive)

The upcoming Energy Performance of Buildings Directive will introduce new requirements for intelligent management of energy consumption in public and private buildings. Among other things, this aims to promote flexibility of consumption and energy efficiency in buildings.

The government will: engage in a dialogue with the industry about the implementation of the Energy Performance of Buildings Directive after the summer of 2024.

Digitalisation (supporting)

New tools and new green business models are created through the increased use of data and digital solutions. At the same time, this increased use of data and digital solutions allows for better decision-making processes for private and public actors. By providing detailed insights into production, consumption and bottlenecks in the energy system and by ensuring access to consistent supply data, digitalisation can help support the energy efficiency agenda - especially in relation to electrification and more flexible energy consumption patterns. A digital energy system is a key factor in the efficient use of utility services and is thus the foundation for moving the energy efficiency agenda from the consumption level to the system level.

Utility Digitalisation Programme

As part of the agreement on an ambitious and responsible strategy for Denmark's digital development of 8 February 2024 between the government and all parliamentary parties, a Utility Digitalisation Programme ('Forsyningsdigitaliseringsprogram' or FDP) is to be established.

The government has: allocated 9.5 million euros to the Utility Digitalisation Programme during the 2024-2027 period.

The Utility Digitalisation Programme is to promote:

An efficient and coherent green utilities sector through increased use of data in utility companies and digital integration across value chains and utility types.

Improved data-driven decision-making for the green transition, for example, for capacity planning of electrical grids and a cost-effective expansion of infrastructure such as district heating.

Good conditions for green business models and efficiency gains in the business community through improved, secure and value-creating data access by supporting the needs of Danish enterprises, including secure data sharing based on consent solutions and anonymisation.

The programme establishes public-private partnerships between public authorities, utilities, data users and consumer organisations. The partnership will develop and prioritise concrete solutions for the digitalisation of the utilities sector with a focus on the electricity, heating and water sectors.

Competencies (supporting)

Developing and retaining competencies and skills related to the green transition can support the fulfilment of the climate targets. At the same time, it is relevant to ensure that industry expertise is brought into play in policy decisions.

Training and competence requirements for renewable energy installations

Since 2013, Denmark has had a voluntary approval scheme for enterprises installing small renewable energy systems. The renewable energy approval scheme originates from EU regulation and aims to improve the quality of installations of small renewable energy systems (heat pumps, solar panels, solar heating, biomass boilers and furnaces). A number of directives from the EU have put new focus on the qualifications of fitters and installers.

The government is in the process of clarifying how the new directive requirements are best handled under the auspices of vocational training and the current system for approval of renewable energy installers.

New format for the Council for Energy Efficient Transition

The Council for Energy Efficient Transition ('Rådet for Energieffektiv Omstilling' or REO) aims to provide independent advice to the Minister for Climate, Energy and Utilities on the government's energy saving efforts. The Council for Energy Efficient Transition has continuously delivered recommendations to the Minister since 2010, but for a long time there has been a desire between the Ministry of Climate, Energy and Utilities and the Council to revisit the Council's format and tasks to ensure better cooperation with the government.

The Ministry of Climate, Energy and Utilities will: revisit the format of the Council for Energy Efficient Transition

Danish Ministry of Climate,
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