

HOW NORWAY CAN DELIVER ITS FAIR SHARE OF INTERNATIONAL CLIMATE FINANCE



NORWEGIAN CHURCH AID
actalliance



VISTA
ANALYSE



Preface by Vista Analyse

The report on how Norway can deliver its fair share of climate finance was initiated in January-February and finalized in August-September 2020. During this period the Covid-19 pandemic has turned upside down most economic projections, and policy priorities have also changed. We have taken care to make use of updated information that reflects the reality of the pandemic.

Ingrid Aas Borge has been the main focal point for this report at Norwegian Church Aid. We would like to thank her, Håkon Grindheim and Mari Hasle Einang for helpful and constructive discussions. Phil Swanson edited the manuscript for style and clarity and we are most thankful to him.

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About Vista Analyse

Vista Analyse (Analysis) is a social science consultancy with an emphasis on economic research, policy analysis and advice, and evaluations. We carry out projects to the highest professional standards, with independence and integrity. Our key thematic areas are climate change, environment, energy, transport, urban planning, welfare issues, public finance and international development.

Coverphoto: Full-time engineer: Zeinabou Abdoulaye works full-time repairing and installing new solar panels. It is the inhabitants of the village who pay her in the form of monthly rent for the panel. Barefoot engineer. From the solar energy project in Timbuktu, Mali. Local women receive training through The Barefoot College so they can install and maintain solar panels. This gives the village access to renewable energy.

Photo: Greg Rødland Buick

Preface by Norwegian Church Aid

Verden står overfor en klimakrise. De som bærer den største byrden av krisen har i svært liten grad vært med på å skape den. Kirkens Nødhjelp har derfor i flere tiår stilt spørsmålene: Hva er klimarettferdighet og hva er Norges rettferdige klimaansvar?

I denne rapporten ønsker Kirkens Nødhjelp å belyse mulige veier frem mot økt klimafinansiering fra Norge. Finansiering som vil gi fattige land mulighet til å kutte i egne utslipp og tilpasse seg klimaendringenes skadelige konsekvenser.

Verken Parisavtalen eller FNs bærekraftsmål kan innfris uten at rike land som Norge bidrar med mer midler til klimafinansiering. Finansieringsbehovet kan heller ikke dekkes av bistandsmidler alene. Derfor kreves det av oss at vi tenker nytt og annerledes om hvordan vi kan skaffe til veie disse midlene.

Hva er Norges rettferdige klimaansvar?

I 2018 ga Kirkens Nødhjelp og en rekke andre sivilsamfunnsorganisasjoner, ut rapporten «Norway's Fair Share of meeting the Paris Agreement», skrevet av Stockholm Environment Institute. Her forsøkes det å besvare spørsmålet «Hvor stor del av den globale klimainnsatsen er det rettferdig at Norge bidrar med?», basert på beregninger av historiske utslipp og økonomisk kapasitet.

På bakgrunn av dette, kom rapporten fram til at Norge har et stort ansvar for å bidra med kutt i klimagasser hvis verden skal nå 1,5-gradersmålet. Faktisk nesten ti ganger større enn folketallet vårt skulle tilsi, og andelen overgår det vi har mulighet til å kutte på hjemmebane. Her hjemme må vi kutte minst 53 prosent innen 2030 for å innfri vårt rettferdige klimaansvar. Regjeringen har siden vedtatt et klimamål på 50-55 prosent kutt.

Det neste skrittet for å innfri hele klimaansvaret vårt, er å øke vår internasjonale klimafinansiering. Norge må finansiere store utslippskutt i land som har mindre ansvar for klimakrisen enn hva vi selv har. I tillegg er vi forpliktet gjennom Parisavtalen til å bidra til at fattige land kan tilpasse seg de klimaendringene som allerede skjer, og som vil skje i fremtiden. Rapporten anslo at det vil koste Norge opp mot 65 mil-

liarder kroner årlig fram til 2030 å innfri den internasjonale delen av Norges klimaansvar. Dette er et anslag, men sier likevel noe om størrelsesordenen av både det globale finansieringsbehovet og Norges del av ansvaret, da dette innebærer bortimot en tidobling av dagens norske klimafinansiering.

Mulige løsninger for fremtiden

I denne rapporten vurderes en rekke tiltak som både skaper finansielt handlingsrom for Norge og har en indirekte utslippsreducerende effekt. Dette mener vi gjør dem ekstra egnet til dette formålet. Tiltakene kan stå for seg selv, eller kombineres. Det grønne skiftet handler om å vri pengene fra å stimulere det vi vil ha mindre av, som fossil energi, til det vi må ha mer av, fornybart. Dette går flere av rapportens anbefalinger direkte inn på.

Å fremme forslag om kostbare tiltak for klimafinansiering gjøres ikke fordi det er enkelt, men fordi det er nødvendig. Å si nei til slike grep vil utvilsomt være mer behagelig på kort sikt. Men på lengre sikt vil det bli langt mer kostbart.

Prisen av å ikke gjøre nok er ytterligere 100 millioner mennesker under fattigdomsgrensen innen 2030. 5 milliarder mennesker vil få mer usikker tilgang til rent vann. Hundrevis av millioner mennesker kan måtte flykte fra sine hjem på grunn av stigende havnivå. Vi risikerer en nedgang på 30 prosent i verdens jordbruksavlinger – en krise for oss alle, men livstruende for mange småbønder i utviklingsland. Vi må snu utviklingen, og sammen investere i vår felles fremtid. Det haster.


Dagfinn Høybråten
generalsekretær
i Kirkens Nødhjelp



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Executive summary

We suggest a financial policy package to fund the Climate Finance Mechanism proposed by Norwegian Church Aid. The package consists of i) an improved tax on carbon emissions, ii) discontinuation of accelerated depreciation ("overavskrivning") in the petroleum sector, iii) a climate fee on petroleum production, and iv) a global mitigation element in VAT. If needed, one may add v) transfer from the oil fund.

Funding is needed to finance mitigation and adaptation measures in low-income countries. Parties to the UN Framework Convention on Climate Change (UNFCCC) have repeatedly called for high-income countries to provide such funding. So far, high-income countries have been slow to respond.

Norway has one of the highest levels of income per capita in the world, placing it in a good position to be an early mover in contributing climate finance. A recent report by Kartha et al (2018) argues that Norway's share of global mitigation and adaptation costs should be 0.65 per cent of the global need. Given this context, Norwegian Church Aid has asked Vista Analyse to suggest how Norway could increase its international funding for mitigation and adaptation with a aim of achieving about NOK 65 billion per year towards the end of the next decade. This report analyzes taxes, fees and other sources of revenue that could provide revenue for a Climate Finance Mechanism.



Climate resilience,
Menagesha, Ethiopia
Photo: Hilina Abebe

We consider 11 potential taxes and fees to fund the Climate Finance Mechanism

We consider 11 potential taxes and fees to fund the Climate Finance Mechanism (Table S.1). Each is not only a potential source of revenue, but additionally would help reduce Norwegian or global CO₂-emissions, i.e., further reduce the problem that the mitigation and adaptation funding is meant to address. Taking into account other factors, however, leads us to conclude that only some of these revenue sources may be relied upon to fund the Climate Finance Mechanism.

The *tax on carbon emissions* and the *fee on passenger air transport* are policies that already exist in Norway. A *carbon border tax* is suggested by the EU commission as part of the “European Green Deal”. A *global mitigation element in the VAT* may reduce private consumption and induce lower emissions further up the

value chain. A “*pause*” in public expenditure growth means postponing growth in expenditure by one year, which would have the effect of reducing public consumption relative to a baseline.

There are five proposals directed at Norwegian petroleum production:

Revenue from new petroleum fields channels funding to the Climate Finance Mechanism when new petroleum fields are opened. *Transfer from the oil fund* means funding from past petroleum production. *Increased profit taxation on petroleum* and *discontinuing accelerated depreciation (“overavskrivning”) in the petroleum sector* would increase revenue from petroleum activities while maintaining “investment neutrality”. A *climate fee on petroleum production* and *discontinuing the reimbursement for exploration cost (“leterefusjonsordningen”)* would provide disincentives for investment in petroleum.

Table S.1 Revenue potential in 2030 of the 11 funding sources considered

Policy	Revenue potential	Overall assessment
Tax on carbon emissions + decreased subsidies	Up to NOK 30 billion, of which NOK 16 billion is fresh revenue	Should be considered
Fee on passenger air transport	About NOK 2.5 billion at current rates	
Carbon border tax	Up to NOK 10 billion in ideal circumstances	
A global mitigation element in the VAT	NOK 17 billion per percentage point	Should be considered
A “pause” in public expenditure growth	About NOK 16.5 billion	
Revenue from new petroleum fields	Unknown	
Transfer from the oil fund	Whatever is not covered by other revenue sources	Should be considered
Increased profit tax on petroleum	Unknown, depends on increase	
Discontinuing accelerated depreciation (“overavskrivning”) in the petroleum sector	About NOK 15 billion	Should be considered
Climate fee on petroleum production	About NOK 5-6 billion in net terms	Should be considered
Discontinuing the reimbursement for exploration cost (“leterefusjonsordningen”)	About NOK 11 billion	

Source: Vista Analyse

We recommend a menu of four-five taxes and fees

We recommend a package of four or five of these measures. Each would be politically viable, minimize economic efficiency loss, and contribute to Norway's mitigation obligation:

- An improved tax on carbon emissions
- Discontinuation of accelerated depreciation ("*overavskrivning*") in the petroleum sector
- A climate fee on petroleum production
- A global mitigation element in the VAT

If these do not raise sufficient revenue to cover the finance needs, one might in addition consider

- Transfer from the oil fund

The rationale behind the recommendation is as follows: Any package to cover the Climate Finance Mechanism should include the tax on carbon emissions. If this tax is strengthened as a policy tool, notably at the expense of current subsidies such as those for electric vehicles, revenue will increase significantly compared to current levels, and economic efficiency will be improved. In addition, the tax on carbon emissions makes intuitive sense as a major funding vehicle for a Climate Finance Mechanism.

The package should also include the discontinuation of accelerated depreciation ("*overavskrivning*") in the petroleum sector. This would reduce tendencies to over-invest in the sector and enhance efficiency, while any reduction in investment would be a bonus for global CO₂ emissions. There are several rules in the tax law that combine to create accelerated depreciation, though the "correct" level of depreciation will be a matter for discussion. In any case, the revenue potential for this measure is significant.

A moderate climate fee on gross oil revenue would reduce global CO₂ emissions further. A climate fee on gross oil revenue would be a departure from the current Norwegian policy of tax neutrality in the petroleum sector, but has been endorsed by stakeholders ranging from national and international NGOs (under the name "Climate Damage Tax") to renowned climate intellectuals and economists in academia.

A global mitigation element in the VAT of one percentage point will create only moderate economic distortion compared to most other tax proposals. The VAT in Norway is extremely broad-based and an increase of one percentage point could bring in an additional NOK 17 billion or so.

Combining the four elements above could create sufficient revenue for the Climate Finance Mechanism, though if a gap remains, a fifth element in the package could be to make use of revenue from the oil fund. The cost of using revenue from the oil fund would effectively be borne by future generations. While we generally recommend that the current generation should pay for its own priorities, one could argue that the fund is derived from past petroleum production, which has contributed to current global CO₂ emissions. The oil fund has recently been used to finance the response to the Covid-19 crisis, but it can be argued that mitigation and adaptation to the climate crisis should be equally important.

This report does not analyse the consequences of the package on income distribution and living conditions, as doing so would require detailed modelling that is beyond the scope of the present project. In any case, principles of economic planning advise division of labour among policy instruments and striving for as many policy instruments as one has policy goals.



Micro Investment Approach to climate resilience and poverty reduction. New techniques for increased yield with less water consumption. Farmer Janet Nyamulani. Photo: Håvard Bjelland

1 Possible mechanisms and sources for increased public finance

Norwegian Church Aid has asked Vista Analyse to examine how Norway could increase its international financing of climate mitigation and adaptation activities, with an aim of achieving about NOK 65 billion per year towards the end of the next decade. Our report takes this goal as given and does not discuss the assumptions or calculations of the study by Kartha et al (2018) that forms its basis.

There is a large number of taxes, transfers and fees that potentially could be used to fund the Climate Finance Mechanism. In order to multiply climate benefits, however, we focus on those linked to emissions.

By increasing taxes related to emissions, one reduces the size of the problem that the Climate Finance Mechanism is meant to address.

In addition to sources of funding, there are other interesting and unresolved aspects of a Climate Finance Mechanism. These include, for example, what counts as a climate measure to be funded, how and by whom the mechanism should be managed, and how the mechanism should collaborate with the private sector, among others. These aspects of the mechanism are discussed in other papers and reports (Text box 1.1), and we do not consider them here.

Text box 1.1 Studies of the Climate Finance Mechanism

The Global Commission on Adaptation (GCA) (2019), a high-level group led by Ban Ki-moon, Bill Gates and current IMF Managing Director Kristalina Georgieva, calls for a mechanism to support the International Development Association and multilateral adaptation funds. UNEP and GCA (2019) argue for cooperation between nation states, financial institutions, companies and vulnerable societies. CICERO (2016a) surveys financial instruments to de-risk or reduce costs related to climate mitigation in developing countries and finds that “the most suitable or promising instruments are significantly dependent on the context, foremost the ‘climate’ for investments in a country and the sectors invested in.” CICERO (2016b) argues for cooperation between multi- and bilateral institutions on the one hand, and financial institutions in developing countries on the other. Lundsgaarde et al. (2018) argue for coordination of climate finance initiatives across countries. Hamilton and Zindler (2016) surveys the “diverse ecosystem of sources of capital for financing renewable energy and the wider set of new low-carbon technologies”. UNDP (2011) discusses the design and establishment of national climate funds to support countries to collect, coordinate, blend and account for climate finance. Zou and Ockenden (2016) explore what enables effective international climate finance in the context of development co-operation. WRI (2017) examines seven key multilateral climate funds and recommends operational and architectural reforms to improve their ability to deliver low emissions and climate-resilient development. Brot für die Welt (2019) considers possible financial sources such as an airline passenger levy, climate damage tax, and financial transaction taxes, and looks at how this funding should and could be channeled through existing or new funds. Ibon (2019) critically examines existing climate funds and calls for a full operationalization of the Warsaw International Mechanism (WIM), including the establishment of a finance arm

Table 1.1 Funding policies considered

Policy
Tax on carbon emissions + decreased subsidies
Fee on passenger air transport
Carbon border tax
A global mitigation element in the VAT
A “pause” in public expenditure growth
Revenue from new petroleum fields
Transfer from the oil fund
Increased profit tax on petroleum
Discontinuing accelerated depreciation (“ <i>overavskrivning</i> ”) in the petroleum sector
Climate fee on petroleum production
Discontinuing the reimbursement for exploration cost (“ <i>leterefusjonsordningen</i> ”)

Source: Vista Analyse

We consider eleven funding sources (Table 1.1). For each, we discuss various principal and practical issues, as well as revenue potential. We conclude the discussion of each source with an assessment and recommendation as to whether it bears promise for further consideration as a source of Norwegian climate finance.

We make a distinction between funding sources that contribute to lower greenhouse gas emissions in Norway, and those that contribute to lower global emissions. The first category concerns greenhouse gas reductions that count toward Norwegian commitments, i.e., Norway’s Nationally Determined Contribution (NDC). The second category concerns Norwegian contributions to reducing greenhouse gas emissions outside Norway. The funding sources of this category are taxes aimed at reducing global emissions and contributing to Norway’s international mitigation obligations.

The tax on carbon emissions and the fee on passenger air transport are policy instruments in Norway designed to reduce domestic greenhouse gas emissions. Taxes and fees to reduce domestic greenhouse gas emissions may appear particularly attractive and politically acceptable if their proceeds are used for further climate mitigation and adaptation, e.g., via the

Climate Finance Mechanism. However, they will only serve this double function if they are able to bring in a sufficient amount of revenue.

The remaining eight funding sources aim to contribute to Norway’s international mitigation obligations. The *carbon border tax* under discussion in the EU aims to prevent carbon leakage, which is what happens when production processes inside the EU are replaced by processes outside the EU that emit more carbon per unit of production. By eliminating carbon leakage, global emissions should fall.

A *global mitigation element in the VAT* in Norway aims to discourage material consumption, which, it is hoped, would lead to less waste and lower emissions further along the global supply chain. A “*pause*” in public expenditure growth similarly means that resources are diverted from domestic use (consumption and investment) to global climate-finance needs.

We discuss several funding policies that target petroleum revenue and production. *Transfer from the oil fund* aims to divert resources from domestic use to climate-finance needs. *Discontinuing accelerated depreciation (“overavskrivning”) in the petroleum sector*, a *climate fee on petroleum production*, and *discontinuing the reimbursement for exploration costs (“letere-*

fusjonsordningen”) are all measures aimed at providing incentives to lower investment and production, as well as global emissions associated with petroleum consumption.

We discuss the revenue potential of each funding

source as of year 2030. In order to do so we need to assume whether or not the economy is likely to grow over the coming decade. The Covid-19 pandemic has made this question pertinent. Our reasoning and assumption are related in Text box 1.2.

Text box 1.2 The Norwegian economy after the Covid-19 pandemic

The Covid-19 pandemic has had a large negative impact on the Norwegian and world economy. Exactly how negative the impact will be for the current year is highly uncertain. Some numbers from the Norwegian revised national budget for 2020 (Ministry of Finance, 2020) illustrates the magnitude of the impact: While mainland GDP typically increases by about 2 per cent per year, it is assumed in the revised national budget that mainland GDP will decline by 4 per cent from 2019 to 2020. Some other institutions predict an even larger decline. The oil price, which is extremely important for the Norwegian economy, dropped from above 60 dollars per barrel to less than 30 dollars from January to March 2020. It has now increased somewhat, but is still not much higher than 40 dollars.

While most economists believe that the economy will pick up again during the next years, the speed and strength of the recovery is very uncertain. The trend growth *rate* will probably be back to normal sometime during the next decade. However, it is far less certain whether the trend *level* will be reached again: Looking five years into the future, the revised national budget indicates the level of mainland GDP might be somewhere in the range between one half per cent and four per cent lower than in the contrafactual case of no pandemic.

To the extent that we need these numbers for our calculations, we will assume that the 2030 level of mainland GDP is 3 per cent lower than it would have been without the pandemic. Combining this with a trend growth rate of 2 per cent implies that the 2030 level of GDP (and related indicators such as e.g. private consumption) will be about 21 per cent above the 2019 level.

1.1 The tax on carbon emissions

About 80 per cent of Norwegian carbon emissions are covered either by a CO₂ tax or the European Emissions Trading System (ETS) (Ministry of Finance, 2019). The CO₂ tax is primarily used for emissions outside the ETS.

In most sectors, the CO₂ tax is NOK 544/tonne in 2020. Emissions outside the ETS and outside the agricultural sector were about 20 million tonnes in 2020, and revenue from the CO₂ tax on emissions outside the ETS that year was about NOK 9 billion (Ministry of Finance, 2019).¹

Future emissions will depend on future policies. A high tax would reduce emissions, though the impact on revenue is uncertain.

As an illustration of future revenue possibilities, we consider the assumptions for 2030 used in Ministry of Finance (2019). According to that report, emissions outside the ETS and agriculture are projected to be 16 million tonnes in 2030. Assuming a general carbon tax of NOK 886 per tonne (based on a five per cent increase per year) suggests revenues in year 2030 of NOK 14.2 billion.

The Norwegian CO₂ tax alone at its current level is insufficient to achieve Norway's own emission goals for the next decade. The government therefore also subsidises various forms of renewable alternatives to fossil-fuel use. Subsidies to electric cars are perhaps the most notable example. An interesting proposal could be to significantly increase the CO₂ tax, and at the same time reduce several subsidies that are also aimed at reducing emissions but operating less efficiently than a tax. Vista Analyse (2020) has suggested that, given Norway's climate goals for the next decade, the "correct" CO₂ tax might be about NOK 1000 per tonne of CO₂ in 2020, rising in real terms by 4 per cent per year. This would give a carbon tax of NOK 1480 in 2030. If applied consistently this tax would give a revenue of NOK 23.7 billion in 2030, i.e. NOK 9.5 billion more than the revenue indicated above. Prior to 2030, the difference between this proposed tax and the tax assumed in Ministry of Finance (2019) will be smaller. However, since emissions are assumed to be declining throughout the decade, the total revenue increase may be about NOK 9-10 billion for each year before 2030.

Such a tax increase would make it possible to reduce various subsidies, though by how much is difficult to know with certainty. According to the Ministry of Finance (2019), however, subsidies to electrical cars, hybrid cars and subsidies through Enova amounted to more than NOK 12 billion in 2018. If these subsidies could be cut in half as a result of the increased CO₂ tax, this would strengthen the public budget by about NOK 6 billion – not counting the additional NOK 9.5 billion from the carbon tax that is assumed to accrue to the Climate Finance Mechanism. The combination of increasing the CO₂ tax and reducing subsidies therefore might give a total increase in public revenue equal to about NOK 16 billion NOK in 2030, or a total of NOK 30 billion if you include revenue from the currently planned tax rate for 2030.

If quotas in the ETS were fully auctioned, the revenue from CO₂ emissions available to national governments would increase significantly. However, a fully-auctioned system would require changes at the EU-level. (Currently quotas are to a large extent handed out for free.) We therefore do not include income from ETS quotas in our revenue estimate.

There is of course a distinction between current and additional revenue. If current revenue is to be included in the Climate Finance Mechanism, it would have to be diverted from funding other projects. Three possibilities to replace the diverted revenue then arise: i) increase transfers from the oil fund, ii) increase taxes iii) and/or make a corresponding cut on the expenditure side. All of these options are discussed below in the context of other proposals.

While diversion of current revenue from the CO₂ tax would need to be compensated for by increasing other funding source(s), fresh revenue would be free to cover fresh expenditures, such as the Climate Finance Mechanism. Furthermore, using the CO₂ tax to fund climate-related projects arguably would multiply the impact of the tax and thereby provide an intuitive link that could make such a tax more politically acceptable.

¹ Including revenue from taxes on hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs).

Table 1.2 Recommendations – increased tax on carbon emissions + decreased subsidies

Item	Remark
Pros	The tax and the Climate Finance Mechanism share the same mitigation objective Shifting from subsidies to taxation enhances economic efficiency.
Cons	Use of new CO ₂ revenue would not be a problem, but diverting the use of existing revenue may need to be compensated
Revenue potential	Up to NOK 30 billion total revenue in 2030, of which about NOK 16 billion fresh revenue
Recommendation	Should be considered as part of a package to fund the Climate Finance Mechanism

Source: Vista Analyse



Micro Investment Approach to climate resilience and poverty reduction. New techniques for increased yield with less water consumption. Agronomist Mwiza Simwinga comes to the village every morning at 06
Photo: Håvard Bjelland

1.2 The fee on passenger air transport

Norway has had a fee on passenger air transport since 2016. In 2020 the fee was NOK 76.50 per trip within Europe, and NOK 204 per trip outside Europe. The Ministry of Finance (2019) estimated revenue from this fee would be NOK 1.9 billion for 2020. This was of course before the Covid-19 pandemic, but is relevant for comparison with the revenue potential of 2030. Considering the trend increase in air travel the 2030 revenue would be about 2.5 billion.

If the fees were doubled, for example, revenue would increase to about NOK 3 - 4 billion, taking into account the dampening effect of the fees on air travel. If fees were raised tenfold and the number of trips cut in half, revenue would increase to about NOK 12.5 billion. From these examples it can be seen that the likely revenue potential would be fairly moderate unless the fees were raised quite steeply.

Air travel to destinations in Europe is covered by the Emission Trading System. This means that for each flight that takes off, the airline purchases quotas to cover associated CO₂ emissions. The quotas are sold by other companies, which promise to lower their emissions accordingly. If airlines need fewer quotas

because of lower traffic, they sell the quotas to others who increase their emissions. This basic property of the Emission Trading System implies that the fee on passenger air transport to destinations within Europe effectively just moves emissions from air travel and over to other sectors. The fee to destinations in Europe does not reduce total European emissions except through possible secondary impacts such as a possible change in attitudes, or future higher ambitions for emission cuts in Europe.²

The fee on air travel to destinations outside Europe contributes to lower global emissions to the extent that it reduces air travel. Travel outside Europe is, however, just a share of all air travel involving Norway. Most Norwegian air travel is domestic and belongs to the category, "destinations in Europe". All things considered, there probably are more promising avenues for obtaining the necessary funds for a Climate Finance Mechanism.

Table 1.3 Recommendations – fee on passenger air transport

Item	Remark
Pros	The fee to destinations outside Europe reduces CO ₂ emissions The fee may also contribute to a change in attitudes to air travel
Cons	The fee to destinations in Europe has no first-order impact on CO ₂ emissions The revenue potential is moderate
Revenue potential	About NOK 2.5 billion at current rates
Recommendation	Will not be considered as part of a package to fund the Climate Finance Mechanism

Source: Vista Analyse

² If the quota price becomes low and hits a price floor special rules apply in the ETS and lower demand may induce lower emissions for as long as the price floor is in effect.

1.3 A carbon border tax

The recent EU document, “A European Green Deal” (European Commission, 2019) states that “should differences in levels of ambition worldwide persist, as the EU increases its climate ambition, the Commission will propose a carbon border adjustment mechanism, for selected sectors, to reduce the risk of carbon leakage.” An “indicative timetable” states that such a mechanism may be proposed for selected sectors in 2021.

If a carbon border adjustment mechanism is instigated at the EU level it would apply to EEA members including Norway.

According to media reports, the commission is currently considering different ways of implementing the mechanism, including through a carbon border tax, a requirement to buy permits in the ETS, and an excise tax.³ If the EU chooses a carbon border tax or an excise tax, there would be additional revenue accruing to national governments. If the EU requires purchases of quotas for the ETS, the impact would be to increase the price of quotas. This would benefit existing quota owners, who are not necessarily national governments. Purchases of quotas therefore probably would not be very helpful for funding the Climate Finance Mechanism.

An article by Rocchi et al. (2018) discusses possible impacts of a carbon border tax in the EU. They consider as one alternative a tax based on *avoided emissions*, i.e., emissions that would not occur if the goods were produced domestically instead of being imported. To calculate the revenue from such a tax, the authors assumed a prevailing price for carbon in the EU

of €20 per tonne of CO₂. They also assumed no carbon policies implemented outside the EU. Using these assumptions and data for 2009, the authors calculated an EU-wide revenue of €13 billion, or about NOK 130 billion, all of which would accrue to EU member countries.

Although Norway is not a member of the EU, the size of the Norwegian economy relative to that of the EU suggests the possible magnitude of Norwegian revenue from such a border tax. Combining data from Eurostat and Statistics Norway, we find the Norwegian economy to be about 2.1 per cent of the EU economy. Applying this ratio to a revenue of 130 billion NOK suggests that a carbon border tax could generate annual revenue in Norway on the order of NOK 2.8 billion.

As the economy grows from the 2009 level used in the report by Rocchi et al (2018), annual revenue will also increase, perhaps doubling by 2030. A higher EU-wide carbon price would increase revenue further, though not proportionally. All told, revenue on the order of NOK 10 billion per year accruing to Norway may be feasible in the long run, under ideal circumstances from a revenue point of view. On the other hand, the border adjustment mechanism is still on the EU’s drawing board and as yet untested. Moreover, it is not clear how it would fare in international trade negotiations, e.g., the World Trade Organisation.

Table 1.4 Recommendations – carbon border tax

Item	Remark
Pros	A carbon border tax has the tentative support of the European Commission
Cons	There are many uncertainties, such as the design of a tax, the amount of revenue, and its feasibility in the context of free trade
Revenue potential	Up to NOK 10 billion under ideal circumstances
Recommendation	Will not be considered as part of a package to fund the Climate Finance Mechanism

Source: Vista Analyse

³ <https://www.bloomberg.com/news/articles/2020-01-28/europe-mulls-several-carbon-border-tax-options-official-says>

1.4 A global mitigation element in the VAT

Many Norwegian citizens are reportedly concerned about waste from material consumption such as food and clothing. Reducing wasteful consumption would lower global emissions in the production of consumed goods. There is therefore a reasonable link to be made between material consumption on the one hand, and the Climate Finance Mechanism on the other.

The main fiscal tool for discouraging excess material consumption in Norway is the value added tax (VAT). By increasing the VAT and transferring the resulting revenue to the Climate Finance Mechanism the country would be able to reduce excess consumption and waste while reducing at least part of the emissions that result from the production of those excess goods.

Higher VAT implies lower consumption in Norway. Lower consumption implies lower imports, and hence lower emissions abroad. Foreign resources (labour, capital, etc.) would be diverted from producing for Norwegian consumption to other alternatives.

The VAT revenue in 2019 was NOK 316 billion. Assuming the average VAT tax rate is 22.5,⁴ this translates to a revenue of NOK 14 billion per percentage point. Adjusting this up by 21 per cent due to consumption growth till 2030, this suggests that each percentage point increased VAT rates should give NOK 17 billion additional revenue in 2030.

An increase of all VAT rates by one percentage point would bring the general Norwegian rate to 26 per cent. For reference, 26 per cent is just below the highest EU rate, which is the Hungarian VAT rate of 27 per cent. Known negative consequences of a very high VAT-rate include i) an increase in the cost of living for everyone, including the less well-off, ii) an increase in (legal and illegal) trade with countries that have a lower VAT rate, and iii) reduced incentive to supply labour.

The VAT is relatively broad-based and the proposed rate fairly low compared to, e.g., the top brackets of the Norwegian income tax. Compared to other sources yielding a similar amount of revenue, the economic efficiency cost of increasing the VAT may be fairly low.

Table 1.5 Recommendations – global mitigation element in the VAT

Item	Remark
Pros	High revenue potential at fairly low efficiency cost
Cons	Cost of living is increased for everyone, including the least well off, so compensatory measures may be necessary.
Revenue potential	A percentage point increase in VAT rates would bring in about NOK 17 billion in 2030.
Recommendation	Should be considered as part of a package to fund the Climate Finance Mechanism

Source: Vista Analyse

⁴ Norway has a general VAT rate of 25 per cent, but there are lower rates (0, 8, 12 and 15 per cent) for some sectors. According to NOU 2019 (section 13.3.2), the average is 22.5 per cent.

1.5 A “pause” in public expenditure growth

The Norwegian economy grows one-to-three per cent in real terms every (normal) year, and public expenditures grow with it. While it is often difficult to reduce traditional expenditures in order to make room for new ones, it may be easier to divert real year-on-year increase in stipulated expenditure. By devoting one year's *increase* in public expenditures to the Climate Finance Mechanism, financing for traditional “good causes” will need to be frozen at the same level for a year before being allowed to grow again.

Public expenditures currently stand at NOK 1 350 billion. Assuming 21 per cent growth till 2030 makes 1 650 billion in that year. A pause in 2030 would divert approximately NOK 16.5 billion.

NOK 16.5 billion is a significant amount. However, there are some serious caveats: Half or more of any increase in public expenditure from one year to the next is tied up in increasing pensions and other transfers. The proposal therefore could be met with the objection that the retired living on subsistence pensions are being asked to pay for the Climate Finance Mechanism.

Exempting pensions and transfers cuts the available income from this potential source approximately in half. The remaining half is used for expenditure on goods and services, but most of this is in fact wages and wage increases to public employees.

Table 1.6 Recommendations – a “pause” in public expenditure growth

Item	Remark
Pros	To make use of expenditure growth has no cost in terms of current expenditure
Cons	Pensions and wages of public employees would carry much of the burden
Revenue potential	About NOK 16.5 billion
Recommendation	Will not be considered as part of a package to fund the Climate Finance Mechanism

Source: Vista Analyse



The water tower in Garowe, Puntland in Somalia is run by solar power. Ahmed Mohamud is the caretaker who polishes the solar cells
Photo: Håvard Bjelland

1.6 Revenue from new petroleum fields

In October 2019, the petroleum field, Johan Sverdrup, started production. According to the webpage "Norsk Petroleum", run by the Ministry of Oil and Energy in Norway, Johan Sverdrup contains 425 million cubic meters of standard oil equivalent, almost all of it oil.

NOK 68 billion has already been invested in the field, and a further NOK 73 billion is expected in the future. However, these amounts are small compared to the income potential. At a long-run average price of \$60 per tonne and an exchange rate of NOK 9/\$, nominal gross income from Johan Sverdrup would amount to almost NOK 1500 billion.⁵

CO₂ emissions from consuming 425 million cubic meters of oil would be about 1.15 billion tonnes,⁶ adding a huge quantity of emissions to the world.

According to official government plans, several additional new fields will be opened in the coming years, each of which could be asked to pay into the Climate Finance Mechanism. Johan Sverdrup, for instance, might be responsible for NOK 65 billion, which certainly would be manageable within the context of its NOK 1 500 billion income. A problem with such a proposal, however, is that Norway does not open a major new oil field each year. To smooth out the potential volatility in income, one could imagine using Johan Sverdrup as a funding source until a new field is opened, then use that second field until a third is opened, etc. However, fields have different income potentials and production profiles, which furthermore can change over time. Instead of trying to smooth out income from particular fields, it may be better to consider tax revenue from petroleum production more generally. While overall oil revenue is also prone to volatility, it will tend to be less volatile than revenue from one field or a small group of fields.

Table 1.7 Recommendations – revenue from new petroleum fields

Item	Remark
Pros	Revenue would be used to mitigate the impacts of new production on global emissions.
Cons	A potentially volatile funding source
Revenue potential	Unknown
Recommendation	Will not be considered as part of a package to fund the Climate Finance Mechanism

Source: Vista Analyse

⁵ We assume 6.29 barrels per standard cubic meter, as recommended by Norsk Petroleum and others

⁶ We assume 0.43 metric tons of CO₂ per barrel, which is recommended by U.S. EPA (<https://www.epa.gov/energy/green-house-gases-equivalencies-calculator-calculations-and-references>)

1.7 Transfer from the Government Pension Fund Global

The tax rate on profit in Norway's petroleum sector is 78 per cent. This means that out of each NOK 1 000 billion in profit, the public sector gains NOK 780 billion. In fact, the government's "take"⁷ is higher, since it also receives dividends (Petoro, Equinor).

It may be possible to use some of the accumulated and current public revenue from this source to fund the Climate Finance Mechanism. In practice this could work as follows:

1. Public petroleum tax revenue is channelled to Norway's oil fund.
2. A chosen amount is added to public expenditure in Norway's state budget and designated for the Climate Finance Mechanism
1. Transfer from the oil fund to the state budget is increased by the chosen amount.

If one transfers from the oil fund, companies will not face any new obligations, but there would be a cost in terms of future expenditures or tax relief foregone. The cost may seem small to the current generation, since the fund held about NOK 10 000 billion by the beginning of 2020, but as the Covid-19 pandemic shows there are several policy priorities that compete for the use of the fund. On the other hand, the extensive use of the fund for Covid-19 related purposes may in fact be an argument for a similar policy towards the Climate Finance Mechanism.

Another way of looking at it may bring the future cost more clearly into focus. By general consensus, the long-run annual return on the oil fund is expected to be about three per cent. Three per cent of NOK 10 000 billion is NOK 300 billion. Transfers from the oil fund were (as of 2019) expected to be NOK 244 billion in 2020 (Ministry of Finance, 2019).⁸ This would leave almost exactly NOK 65 billion up to the three per cent 300 billion, which in theory would be available to spend. However, there is general consensus in economic planning in Norway that this money should be saved, as it will be needed in the next few years to pay for pensions, health and care, expenditures for which are expected to rise; and it is of course needed to finance unexpected events such as Covid-19. Hence the cost of spending the money on climate finance may in fact materialize as a difficulty in funding these other, necessary expenditures in the near future.

In conclusion, some may say that the current generation should pay for its own priorities (e.g., the Climate Finance Mechanism) and leave the oil fund alone. Others may point out that the fund is built on allowing emissions to increase in the world and that it therefore is justifiable to make use of some of the fund's revenue to address the impacts of the fund's source of revenue.

Table 1.8 Recommendations – transfer from the oil fund

Item	Remark
Pros	High revenue potential at fairly low perceived cost The oil fund would help address negative impacts of its main revenue source
Cons	Some may say that the current generation should pay for its own priorities
Revenue potential	Whatever is not covered by the other revenue sources
Recommendation	Should be considered as part of a package to fund the Climate Finance Mechanism

Source: Vista Analyse

⁷ Government take is a catch-all phrase for taxes, production sharing agreements, concession oil and similar policies that contribute to public sector income from oil and gas production.

⁸ The coronavirus pandemic has increased this figure considerably.

1.8 Increased profit tax on petroleum

An alternative to a transfer from the oil fund is to impose a climate tax on petroleum profit on top of the existing profit tax. Such an additional tax would make companies bear the burden (including the public sector as an owner of petroleum companies), while existing revenue could be used as currently, i.e., to finance current and future domestic expenditure.

One problem with this proposal is that the profit-tax rate of 78 per cent is well established and therefore has long been the basis of companies' capital investment decisions. An increase would need to be well-justified.

Another, more practical argument is that private prof-

it from Norwegian petroleum production is large, but limited. According to the Ministry of Finance (2019), public revenue from petroleum production in 2020 was expected to be approximately NOK 245 billion. Assuming this revenue is 78 per cent of total profit before tax, private profit would be about NOK 69 billion. This was before the oil price started falling. A climate tax that brings in NOK 65 billion would in current conditions probably imply a tax rate above 100 per cent. Even a tax that brings in one third, say 20 billion, implies a tax rate of approaching 90 per cent. All in all, a number of other solutions probably would be better.

Table 1.9 Recommendations – increased profit tax on petroleum

Item	Remark
Pros	Increased burden on oil companies, which it may be said bear responsibility for emissions
Cons	Profit tax of 78 per cent is well established. Private profit Is too limited to cover the finance need.
Revenue potential	Unknown, depends on increase
Recommendation	Will not be considered as part of a package to fund the Climate Finance Mechanism

Source: Vista Analyse

1.9 Discontinuing accelerated depreciation in the petroleum sector

The Norwegian tax system has several features aimed at incentivizing petroleum companies to invest. One of these is accelerated depreciation (“*overavskrivning*”). Accelerated depreciation works by pushing depreciation expenses forward in time, increasing the discounted value. Hence, deductible cost increases. This creates an incentive for companies to overinvest in petroleum activities. Overinvestment reduces economic efficiency.

Say for example that a company has an investment opportunity that over time will generate 100 in income. If the investment expense is also 100, the investment has a true profit of 0. However, accelerated depreciation may allow that company to deduct, say, 160 in discounted value, making the investment profitable from the company’s point of view. In fact, all investment opportunities that earn the company 40 or more will be profitable in this situation. We will soon see that this is indeed the case in the Norwegian tax system.

The total tax value of accelerated depreciation in 2019 was estimated to be NOK 13 billion (Ministry of Finance, 2019). If accelerated depreciation were ended, the response probably would be lower investment. If investments decreased by about one fourth, additional revenue would be about NOK 10 billion.

The petroleum tax has recently been changed in a way making it even more profitable to invest in this sector. After the change, 91.4% of investment expenditures are credited in the form of reduced taxes.⁹

Hence, the petroleum companies keep 22% of their income (net of operating costs), but only pay 8.6% of the investment expenditures. This gives an enormous distortion in investment incentives. Consider a project with investment costs of 100. Obviously, the expected present value of the net income must exceed 100 for such a project to be profitable for Norway. But with the tax system, the project will be profitable even if the present value of net income is as low as 40: The petroleum company will keep 22% of 40, i.e. 8.8., which is higher than the net cost of the petroleum company (8.6% of 100, i.e. 8.6.)

If the tax instead was neutral in the sense that only 78 per cent of investment expenditures were credited in the form of reduced taxes, the revenue from this tax would be much higher. If e.g. investments were NOK 160 billion (i.e. about 9 per cent lower than 2019, as assumed in Ministry of Finance, 2020), the extra gross revenue from this change would be NOK 21.4 billion¹⁰. The net revenue would be lower for two reasons: (i) investments are likely to be lower with a neutral tax system than with the actual system, and (ii) part of the increased net investment costs of the petroleum companies are reduced profits in government owned petroleum companies. Nevertheless, it seems plausible that the suggested change in the tax system could give a net revenue of approximately NOK 15 billion.

Table 1.10 Recommendations – discontinuing accelerated depreciation (“*overavskrivning*”) in the petroleum sector

Item	Remark
Pros	Increases economic efficiency Removes incentive to over-invest in petroleum activities.
Cons	None
Revenue potential	About NOK 15 billion
Recommendation	Should be considered as part of a package to fund the Climate Finance Mechanism

Source: Vista Analyse

⁹ The petroleum tax of 78% consists of a regular tax rate of 22% and an extra petroleum tax of 56%. With an investment expenditure of 100, the regular tax is reduced by 22. The extra petroleum tax rate of 56% is applied not only to 100, but also to a mark-up of 24% of the investment expenditure. Hence, 56% is applied to 124, giving a tax credit of 69,4 in addition to 22 from the regular tax credit. In sum, this means that 91.4% (22+69,4) of the investment expenditure is credited in the form of reduced tax.

¹⁰ 91.4-78=13.4 per cent of 160.

1.10 A climate fee on petroleum production

Norwegian petroleum tax policy emphasizes investment neutrality, which means that investment decisions that are profitable before tax should also be profitable after tax. The government strives to tie its “take” to pure profit as opposed to other indicators such as production. Leaving some pure profit from every investment decision with companies is intended to encourage companies to undertake investments that are profitable after tax in the confidence that they will also be profitable before tax.

A climate fee on petroleum production would break with investment neutrality. By slicing off a share of gross revenue from every barrel produced, a climate fee acts as if the price of petroleum is lower than it really is. Since producers would effectively face a lower price per barrel, they presumably would be interested in undertake fewer investments.

The least profitable, “marginal” investments would be dropped. For instance, if the expected income from a field is 105 and its cost is 100, this field would be marginally profitable before tax. However, if a climate fee effectively slices off 5 per cent from the price, expected income would now be just below 100, i.e., at cost, and the field would not be developed. In contrast, a field with an expected income of 110 would be profitable even after 5 per cent is sliced off by the new per-barrel fee.

From a climate perspective, it may be positive that the climate fee discourages marginal investments. For

one thing, lower oil production may contribute to lower CO₂ emissions outside Norway. Although reduced Norwegian oil production is likely to lead to increased production elsewhere in the world, total world production, and hence CO₂ emissions, would nevertheless decline. Research on this issue suggests that net global production would decline by perhaps 30-40% of the reduction in Norway (Fæhn et al., 2017, 2018). This net reduction would be a Norwegian contribution to global mitigation efforts. The fee would have a similar impact to a proposal raised recently by Norwegian scientists for producers to limit oil production (Asheim et al., 2019).

While there are differences between fields, the general tendency is that many marginally profitable Norwegian fields are found in the High North. The reason is simply that costs are higher in areas with harsher conditions and that are farther from consumption centres. Investing in petroleum in the High North is environmentally contentious, so discouraging such investment may be a bonus of the proposal for some stakeholders.

Another aspect to consider is that the future price of petroleum may turn out to be lower than the industry expects. Companies’ assumptions regarding prices are not public information, but from the outside looking in, it seems that current company price expectations assume future climate policy will be unsuccessful. However, if prices are lower than the industry expects, the marginally profitable investments

Text box 1.3 The Climate Damages Tax

The organisation, Stamp Out Poverty (2018), has suggested a “Climate Damages Tax” (CDT) to compensate for loss and damage and to help finance a “just” transition. CDT is tax on production per tonne of coal, barrel of oil, and/or cubic meter of natural gas.

The report from Stamp Out Poverty calls for nation states to collect the CDT, but to hand over the revenue to a solidarity facility for loss and damage that would be managed by the United Nations’ Green Climate Fund. Stamp Out Poverty proposes to introduce the CDT in 2021 at a rate of \$5 per tonne of CO₂-equivalent, increasing to \$250 per tonne by 2050.

The report suggests that half the revenue from CDT collected by high-income countries should contribute to the solidarity facility known as the Warsaw International Mechanism for Loss and Damage (the WIM), while the other half should contribute to a just transition at the national level. Low-income countries would keep all the revenue they generate from such a tax.

The CDT has the support of noted organisations such as Oxfam, Greenpeace, WWF and CARE, as well as a number of climate activists, including Naomi Klein.

ex ante may be unprofitable ex post. It therefore could be positive from the point of view of economic efficiency to impose a fee that dampens expectations for the price of oil and gas.

A climate fee on gross petroleum production has been proposed by NGOs under the name “Climate Damages Tax” (see Text box 1.3), though the latter has some additional features that we do not consider here.

A climate fee on petroleum production would be borne about 78 per cent by the public sector and 22 per cent by the private sector, offering a compromise between the considerations of section 1.7 and 1.8.

There are arguments for treating natural gas differently from oil. One of the main arguments is that natural gas used for heating and electricity production may substitute for less climate-friendly coal, e.g., substitution of coal for natural gas in electricity and heating has contributed significantly to lower European CO₂ emissions over the past 30 years.

In our view, a climate fee makes the most sense in a 2030 perspective if it is levied only on oil, since in that time perspective natural gas may still be needed to supplant coal. In the longer run, however, it is as-

sumed that natural gas also will need to be phased out.

If one considers that the net reduction in world oil production would be about one-third of any reduction in Norwegian oil production, each tonne reduced in Norway would reduce global emissions by about one tonne of CO₂, taking into account some increase in production elsewhere (Fæhn et al., 2017, 2018).¹¹ To find the right fee level we need to value reduced global CO₂ emissions. It is not obvious how Norway ought to value reduced global CO₂ emissions caused by reduced Norwegian oil production. One possibility would be to use the price of EU ETS quotas: This price is determined by the quota ceiling chosen by the EU, and hence implicitly reflects what value EU sets on its emission reductions.

The ETS price was about 250 kroner per tonne in 2019. However, the price is expected to increase towards 2030, as the supply of quotas is reduced. The exact price in 2030 is obviously uncertain. However, since quotas can be saved, we would expect the price increase per year to be about the same as the return on other financial assets of the same risk class. A doubling of the price from 2019 to 2030 means that the yearly increase is 6.5 per cent, which is not un-

¹¹ From footnote 5 and 6 we have 0.43×6.29 tonnes of CO₂ per standard cubic meter. From www.etooolsage.com we have 1.16 cubic meters per metric tonne of crude oil. Hence, $0.43 \times 6.29 \times 1.16 = 3.13$ tons CO₂ per metric tonne, or 1 tonne of CO₂ per approximately 1/3 tonne of crude oil. Since 1 tonne less of Norwegian oil production reduces global oil demand by 1/3 tonne, one tonne less of Norwegian production implies one tonne less of CO₂ emissions.

reasonable. We therefore consider a climate fee of NOK 500 per tonne of oil for the year 2030. With the current exchange rate this corresponds to about 57 dollars per tonne, or 7.7 dollars per barrel of oil.

Given the current oil price, a climate fee of 7.7 dollars per barrel oil would be considered by many to be very high.¹² Moreover, as an alternative to a fixed fee, one could consider a fee that increases sharply with the oil price. One could for instance consider a fee of 20 per cent of the oil price that exceeds 40 dollars per barrel. There would hence be no fee as long as the oil price is below 40 dollars. If the oil price increases to e.g. 80 dollars per barrel, such a fee would be 8 dollars per barrel.

Norway produced 70 million tonnes of oil in 2019. Production will increase in the next few years as the Johan Sverdrup field (section 1.3) gains momentum. Sometime during the next decade Norwegian oil production will start to decrease. While a climate fee probably would not negatively impact oil production in the short run, it is reasonable to expect it to dampen production in the longer term, i.e., Norwegian oil production would be lower than what it otherwise would have been. Some of the reduction in production would translate into lower global emissions. These lower global emissions would not contribute to Norwegian climate commitments, but to global mitigation. As such, it could be argued that they should count towards Norway's international mitigation obligation.

If the climate fee is 500 kroner per tonne of oil and oil production in 2030 is 70 million tonnes, the climate fee would give a revenue of NOK 35 billion in gross terms. Net additional revenue would be much lower, however, perhaps NOK 5-6 billion, because lower income would lead to lower profits and hence to lower profit-tax revenues, and also lower profits in state owned petroleum companies. With a climate fee below 500 kroner per barrel of oil the net revenue would be correspondingly lower.

Table 1.11 Recommendations – climate fee on petroleum production

Item	Remark
Pros	Motivates against marginal investments in oil production Contributes to lower CO ₂ emissions Administratively simple
Cons	Breaks with investment neutrality
Revenue potential	A climate fee of NOK 500 per tonne yields about NOK 5-6 billion in net terms
Recommendation	Should be considered as part of a package to fund the Climate Finance Mechanism

Source: Vista Analyse

¹² Note, however, that the CDT as suggested by Stamp Out Poverty (2018) is \$21.50 per barrel in 2030. The entry point is \$2.15 per barrel (\$5 per tonne of CO₂ x 0.43 tonnes of CO₂/barrel).

1.11 Discontinuing the reimbursement for exploration costs (“*leterefusjonsordningen*”)

Another aspect of the petroleum tax system is the so-called reimbursement for exploration costs (“*leterefusjonsordningen*”). According to data from the organization, Norsk Petroleum, exploration costs on the Norwegian Shelf in 2020 are expected to be NOK 29 billion.¹³ The government pays 78 per cent of this cost, partly in the form of forgone tax revenue (for companies in a position to pay tax) and partly in the form of a direct expense. If the government cancelled this reimbursement, and if exploration activities remained the same, tax revenue would increase by about NOK 23 billion. If exploration were cut in half, tax revenue would still increase by about NOK 11 billion.

If the reimbursement for exploration costs were discontinued, companies would of course face some disincentive to invest. For instance, if a company had an investment opportunity that required an investment of 100 and that generated 100 in income to society, after taxes of 78 per cent the company would be left with an income of 22. If 78 per cent of exploration expenses were reimbursed, the company’s cost would be only 22. In other words, without reimbursement such an investment would be unprofitable.

A proposal to end the reimbursement of drilling expenses has been floated for some time and has generated support among some Norwegian political parties. It has been argued that companies do not properly appreciate the downside risk of future low oil prices and low oil revenue. The future income that

a company forecasts may be lower if downside risk is “properly” taken into account. Instead of being a silent partner with a majority stake (78 percent) in all oil exploration, the argument is that government should actively incentivize companies against making marginal petroleum investments. Discontinuing the tax reimbursement for exploration would tend to target fields where income is a long way off.

Environmental concerns and impacts on the oil market are additional arguments, similar to the climate fee on gross production discussed in section 1.10.

There are also valid arguments against discontinuing the reimbursement for exploration cost. For one thing, there are arguably simpler ways of disincentivizing marginal investments, e.g., the climate fee discussed in section 1.10. Ending the tax reimbursement of exploration costs is a complex proposal, including difficult administrative questions regarding what counts as a capital investment expense and hence deductible, and what counts as an exploration expense and therefore non-deductible. The policy would disproportionately target investment prospects with high drilling costs relative to other investment costs, which is a potential disadvantage if the purpose is to discourage truly marginal investments. Moreover, it would not distinguish between oil fields and natural gas fields. For the purpose of generating climate finance, this measure is not recommended.

Table 1.12 Recommendations – discontinuing the reimbursement for exploration cost

Item	Remark
Pros	Disincentivizes marginal investments where income is a long way off.
Cons	complex way of bringing about policy objectives
Revenue potential	About NOK 11 billion
Recommendation	Will not be considered as part of a package to fund the Climate Finance Mechanism

Source: Vista Analyse

¹³ <https://www.norskpetroleum.no/okonomi/investeringer-og-driftskostnader/>



Seedlings in Yaranda, north of Burundi. Several different types of trees are planted here as a climate adaptation and mitigation measure.
Photo: Gunvor E. Jakobsen

1.12 Mechanisms and sources for funding the Climate Finance Mechanism in Norway

We conclude the chapter with a summary (Table 1.13) of our perspective on the revenue potential and overall assessment of each of the 11 measures considered.

Table 1.13 Revenue and potential of the 11 funding sources considered

Policy	Revenue potential	Overall assessment
Tax on carbon emissions + decreased subsidies	Up to NOK 30 billion, of which NOK 16 billion is fresh	Should be considered
Fee on passenger air transport	About NOK 2.5 billion at current rates	
Carbon border tax	Up to NOK 10 billion	
A global mitigation element in the VAT	NOK 17 billion per percentage point	Should be considered
A "pause" in public expenditure growth	About NOK 16.5 billion	
Revenue from new petroleum fields	Unknown	
Transfer from the oil fund	Whatever is not covered by other revenue sources	Should be considered
Increased profit tax on petroleum	Unknown, depends on increase	
Discontinuing accelerated depreciation (" <i>overavskrivning</i> ") in the petroleum sector	About NOK 15 billion	Should be considered
Climate fee on petroleum production	About NOK 5-6 billion in net terms	Should be considered
Discontinuing the reimbursement for exploration cost (" <i>leterefusjonsordningen</i> ")	About NOK 11 billion	

Source: Vista Analyse

Conclusion

We identify five policies that fully or in part may fund the Climate Finance Mechanism:

1. The tax on carbon emissions
2. Discontinuing accelerated depreciation ("*overavskrivning*") in the petroleum sector
3. A climate fee on petroleum production
4. A global mitigation element in the VAT
5. Transfer from the oil fund

In Norway there is little tradition of earmarking revenue from taxes. On the other hand, there is an expectation that proposals for new expenses should be accompanied by proposals for how to fund them from new revenue. We recommend that a balanced package be put together to finance the Climate Finance Mechanism that minimizes economic-efficiency loss while also being politically viable.

A package to cover the Climate Finance Mechanism should include the revenue from the tax on carbon emissions. If the tax on carbon emission is strengthened as a policy tool at the expense of current subsidies (e.g., electric vehicles), revenue would increase significantly compared to current levels, and economic efficiency would be improved.

The package should also include the discontinuation of accelerated depreciation ("*overavskrivning*") in the petroleum sector. Discontinuing accelerated depreciation would increase efficiency and reduce tendencies to over-invest in the sector. There are several rules in the tax law that combine to create accelerated depreciation, and the correct level of depreciation would be a matter for discussion. Based on data from the Ministry of Finance, we estimate that around NOK 15 billion may be raised by discontinuing accelerated depreciation. Some of this could be paid for by the state as an owner, though this would leave net revenue somewhat lower.

A moderate climate fee on gross oil revenue would reduce global CO₂ emissions and contribute towards Norway's mitigation obligation. A climate fee on gross

oil revenue would be a departure from the current Norwegian policy of tax neutrality in the petroleum sector, but has been endorsed by stakeholders ranging from national and international NGOs (under the name Climate Damage Tax) to renowned climate intellectuals and economists in academia. Net income from the fee could be expected to reach NOK 5-6 billion..

A global mitigation element in the VAT of one percentage point would create moderate economic distortion compared with most other tax proposals. The VAT is extremely broad-based, and even one additional percentage point would bring in a relatively high amount of revenue, e.g., about NOK 17 billion.

Combining the above four elements could create sufficient revenue space for the Climate Finance Mechanism. If a gap remains, a fifth element in the package could be revenue from the oil fund. The cost of using revenue from the fund would be borne by the future. While we recommend that the current generation generally should pay for its own priorities, it may also be argued that the fund is the consequence of past petroleum production, which has contributed to global CO₂ emissions. Diverting some of the riches from past petroleum production to address the negative impacts of that production, e.g., via the proposed Climate Finance Mechanism, therefore may be justifiable. The oil fund has recently been used to finance mitigation and adaptation to the Covid-19 crisis, but it can be argued that mitigation and adaptation to the climate crisis should be equally important.

This report has not analysed the consequences of these funding sources on income distribution and living conditions. Doing that would require detailed modelling. In any case, principles of economic planning advise division of labour among policy instruments and striving for as many policy instruments as one has policy goals.

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