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Economic Analysis and Modelling

GREEN REFORM

Risk scenarios for Danish climate policy towards 2035

GreenREFORM calculations for the Danish National Bank

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Economic memo
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Preface

The memo presents calculations using GreenREFORM for the Danish National Bank with the aim of helping to identify significant risks to the objectives of price stability and financial stability. The calculations serve as a basis for a concrete quantification and assessment of these risks, where the calculations described in this memo provide quantitative input for the National Bank's further work.

The calculations are carried out on the May 2025 version of GreenREFORM. The baseline scenario is calibrated to the *Danish Climate Status and Outlook 2024* (KF24), and the effects of policies adopted after the publication of KF24 are incorporated—primarily the Tripartite Agreement.

The memo is prepared as a continuation of the note *"A Risk Scenario for Danish Climate Policy"* from November 2024. In the November 2024 analysis, a risk scenario and a subsequent policy scenario are established with a focus on the 70 pct. target in 2030. In the risk scenario, it is assumed that structural effects and technical effects of the *Agreement on a Green Tax Reform for Industry* and the implementation of CCS do not materialise as expected. In a policy scenario, a short-notice increase in CO_2 taxes is introduced, causing particularly CO_2e-intensive sectors to shut down, thereby once again satisfying the 70 pct. target. Due to the short notice, it is assumed that technical mitigation options cannot contribute substantially to achieving the target.

In the present analysis, a risk scenario and two policy scenarios are established in a similar manner, but now with a focus on an assumed target of an 80 pct. reduction in 2035. With the longer time horizon, technical mitigation options can now contribute to achieving the 2035 target. These are included in the analysis and are based on assumptions provided by EA Energy Analyses.

Summary

A 2035 scenario is first established in which an 80 pct. reduction in greenhouse gas emissions relative to 1990 is achieved in 2035 through subsidies for CCS. Based on this, a risk scenario is constructed in which the structural effects and technical effects in the refinery sector expected in KF24 from the Industrial Agreement fail to materialise, and in which CCS and pyrolysis are delayed by five years relative to KF24. This results in greenhouse gas emissions in 2035 in the risk scenario being 2.2 million tons above the 80 pct. reduction target for 2035.

To address this, two policy scenarios are developed in which the 2035 climate target is again met. In the first policy scenario, a supplementary greenhouse gas tax (and subsidy for negative emissions) of DKK 320 is introduced on top of the already adopted taxes. In the second scenario, the 2035 climate target is achieved solely by increasing the maximum subsidy for CCS by DKK 850 per ton CO_2e above the subsidy level in the 2035 scenario.

In the first policy scenario, the reduction in greenhouse gas emissions occurs primarily through technical measures within North Sea extraction and through CCS technology. In addition, reductions occur within agriculture as a result of efficiency gains and structural decline in production. It is assumed that production in the cement industry and refineries is maintained, as the effective tax burden decreases due to the implementation of CCS.

In the second policy scenario, the reduction in greenhouse gas emissions takes place exclusively through CCS technology.

Total investment rises in both scenarios as a result of investments related to technical mitigation technologies.

In the first policy scenario, the public finances are affected by several opposing factors. The increase in the CO_2e tax mechanically results in higher tax revenue. Conversely, increased subsidies for negative emissions via BECCS entail an expenditure for public finances. Furthermore, reductions within already taxed emissions reduce existing tax revenue. The overall impact on public finances is negative but limited in the long run. In the second policy scenario, public finances are primarily negatively affected by the increased CCS subsidy, and public finances fall by just over 0.1 pct. of GDP in the long run.

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1. 2035 and risk scenarios

The version of GreenREFORM used is from May 2025. The model's baseline scenario is calibrated to the Climate Status and Outlook 2024 (KF24) with respect to emissions and energy consumption at a detailed level. Emission reductions via CCS are based on GreenREFORM's own methodology and on technical potentials and costs from EA Energy Analyses. Subsidy rates for CCS are adjusted so that the same amount of CCS reduction is achieved in 2030 as in KF24. Climate-related policies adopted after KF24 are likewise incorporated into the baseline. This includes the Tripartite Agreement for agriculture and a number of smaller sub-agreements. This implies that the 2030 target of a 70 pct. reduction relative to 1990 is achieved.

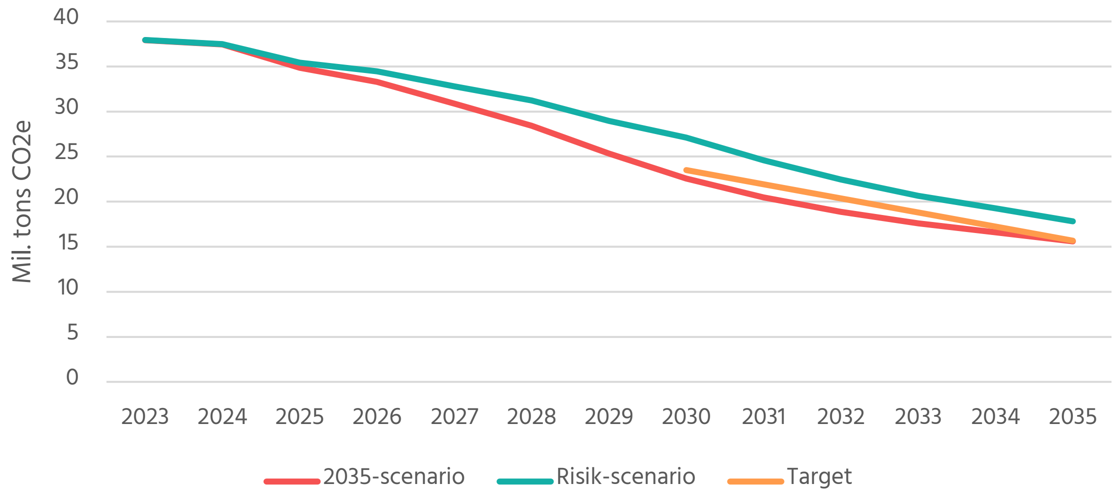
For calculation purposes, subsidies to CCS are treated as an ongoing annual subsidy.[1] In reality, CCS subsidies are granted through funding pools with requirements for CO_2 uptake over 15 years. In the baseline, it is implicitly assumed that CCS facilities will have their subsidies extended as needed, and that new funding pools will be continuously established.

Based on the baseline, a 2035 scenario is calculated in which an 80 pct. reduction target for greenhouse gas emissions relative to 1990[2] in 2035 is assumed to be set (see Figure 1.1). It is further assumed that the target is achieved through continued subsidies for CCS. For calculation purposes, the subsidy rate from 2030 to 2035 is adjusted such that the target is met exactly. It may be noted that the required maximum subsidy rate is lower in 2035 than in 2030. The primary reason is rising quota prices and taxes from 2030 to 2035.

[1] Companies can receive sudsidies up to a maximum subsidy rate, which is set in order to achieve the desired reductions. Subsidies for each individual facility are provided as a perfect subsidy, meaning that it covers the additional cost companies incur when establishing CCS. This is done to replicate the funding pools, in which companies submit bids indicating their required level of subsidization.

[2] An 80 pct. reduction in 2035 is not an official government target, but according to the Climate Act, a 2035 reduction target must be adopted during 2025. A reduction of 80 pct. relative to 1990 follows a linear reduction path toward climate neutrality in 2045, which forms the basis for the assumption of this reduction target.

Figure 1.1
Total greenhouse gas emissions in the baseline and risk scenarios



Note: "Target" is the linear trend between a 70 pct. reduction in 2030 and an 80 pct. reduction in 2035, relative to 1990.
Source: Own calculations with GreenREFORM

Based on the 2035 scenario, a risk scenario is calculated in which the reduction targets for 2030 and 2035 are not achieved due to four factors:

- The expected structural effects of the Industrial Agreement do not materialise within fisheries, the cement industry, and refineries.
- The expected technical effects of the Industrial Agreement fail to materialise within refineries.
- The implementation of CCS is delayed by 5 years.
- The implementation of pyrolysis is delayed by 5 years.

These four factors influence one another and affect the outcome for total emissions, meaning that any decomposition of the factors' contributions to overall emissions will depend on the order in which the decomposition is performed. This applies particularly to the delay of CCS and the structural effects within the cement industry and refineries.

Figure 1.1 shows that greenhouse gas emissions in the risk scenario exceed the target in both 2030 and 2035. In 2035, greenhouse gas emissions are 2 million tons of CO_2e above the 80 pct. target. Half of this can be attributed to the cement industry and refineries, due specifically to the combination of missing structural effects and the delay of CCS.

2. Technical assumptions for supplementary climate policy

This section describes the model-technical aspects and assumptions underlying the calculations in Sections 3 and 4. First, a combined supplementary climate policy is introduced to achieve the 2035 target, after which an alternative policy scenario is calculated in which the 2035 target is achieved solely through subsidies for CCS.

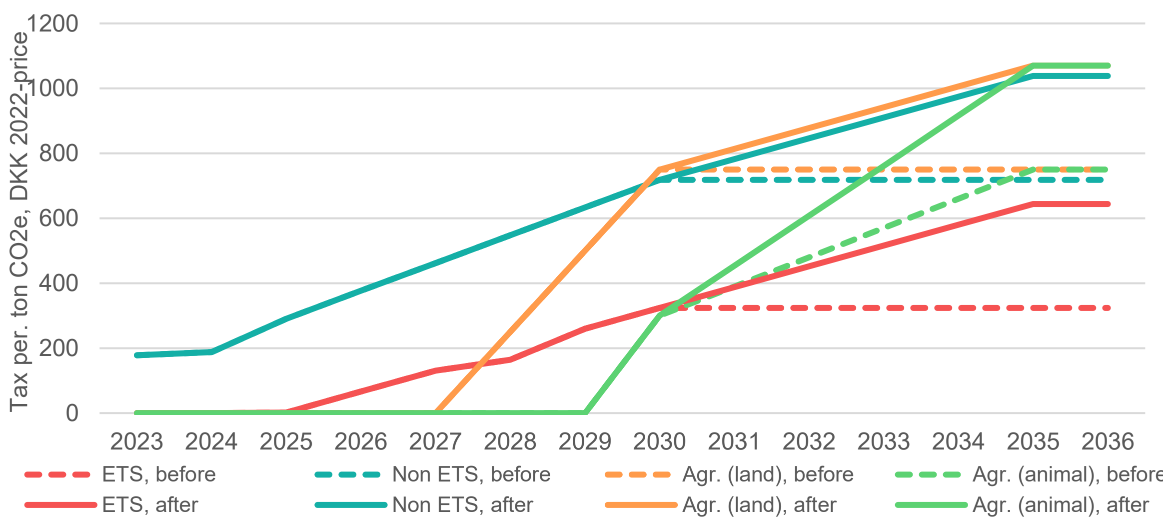
2.1 The supplementary climate policy

The supplementary climate policy involves an increase in existing CO_2e taxes and subsidies for negative emissions in the same manner as in the previous analysis. That is, the CO_2e taxes covered by the Industrial Agreement and the Tripartite Agreement are increased by the same DKK amount

The absolute change is identical across tax bases, meaning that the relative change becomes largest for those tax bases where the already agreed-upon taxes are lowest, cf. Figure 2.1. Emissions that are not covered by the Tripartite Agreement or the Industrial Agreement will not be subject to additional taxation. This primarily includes emissions from households (especially from transport and room heating) and non-taxed emissions from agriculture.

The tax increase is announced in 2029 and phased in linearly from 2031 to 2035. For agriculture, the base deduction is raised by the amount of the tax increase, so that it continues to constitute 60 pct. of the tax level.

Figure 2.1
CO_2e taxes before and after the supplementary climate policy, DKK per ton CO_2e, 2022-prices



Note: The tax rates are excluding energy taxes, ETS prices and base deductions.
Source: Ovn calculations with GreenREFORM.

Public finances are affected by increasing revenues from the CO_2e tax, higher expenditures for CCS subsidies, reduced revenue from existing taxes on emissions that decline as a result of the supplementary climate policy, as well as by general equilibrium effects that influence other tax bases. A change in public finances results in a changed public balance, which is not kept unchanged via a transfer to/from households, as is otherwise often assumed in policy scenarios.

2.2 Subsidies for CCS

In the second policy scenario, subsidies for CCS are increased for both fossil and biogenic emissions. The subsidy is added on top of existing subsidy rates and taxes on fossil emissions. The subsidy is announced in 2029 and phased in linearly from 2031 to 2035.

Public finances are affected by increased expenditures for CCS subsidies, reduced revenue from existing taxes on fossil emissions that are reduced via CCS, as well as by general equilibrium effects that influence other tax bases. A change in public finances results in a change to the public balance, which is not kept unchanged via a transfer to/from households, as is otherwise often assumed in policy scenarios.

2.3 Emission reduction options

Reductions in greenhouse gas emissions can be divided into three categories: reductions from technological mitigation options, reductions via substitution in production, and reductions via lower production (also referred to as structural effects).

Technological mitigation options

The technological mitigation options are based on technology data provided by EA Energy Analyses (EA data). In the EA data, there are three fundamental options for reducing emissions through technical measures:

1. CCS, which reduces emissions from a given level of energy consumption
2. Electrification of existing fossil energy consumption
3. Energy-saving measures that reduce the need for fossil fuel consumption

The EA data specify potentials and costs for technological measures across a number of industrial areas (relevant for CCS) and across several tax bases (relevant for electrification and energy savings). In the implementation in GreenREFORM, the technical potentials are further distributed across the model's sectors and tax purposes.

The potentials for CCS are specified as an absolute amount of emissions. Each potential is associated with a mitigation cost measured in DKK per ton of CO_2 reduced. The mitigation cost is interpreted in the model as capital costs, and it is assumed that most of the investment necessary to build the capital stock is made before the CCS facility is taken into use. After commissioning, reinvestments for maintaining the facility are undertaken.

The potentials for electrification and energy savings are specified as the potential reduction in existing energy consumption that the technology shift can bring about (measured in PJ). The total mitigation cost for these technologies consists of three components: a saving from reducing existing energy consumption, a cost from increasing electricity consumption (applies only to electrification technologies), and a non-energy-related cost. The non-energy-related cost is interpreted in the model as a capital cost, where the investments are annualized as a yearly cost (LCOE).

Emission reductions in agriculture

In agriculture, technical reductions occur through technological mitigation options targeting both energy-related and non-energy-related emissions. Technological mitigation options for energy-related emissions follow the assumptions from the EA data, as described above.

Technological mitigation options for non-energy-related emissions follow the assumptions from the Tripartite Agreement. Several mitigation technologies for non-energy-related emissions (such as Bovaer) are included in the model's baseline with effects beginning in 2030, while other technologies (such as tent covers) only take effect once the CO_2 tax is fully phased in toward 2035. These technologies are deployed earlier if the carbon tax increases at a faster pace.

In addition, the model includes so-called efficiency technologies based on the assumptions in the final report of the Expert Group on Green Tax Reform as well as the Tripartite Agreement. Under both the Expert Group process and the Tripartite Agreement, efficiency technologies have been incorporated into agriculture in GrønREFORM. These technologies reduce the emissions intensity of agriculture's non-energy-related emissions based on the assumption that more climate-efficient farms will represent a larger share of total production as the greenhouse gas tax on livestock production—particularly pig and cattle farming—increases. These reductions will appear under "substitution effects" in the results section later in the memo

Substitution in production

Greenhouse gas emissions decline across all sectors through general substitution in production, where CO_2e-intensive input factors—such as fossil energy—are replaced with other inputs such as labor, other materials, and capital. This substitution captures both new ways of producing the same output without formal technology shifts, and changes in the composition of products as input prices change. For example, firms might instead produce higher-quality products that require the same amount of energy but more labor.

General structural effects

A higher tax on greenhouse gas emissions increases firms' costs. For most sectors in Green-REFORM, this cost increase leads to higher output prices. The model assumes monopolistic competition, meaning that higher prices reduce the quantity that firms can sell. The resulting decline in production reduces total emissions, particularly in CO_2e-intensive sectors, which experience the largest declines in output.

However, some sectors operate under competitive conditions closer to perfect competition. These sectors cannot pass higher costs on to consumers. For them, a higher emissions tax implies that they must either maintain production at unchanged prices or shut down (part of) their operations. The response of these sectors to an increase in the CO_2e tax is analyzed in the next subsection.

Structural effects in cement production and refinery

In this analysis, production and prices in cement and refinery sectors are held constant at their baseline levels. When supplementary climate policy is introduced, unit costs rise; with unchanged prices, this means that profits decline.

In the earlier analysis "A Risk Scenario for Danish Climate Policy" from November 2024, it was assumed that refinery and cement production would shut down at a tax increase of DKK 384 per ton in 2030. In the present analysis, by contrast, it is assumed that production will not close in 2035 with a tax increase of DKK 320.

This difference stems from the interaction between structural effects and CCS. By 2035, CCS is expected to be implemented in these sectors. As a result, the effective tax burden becomes very limited. This underscores the importance of analyzing technical effects and structural effects together.

Note that the aggregate results are particularly sensitive to specific assumptions regarding structural effects in refinery, fisheries, and the cement sector, as described and examined in the previous analysis.

Structural effects in fisheries

The structural effects in the fishery sector should not be interpreted as a probability of shutdown but rather as effects driven primarily by cross-border fuel purchasing. Danish fishing vessels can avoid the emissions tax by refueling in foreign ports. Consequently, emissions from the consumed fuel are not counted in Denmark's territorial emissions accounts, which forms the basis for national climate targets.

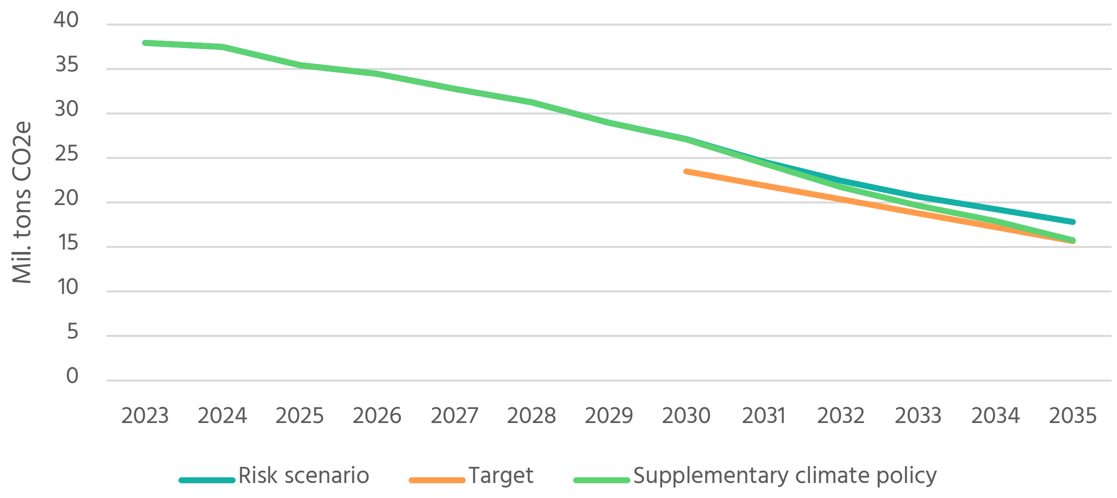
For fisheries, the Ministry of Taxation's method is applied, as described in the previous analysis. The reduction in emissions is implemented computationally by reducing the amount of fuel purchased in Denmark while increasing other production costs correspondingly.

3. Results of supplementary climate policy

With a tax increase of DKK 320 per ton of CO_2e compared to the baseline scenario, additional reductions are achieved, ensuring that the 2035 target is met despite the risk scenario. Figure 3.1 illustrates the development of total greenhouse gas emissions relative to the risk scenario. In the policy scenario, the tax increase is specifically chosen to achieve the 2035 goal and is phased in from 2031. As a result, the 2030 target is not achieved under the policy scenario. This scenario can be interpreted as: (1) recognition that the 2030 target will not be met occurs too late for technical adjustments to ensure compliance, and (2) there is a reluctance to impose a CO_2 tax on energy-intensive industries, such as cement and refinery, at a level that would risk shutting down production.

Figure 3.1

Total greenhouse gas emissions in the risk scenario and with supplementary climate policy

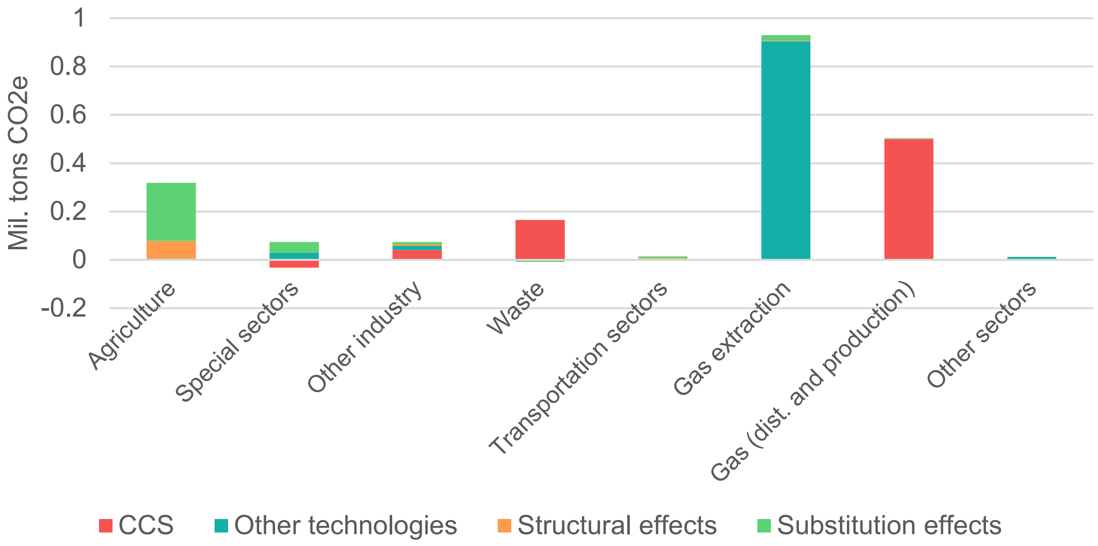


Note: "Target" is the linear trend between a 70 pct. reduction in 2030 and an 80 pct. reduction in 2035, relative to 1990.
Source: Own calculations with GreenREFORM

Figure 3.2 shows the reduction in greenhouse gas emissions by sector in 2035 under the supplementary climate policy scenario relative to the risk scenario. The reductions primarily result from additional CCS, electrification in oil and gas extraction, and effects in agriculture. These three factors are discussed in detail in sections 3.1–3.3.

Figure 3.2

Reductions in 2035 with supplementary climate policy of 320 DKK per ton CO_2e

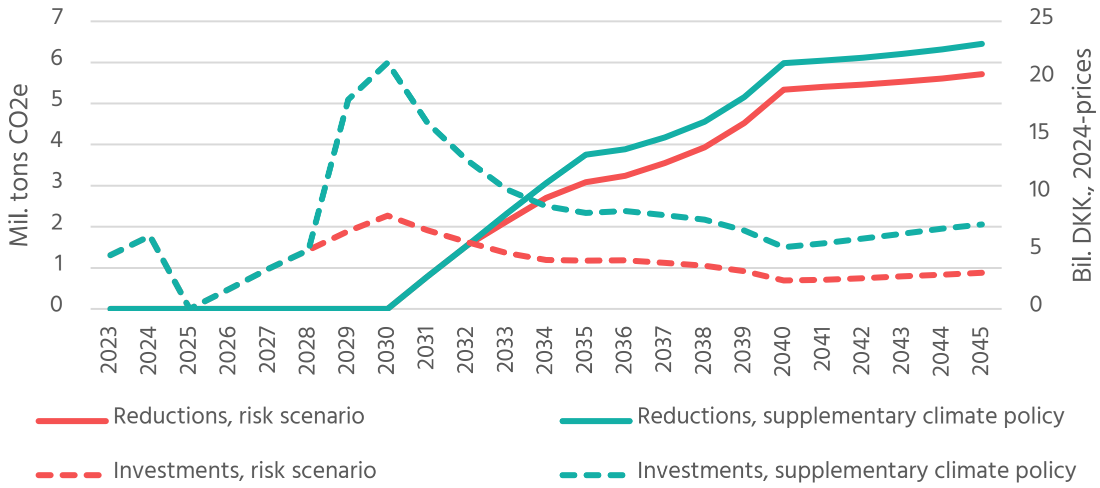


Note: The figure shows reductions of greenhouse gas emissions relative to the level in the risk scenario in 2035
Source: Own calculations with GreenREFORM

3.1 Emission reductions from CCS

The increase in tax rates and subsidies for negative emissions makes several additional CCS initiatives economically viable for companies. These new initiatives build upon a significant CCS deployment already included in the risk scenario, as shown in Figure 3.3. The figure also shows that a large portion of investments occurs before the CCS facilities become operational (see Section 2.2).

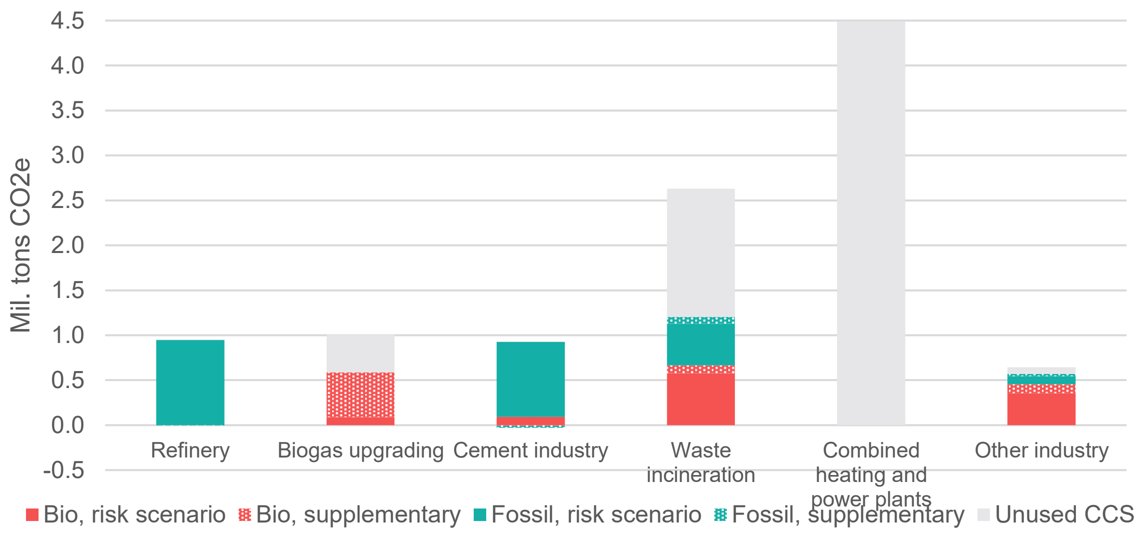
Figure 3.3
Reductions and investments in CCS under the risk scenario and supplementary climate policy



Note: Investments are shown on the right axis
Source: Own calculations with GreenREFORM

The increased subsidy for negative emissions makes CCS in biogas upgrading particularly effective, as illustrated in Figure 3.4. Further CCS is deployed in waste incineration, although the potential remains only partially utilized. CCS potential in refinery and cement production is already fully utilized under the risk scenario, so supplementary climate policy does not increase CCS in these sectors. It remains unprofitable to deploy CCS in combined heat and power plants, even with the higher tax increase and corresponding higher subsidies.

Figure 3.4
Use of CCS in 2035 in the risk scenario and with supplementary climate policy



Source: Own calculations with GreenREFORM, based on EA- Energy Analyses

3.2 Emission reductions from electrification of extraction in the North Sea

Reductions from technologies other than CCS mainly come from electrification in North Sea oil and gas extraction. In the risk scenario, natural gas is used to power production processes, either directly or through generators producing electricity for operations. Electrification allows certain processes to be powered by electricity, reducing emissions. The primary cost of electrification is the infrastructure required to deliver electricity to the fields, which EA- Energy Analyses assumes will be supplied via undersea cables from land.

3.3 Structural effects – Primarily in agriculture

The supplementary climate policy heavily impacts agriculture compared to other sectors due to the sector's high greenhouse gas intensity. Table 3.1 shows that the mechanical tax burden from the policy is highest for agricultural sectors, with the exception of cement production. The mechanical (immediate) tax burden is calculated relative to production costs in each sector, illustrating the potential price increase if costs were fully passed through without changes in input prices or production structures.

While cement production also faces a high mechanical tax burden, it is assumed that prices and production levels remain unchanged, meaning the tax burden reduces profits rather than increasing prices. The cement industry is less affected due to CCS utilization. In the November 2024 analysis, where CCS was not an option, unit costs increased by 19 pct., whereas in this analysis the increase is only 7.3 pct.

Table 3.1 also shows relative changes to equilibrium prices, production levels and greenhouse gas emissions.

Table 3.1
Sector-level changes in 2035 under supplementary climate policy

Sector	Mechanical tax burden	Equilibrium price	Production	Emissions
Plant production	1.0%	-0.3%	0.0%	0%
Organic plant production	1.5%	-0.5%	-1.7%	-2%
Horticulture	0.1%	0.0%	-0.1%	-1%
Cattle (incl. milk production)	8.1%	0.7%	-0.9%	-6%
Organic cattle (incl. milk production	9.5%	2.1%	-4.6%	-10%
Pig farmers	3.1%	0.3%	-1.3%	-5%
Organic pig farmers	1.4%	0.5%	-2.0%	-6%
Poulty	0.2%	0.3%	-0.8%	-2%
Organic poultry	0.1%	0.1%	-0.4%	-1%
Fur animals	0.2%	0.2%	-1.3%	-4%
Agricultural contractor	0.8%	0.2%	-0.2%	-2%
Forestry	0.2%	0.2%	-0.2%	-9%
Fishing	1.4%	0.0%	0.0%	-2%
Extration	1.4%	1.4%	-1.8%	-83%
Manufacture of fish products	0.2%	0.1%	-0.4%	-10%
Manufacture of dairy products	0.1%	0.4%	-1.3%	-42%
Manufacture of bread products	0.1%	0.1%	-0.3%	-39%
Manufacture of beverages and tobacco	0.2%	0.1%	-0.6%	-18%
Manufacture of machines and electronics	0.0%	0.0%	0.1%	-9%
Manufacture of wood and wood products	0.1%	0.1%	-0.2%	-5%
Oil refinery etc.	0.3%	0.0%	0.0%	-3%
Manufacture of chemicals	0.1%	0.1%	-0.2%	-53%
Pharmaceuticals	0.0%	0.1%	-0.1%	-59%
Other manufacture industries	0.0%	0.0%	-0.1%	-3%
Electricity and heating production	0.2%	0.4%	0.2%	0%
'Transmission, distribution and trading of eletricity'	0.0%	0.5%	0.4%	0%
Manufacture and distribution of gas	0.0%	0.2%	-0.5%	-72%
'Water collection, purification and supply'	0.0%	0.1%	-0.1%	-2%
Sewerage	0.0%	0.1%	-0.1%	0%
Collection of non-harzardous and hazard-ous waste	0.0%	0.1%	0.0%	0%
Treatment and disposal of non-hazardous and hazardous waste	0.0%	0.0%	0.0%	0%
Disposal of energy waste	0.0%	0.2%	0.5%	-36%
Construction	0.1%	0.1%	-0.2%	-1%
Wholesale and retail trade and repair of motor vehicles and motorcycles	0.1%	0.1%	0.0%	0%
Wholesale	0.0%	0.0%	0.0%	0%
Retail sale	0.0%	0.1%	0.0%	-1%

Sector	Mechanical tax burden	Equilibrium price	Production	Emissions
Passenger transport by local and distance trains	0.0%	0.1%	0.0%	-1%
'Busses, local'	0.1%	0.1%	0.1%	0%
Road freight transport and transport via pipelines	0.7%	0.0%	-0.1%	0%
Domestic passenger and freight transport on water	2.1%	1.6%	-3.7%	-7%
Domestic passenger and freight transport by air plane	0.0%	0.0%	0.0%	0%
International passenger and freight transport by air plane	0.0%	0.0%	-0.1%	0%
Services predominantly to private consum-ers	0.0%	0.1%	0.1%	-1%
Financial sector	0.0%	0.1%	0.0%	-1%
Housing sector	0.0%	0.0%	-0.1%	-1%
Services predominantly to business and ex-ports	0.0%	0.1%	0.1%	0%
Postal and courier activities	0.0%	0.1%	-0.1%	0%
Manufacture of bovine meat products	0.1%	0.6%	-2.3%	-23%
Manufacture of pig meat	0.1%	0.1%	-1.1%	-21%
Manufacture of poultry	0.0%	0.2%	-0.5%	-21%
Cement production	7.3%	0.0%	0.0%	-2%
Other mineralogical	0.8%	0.6%	-1.4%	-5%
International transport by sea and land	0.0%	0.0%	-0.1%	0%
Public production	0.0%	0.1%	0.1%	-3%

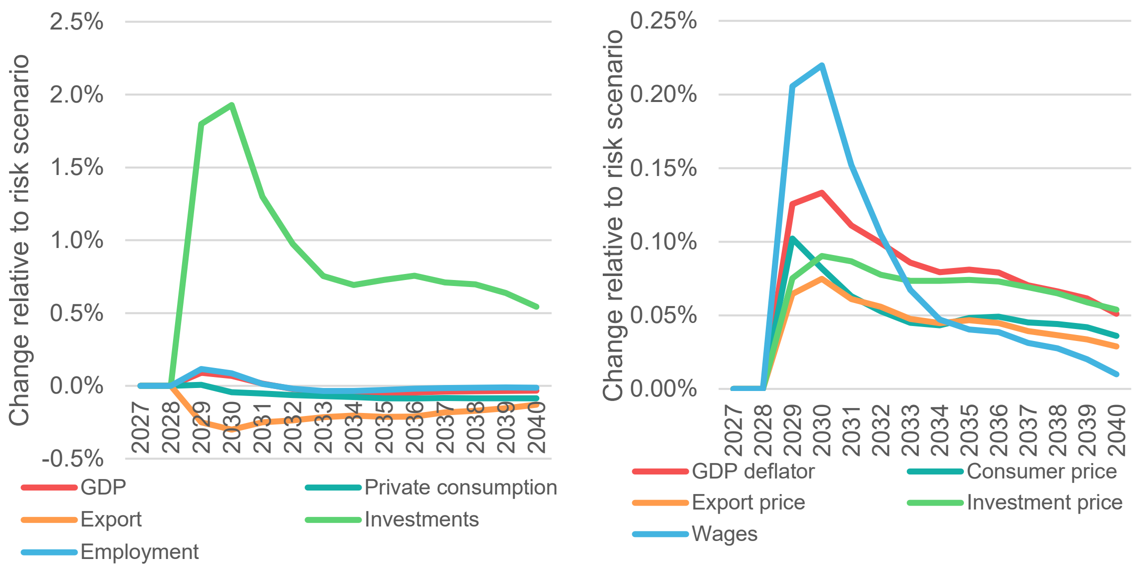
Source: Own calculations with GreenREFORM.

3.4 Macroeconomic effects

In the short term, the economy experiences increased demand for investments (Figure 3.5), which pushes up wages and other prices. As investment levels normalize, wages decrease, but other prices remain higher than in the baseline scenario due to increased technology costs.

Figure 3.5

Macroeconomic effects under supplementary climate policy

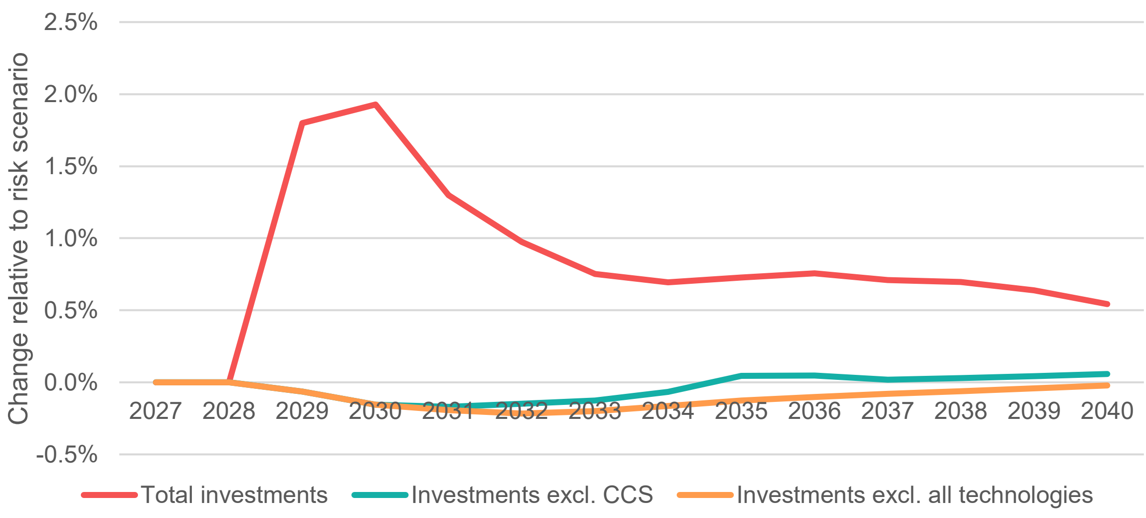


Note: The figures show changes relative to the risk scenario. The left and right figures show relative changes in quantities and prices respectively.
Source: Own calculations with GreenREFORM

The rise in investment demand is driven by the need to expand CCS and electrification in the North Sea (Figure 3.6). Investments in other parts of the economy decline slightly, primarily due to a shift toward less capital-intensive sectors.

Figure 3.6

Changes in investments under supplementary climate policy

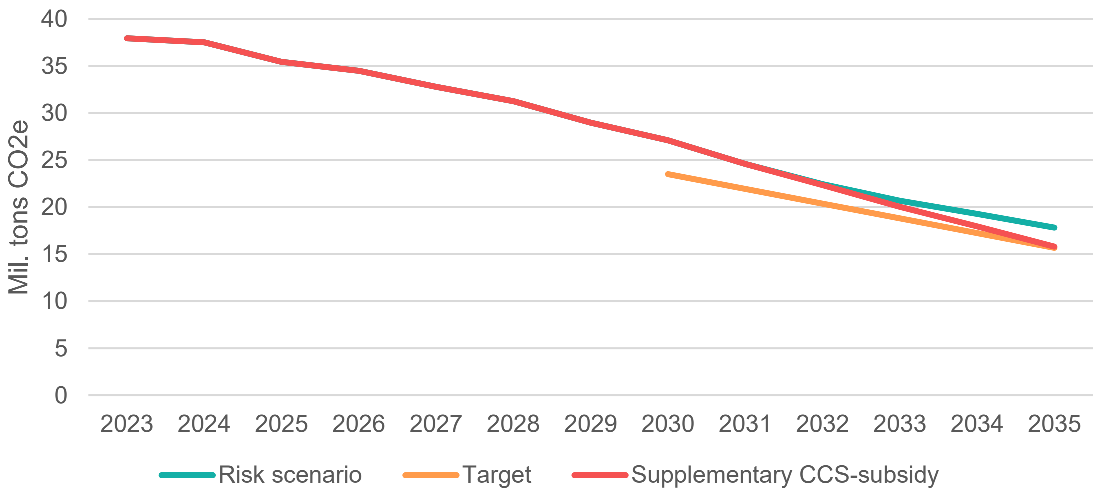


Source: Own calculations with GreenREFORM.

4. Results of supplementary CCS subsidies

With an increase in the CCS subsidy to DKK 850 per ton of CO_2e, additional emissions reductions are achieved, ensuring that the 2035 target is met despite the risk scenario[3]. Figure 4.1 shows the development in total greenhouse gas emissions relative to the risk scenario. As before, the focus is on meeting the 2035 target, and the subsidy increase is gradually phased in from 2031. The increase is announced in 2029.

Figure 4.1
Total greenhouse gas emissions under the risk scenario and with supplementary CCS subsidies



Note: "Target" is the linear trend between a 70 pct. reduction in 2030 and an 80 pct. reduction in 2035, relative to 1990.
Source: Own calculations with GreenREFORM

[3] Because CCS and other technologies do not scale up smoothly in line with increases in the CO_2 tax—entering instead in discrete steps based on available potential—it is not possible to design supplementary policies that offset the risk scenario in a strict one-to-one manner. In the risk scenario, the shortfall relative to the 2035 target is 2.15 million tons of CO_2e. With supplementary climate policy involving a tax increase of DKK 320, emissions are reduced by 2.05 million tons of CO_2e. With an increase in CCS subsidies to DKK 850, emissions are reduced by 2.02 million tons of CO_2e.

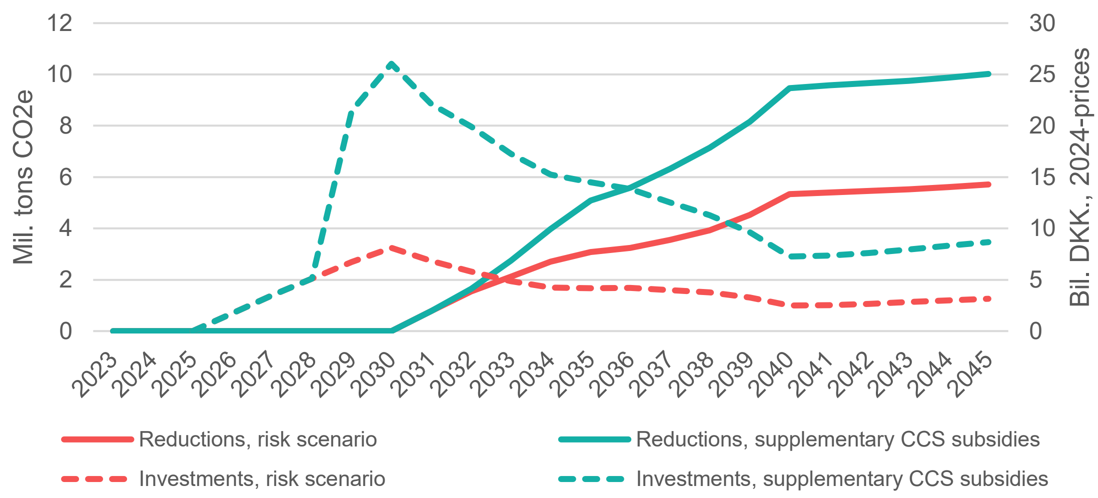
4.1 Emission reductions from CCS

All greenhouse gas reductions come exclusively from CCS, as the higher subsidy does not provide incentives for reductions elsewhere, and because the subsidy fully offsets the private economic costs of CCS. As a result, no significant structural shifts occur due to changed competitive condi-tions.

Increasing the subsidy raises total CO_2 capture via CCS by 65 pct. in 2035 compared with the baseline, as shown in Figure 4.2, and by 75–80 pct. in the longer term. Investments in CCS also increase substantially—both due to the greater volume of CCS activity and because the additional CCS capacity relies on more expensive investment options than the lower-cost CCS projects already included in the risk scenario.

Figure 4.2

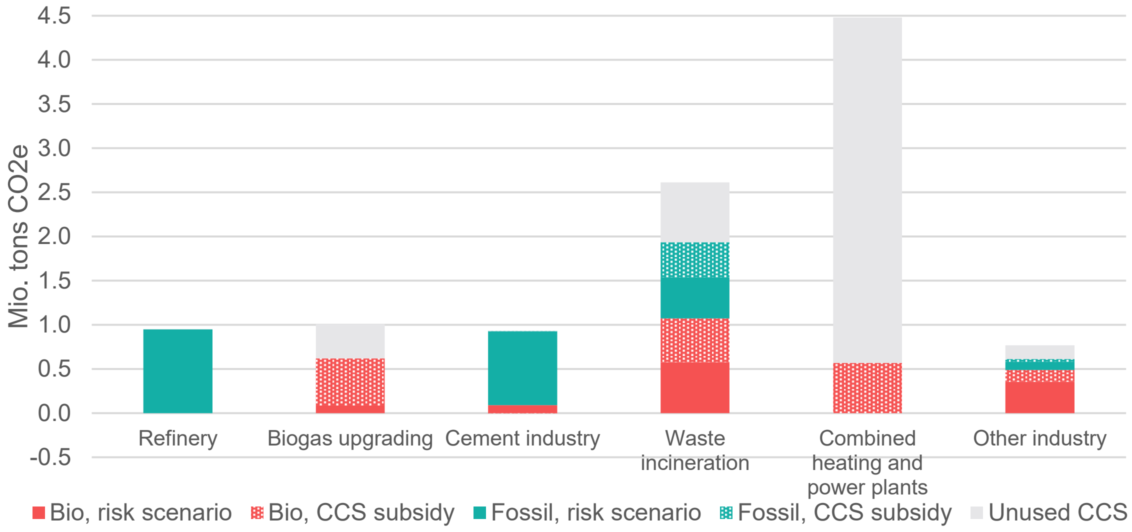
Reductions and investments in CCS under the risk scenario and with supplementary CCS subsidies



Note: Investments are shown on the right axis
Source: Own calculations with GreenREFORM

The higher subsidy ensures continued use of CCS in biogas upgrading, but no new measures are deployed in this area compared with the DKK 320 subsidy level. In contrast, additional CCS is introduced in waste incineration, and CCS on biomass in combined heat and power plants becomes feasible when the subsidy is increased to DKK 850, as shown in Figure 4.3.

Figure 4.3
Use of CCS in 2035 in the risk scenario and with supplementary CCS subsidies



Source: Own calculations with GreenREFORM, based on EA- Energy Analyses

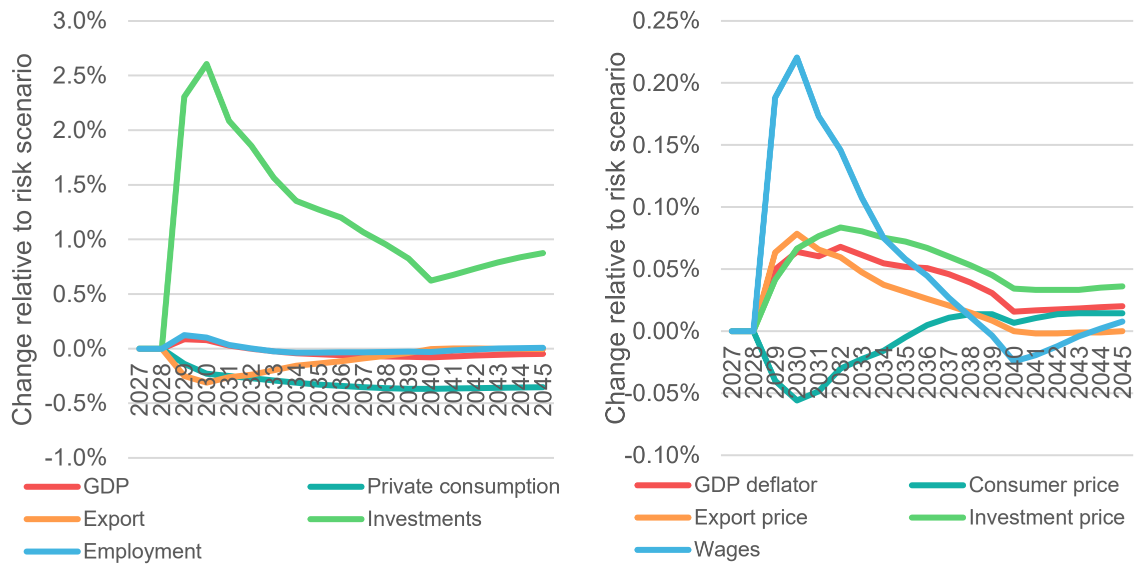
4.2 Macroeconomic effects

The implementation of CCS increases total investment activity. Investment levels rise particularly during the build-out of CCS capacity relative to the risk scenario, which puts upward pressure on prices and wages, as shown in Figure 4.4. Over time, wages fall again, reflecting the model's equilibrium mechanisms.

In the short term, exports decline because domestic demand (investment) increases and export prices rise. As investment demand falls back, exports must increase to restore equilibrium in the goods market. This adjustment requires lower export prices, and therefore lower wages.

Figure 4.4

Macroeconomic effects of supplementary CCS subsidies



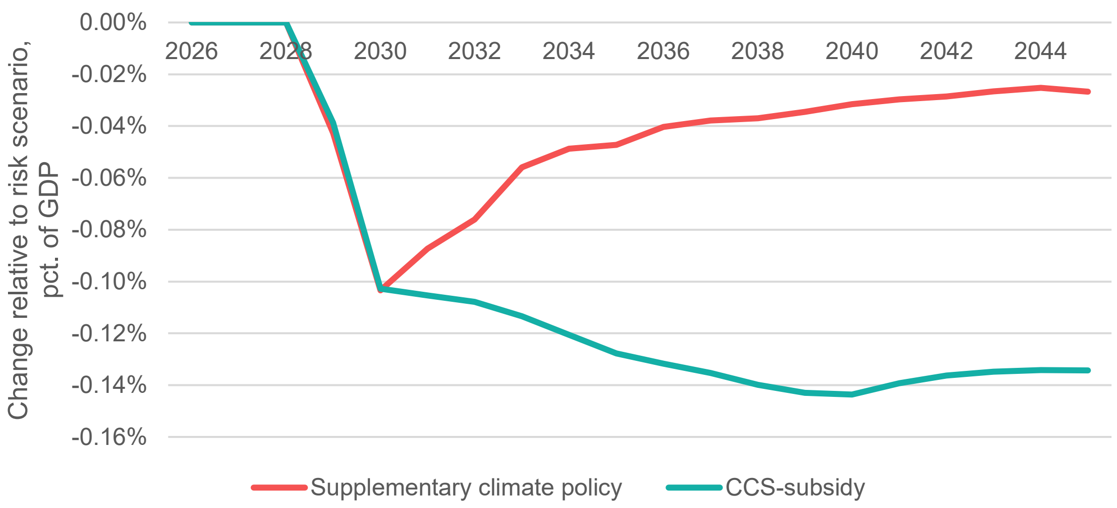
Note: The figures show changes relative to the risk scenario. The left and right figures show relative changes in quantities and prices respectively.
Source: Own calculations with GreenREFORM

4.3 Public finances

In the short term, public finances deteriorate following the announcement of both the supplementary climate policy and the higher CCS subsidy, as shown in Figure 4.5. This is primarily due to the rise in investment activity, which temporarily reduces corporate tax revenues.

Figure 4.5

Change in the primary balance as a percentage of GDP under supplementary climate policy and supplementary CCS subsidies



Source: Own calculations with GreenREFORM

In the long term, public finances are affected by several offsetting factors. Under supplementary climate policy, the increase in the CO_2e tax generates additional revenue. This is not the case with a higher CCS subsidy. The subsidy itself generates a negative fiscal effect. These two elements represent the primary difference in how the two policy measures affect public finances.