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# The Norwegian Oil Fund in a Warming World: What are the Interests of Future Generations?

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## ABSTRACT

The intended beneficiaries of the Norwegian Oil Fund are current and future generations of Norwegians, with the interests of current generations served through the expenditure of revenues on public services and the interests of future generations met by increasing the value of the fund. This formulation is reexamined in light of climate change and found to be narrow and incomplete and in tension with reducing carbon emissions in line with the Paris Agreement. I argue that a collective vision encompassing the financial and non-financial interests of current and future generations is needed and highlight the role of greater public deliberation.

## KEYWORDS

Climate change; Government Pension Fund Global; Future generations

## Introduction

The Norwegian Oil Fund ('Government Pension Fund – Global') is worth over NOK 10.6 trillion (USD 1.15 USD trillion)<sup>1</sup> making it the largest sovereign wealth fund in the world (Norges Bank Investment Management [NBIM], 2020). The Fund receives revenues from oil and gas activities which are mainly invested in the global stock market.<sup>2</sup> Financial returns from the investments now outstrip revenues from extraction itself; transforming Norway, in the words of the outgoing Fund director, from an 'oil nation to an oil fund nation' (Milne, 2020).

The intended beneficiaries of the Oil Fund are current and future generations of Norwegians, with current generations' interests served through the expenditure of revenues on public services<sup>3</sup> and future generations' interests served through increasing the value of the fund<sup>4</sup>. In this article, I will examine to what extent the benefits of the Norwegian oil enterprise<sup>5</sup> – primarily the Oil Fund – are balanced with climate change and the interests of future generations. The unique contribution of this article is its critique of the grounding assumption that the Oil Enterprise serves the interests of future generations through increasing the financial value of the Oil Fund. This is achieved through a synoptic perspective integrating oil exploration, oil extraction and investment of the Oil Fund with current climate science and the mechanisms of the Paris Agreement. Since the Norwegian Government owns the oil fund, issues oil exploration licenses and directly undertakes over the majority of oil extraction through the state oil company

Equinor, this article focuses solely on the Government's responsibilities, rather than other firms which operate in Norwegian oil fields.

The main conclusion is that the implications of climate change have been incompletely considered within the Norwegian policy to date and consequently Norwegian oil wealth may not be being managed in line with the interests of future generations. Although this article focuses exclusively on the Norwegian context, the findings could be of wider relevance for fossil fuel-based sovereign wealth funds around the world (Das et al., 2010).

The article is structured in four parts. I briefly outline the institutional organization and evolution of the Oil Fund before examining how it incorporates the interests of future generations. I then consider trade-offs and link this discussion to the mechanisms of the Paris Agreement. I end by outlining the case for public deliberation to help balance the interests of future generations in Norwegian climate policy.

## The Oil Fund and the Ethical Criteria

In 1996, 25 years after Norwegian oil production first began, the Government established a sovereign wealth fund<sup>6</sup> (then called the 'Government Petroleum Fund') for oil and gas revenues,<sup>7</sup> with an initial capital investment of NOK 2 billion. Today, the Fund is overseen by the Norwegian Central Bank. To protect and increase national wealth the Fund's investors take an extremely long-term perspective with only moderate risk, in line with its mission: 'To safeguard and build financial wealth for future generations' (Norges Bank Investment Management, n.d.-b). The Fund now owns 1.5% of all globally listed companies (NBIM, 2019b) and is a leading example of natural resource wealth management.

Since 2001, spending from the oil fund has been regulated by the *Fiscal Rule* – a limit on monetary transfers from the Oil Fund to the central budget – in order to preserve its value for future generations, insulate the economy from volatility in oil prices and dampen the Dutch disease<sup>8</sup> (Ministry of Finance, 2017). Prior to the coronavirus pandemic, spending from the oil fund had been consistently below the Fiscal limit (4%) and on the recommendation of the Thøgersen Commission was lowered (to 3%) in 2017 with cross-party consensus (Ministry of Finance, 2020).

For the last 5 years, annual returns on Oil Fund investments have exceeded profits from the sale of oil and gas; today, the value of the fund is more than double the total projected oil and gas revenue (NBIM, 2019c). Norges Bank described this situation in their annual report: 'The return on the investments in global financial markets has been so high that it can be compared to having discovered oil again' (NBIM, 2020)

The Oil Fund has been effectively depoliticized through its administrative and organizational structure. The Government Petroleum Fund was renamed the *Government Pension Fund-Global* in 2006 and placed under the Government Pension Fund umbrella.<sup>9</sup> Despite Norway having an aging population with rising pension liabilities (Cabazon & Henn, 2018), the Oil Fund neither operates like a pension fund nor has any specific pension obligations (Cumming et al., 2017, pp. 462–463). The rationale is to maintain a fund which is rising in value and yet largely off limits (Gagnon, 2018; Thøgersen, 2015). This dynamic is reinforced by a fragmented institutional structure: oil exploration and extraction, overseen by the Ministry of Oil and Energy – focusing on generating jobs, energy security and financial revenue – are detached from the investment of the returns, undertaken by Norwegian Bank Investment Management (NBIM),

under a mandate of the Ministry of Finance – which focus on profit maximization (Ministry of Finance, 2012).

The Fund has acknowledged the need to balance profit maximization and other ethical concerns since its inception (Ministry of Industry, 1971). Responsibility not only to future generations of Norwegians but also to current generations beyond Norway was formalized with the establishment of the Council on Ethics in 2004, on the recommendation of the Graver Committee (Ministry of Finance, 2019c; Reiche, 2010). The Graver Committee advised a combination of active shareholder ownership and exclusion criteria to reduce grossly unethical holdings, and a focus on long-term investments to benefit future generations (Graver Committee, 2003), stimulating wide-ranging debate ever since. This includes arguments for a stricter exclusionary policy (Alm, 2013), greater redistribution of wealth in line with the interests of global justice (Armstrong, 2013), a more proactive investment approach (Sjåfjell et al., 2017), the specific responsibilities of the Norwegian government as an institutional investor (Alm, 2013; Follesdal, 2011) and strategic investments in climate change mitigation (Reiche, 2010).

Significant effort has been invested in reviewing the Fund's ethical guidelines over the last 15 years; however, considerably less attention has been given to the more fundamental questions – and assumptions – upon which they are based. Most recently, the Mestad Committee which was tasked with reviewing the ethical criteria of the Oil Fund concluded that the twin goals of pursuing the highest return at an acceptable risk and excluding grossly unethical investments should remain in place as these 'balance the aspects that it is reasonable to assume the people of Norway wish the Fund to take into account' (Mestad, 2020). This article sets out to test these foundations. Namely, given the nature of the threat posed by climate change,<sup>10</sup> both in terms of time (i.e. the relationship between action in this decade with consequences in the next century) and effects (i.e. the risk of potentially catastrophic impacts), is the Norwegian Oil Enterprise still fulfilling its own stated mission to serve the interests of future generations? To begin I will consider in greater detail how future generations are incorporated into Norwegian oil policy and discuss the government's approach to meeting their interests.

## Future Generations in Norwegian Climate Policy

First, consider the term 'future generations' – an evocative but imprecise term which can be used synonymously to refer to the next 50 years or 500 years.<sup>11</sup> Future generations are not defined in Norwegian oil policy, but this clearly takes a long-term perspective beyond the next few decades. The CEO Yngve Slyngstad states in his forward to the Norges Bank Annual Report that: 'This wealth belongs to our grandchildren and their grandchildren again' (NBIM, 2020). Even taken at face value, a 30 year old in Norway today can expect to live to 2080 and her grandchildren's grandchildren well into the 23<sup>rd</sup> century – a timeframe coinciding with major climate impacts (Intergovernmental Panel on Climate Change, 2014). Given the urgent action needed to minimize greenhouse gas emissions in order to limit global temperature rise (Hoegh-Guldberg et al., 2018), I work from the premise that decisions made today have climate implications which affect the interests of future generations.

Starting with the ‘Ten Oil Commandments’ – the Government’s 1971 white paper to ensure oil wealth benefits all of society, including the protection of nature and the environment, and ‘demonstrates responsibility for poorer countries’ (Ministry of Industry, 1971) – future generations have been central to the underlying rationale of the oil enterprise. This includes Government legislation, the Petroleum Directorate, and the Oil Fund itself:

“A sound long-term management of the Fund contributes to intergenerational equity, by allowing both current and future generations to benefit from the petroleum revenues”.

**Government Pension Fund report to Parliament, 2019** (Ministry of Finance, 2019b, p. 20)

“The sovereign wealth fund is intended to be managed so that Norway’s petroleum wealth benefits future generations”

**Norwegian Petroleum Directorate** (Petroleum Directorate, 2020)

“Our mission is to safeguard and build financial wealth for future generations”

**Norges Bank Investment Fund Strategy (2020-2022)** (Norges Bank Investment Management, 2019a)

“The savings shall facilitate spending of government petroleum revenues that reflects long-term considerations, thus ensuring that the petroleum wealth benefits both current and future generations”

**Act relating to the Government Pension Fund, 2020** (Government of Norway, 2020)

Varying terminology (‘equity’, ‘benefit’, ‘safeguard’) reflects different perspectives on the shape these interests take; however, there is consensus that ‘future generations’ of Norwegians are a key intended beneficiary (if not *the* intended beneficiary). The degree of consensus is underscored by the 2015 Thøgersen Commission, tasked with reviewing the Fiscal Rule, which described the accumulation of wealth for future generations as giving the fiscal policy ‘a kind of moral anchor’ (Thøgersen, 2015). Of note, the Thøgersen Commission did not consider whether the accumulation of wealth built on fossil fuel extraction is justifiable from the perspective of future generations. The State petroleum company Equinor<sup>12</sup> has since used this rationale (i.e. the interests of future generations are served through greater wealth) to justify increasing oil exploration under the Arctic sea ice, which is receding due to climate change (Equinor, 2020).

Within Norwegian oil policy, the discussion of the competing interests – at its simplest, the benefits of a high-net worth oil fund and drawbacks of a warming world – are scant. Given the potentially far-reaching impacts of climate change even at relatively low levels of warming (Hoegh-Guldberg et al., 2018), a more thorough analysis of the interests of future generations and the potential impact of different courses of action is required.

## Trade-offs

Weighing up trade-offs hinges on a basic conception of the interests of current and future generations. In 2003, the Graver Commission discussed the notion that ethical priorities could come into conflict, including specifically the wish to safeguard the financial interests of future generations and the ethical considerations toward the natural environment;

however, they did not appear to foresee a situation where these would be actually be in conflict (Graver Committee, 2003, p. 53; Ministry of Finance, 2019c). The conceptual boundaries placed on the ethical obligations of the Oil Fund were spatial – there is no special obligation to solve world poverty – not temporal, and therefore of relevance to future generations of Norwegians. The Graver Commission did, however, emphasize inherent uncertainty and the need for ethical guidelines to reflect current ethical norms which are both supported by Norwegian society and in keeping with international agreements ratified or endorsed by the government (Ministry of Finance, 2019c). The Paris Agreement, an international, legally binding treaty to limit global warming through reducing carbon emissions which has been ratified by 190 countries, including Norway, will therefore be considered in greater detail in the final part of this paper.

Over the last two decades, numerous reports, committees and commissions have explored ethics relating to the Oil Enterprise and one may wonder why this issue – if important – has not merited close scrutiny. One reason may be the institutionalized detachment of fossil fuel and climate change in Norwegian policy discourse. The Skancke Commission on Climate Risks (Skancke Commission, 2018), for example, examined the resilience of new oil fields to the physical risks of climate change, while the contribution of oil activities to global climate change was outside the Commission's remit.<sup>13</sup> Similarly, the Norwegian Climate Change Act (Government of Norway, 2018), outlined a plan to reach 'net-zero' carbon emissions (through overseas carbon offsets) while simultaneously issuing a record number of oil exploration licenses and pursuing the longstanding goal to 'extract every profitable barrel' (Petroleum Directorate, 2019). And even while the Oil Fund itself has begun incorporating climate change into its ethical investment policy (Council on Ethics, 2019) and has increased investments in renewable energy infrastructure<sup>14</sup> (Ministry of Finance, 2019b), the stated rationale for reducing stocks in fossil fuel companies is long-term financial reasons, and specifically not the climate (Ministry of Finance, 2019a).

Financial resources clearly have important instrumental value in enabling people, both today and in the future, to meet their interests. There is also a risk of conflating money (i.e. financial inheritance) with things of value (i.e. a *balance* of financial inheritance and other interests, such as a healthy environment) (Sandel, 2012; World Commission on Environment and Development, 1987) without considering the interests of future generations. Given the narrowing time window to mitigate carbon emissions, a better conceptualization of future generations' interests could help inform the relative value of immediate action versus delayed action, i.e. wait until Norwegian oil reserves are depleted and the Oil Fund has grown further still, or take urgent action now to help mitigate climate change and risk reducing its size?

Precisely which balance should be struck today is beyond the scope of this article, however, depending on the magnitude of climate impacts and the risk aversion (both of current generations *for* future generations and of future generations themselves<sup>15</sup>), then serving current and future generation interests could be consistent with major shifts in the Oil Enterprise. Examples of the options open to politicians and policy-makers include ending oil exploration, phasing out of oil extraction activities, or undertaking strategic investments from the Oil Fund seeking to mitigate global climate change. It is well understood that effective climate policy risks reducing the value of the remaining petroleum reserves (Skancke Commission, 2018). This reflects the fact that all investments,

whether in a bank, the stock market, or the oil industry – or even leaving oil in the ground – represent different forms of saving for the future.

One challenge to this position is that even with several degrees of global warming future generations in Norway are likely to be better off than people alive today (Arrow et al., 2013; Wesley & Peterson, 1993). The *sacrifice discourse* (i.e. what sacrifices should current generations undertake in the interests of future generations?) has shaped much of the political discourse on the relative urgency of tackling climate change, most notably the Stern–Nordhaus debate on discounting climate change (Piketty, 2017, pp. 740–742). However, this framing is not directly applicable to the Norwegian context where the Oil Fund has the stated intention of saving funds to serve the interests of future generations. If anything, instead of saving too little for future generations, the government has been accused of saving too much (Gagnon, 2018).

Another objection could be the wealth trajectory of the oil fund. If returns on the fund continue to match or outstrip spending, then the oil resource will become a perpetual source of income benefitting future generations into the far future (Hartwick, 1977). The Oil Fund may have already breached the critical threshold (Qvigstad, 2011, p. 11); however, this does not, in itself, resolve the intergenerational equity problem. Balancing the multiple interests of future generations – including (1) future generations have an interest in avoiding climate change, especially catastrophic levels of warming, and (2) future generations would benefit from perpetual returns on Oil Fund wealth – requires being explicit about the values involved. The relative merit of different courses of action closely reflect the time horizon, risk aversion and discount rate policy-makers use, which impact the relative costs and benefits of climate mitigation today and climate adaptation in the future.

A further objection could be that Norway extracts the oil but exports it to other countries and it cannot be held responsible for market forces. Due to the global nature of the fossil fuel industry and indefatigable demand, any reductions in production in one setting would lead to increases elsewhere and so there is no point in fossil fuel companies reducing extraction. This is especially relevant to Norway, which has amongst the least carbon-intensive oil extraction processes in the world (albeit with higher efficiency the greater the volume of production) (Gavenas et al., 2015). The Norwegian National Statistics Bureau, Statistics Norway, explored the supply-demand question in a report on carbon leakage,<sup>16</sup> concluding: ‘the majority of emission reductions should come through supply side measures, i.e. by downscaling Norwegian oil extraction’ (Fæhn et al., 2013). Their rationale was that a reduction in supply could achieve the same global emission reductions at a lower cost than implementing demand side measures; therefore, an optimal policy would combine both.

Building on the work of Henry Shue, Grasso and Vladimirova (2020) develop the ethical duty of highly polluting fossil fuel companies (‘carbon majors’) to decarbonize – either through ceasing operations or shifting to zero carbon products. This is based on carbon majors’ responsibility to reduce and rectify the harm done through their activities. Unlike many fossil fuel companies, Norway acknowledges it has a special responsibility to reduce carbon emissions and has attempted to decarbonize its oil sector before. In 2007, then Prime Minister Jens Stoltenberg’s famously set out a plan to traverse the green oil paradox through a combination of climate financing abroad, and technology-led low-carbon development with large-scale carbon capture and storage (CCS) – what he called Norway’s ‘moon landing’ – at home (Stoltenberg, 2007).

CCS failed to take off, though it has recently been re-launched (Norwegian Ministry of Petroleum and Energy, 2020), while oil exploration and extraction continue at scale (Sølvberg, 2020). Grasso and Vladimirova (2020) distinguish a ‘Sudden End’, involving the immediate ending of fossil fuel activities, from a ‘Just Transition’, with different ways of phasing out and discuss the costs and benefits of each. A sudden end may jeopardize the ability of carbon majors to pay reparations, as well as impacting the lives and livelihoods of shareholders and employees – as a state oil producer, this is an important concern for the Norwegian government – whereas a Just Transition may better facilitate the duty of reparation. Building the Oil Fund for the benefit of future generations does not alleviate the duty to decarbonize or the duty of reparations. On the contrary, given the known harms of carbon emissions, it is better categorized as a tainted benefit requiring present and future rectifications (Grasso & Vladimirova, 2020).

So far, I have highlighted the intertwined relationship between oil enterprise activities, the narrow incorporation of the interests of future generations within it and some of the trade-offs involved in a transition away from fossil fuels. In the next section, I will locate this discussion within the mechanisms of the Paris Agreement, widely considered to be the best chance of delivering on the ambition to limit warming and avoid potentially catastrophic climatic change (Nasiritousi & Bäckstrand, 2019, p. 41).

## National Action, Global Impact

The Paris Agreement operates under a ‘polycentric governance’ model based on the idea that only mutual trust, gained in part through independently setting meaningful targets, can garner the global collective action to tackle climate change (Ostrom, 2010). Signatories to the Paris Agreement – which pledged to keep global temperature rise below 2°C and pursue efforts to limit temperature increase to below 1.5°C – are encouraged, rather than mandated, to act in the collective interest. The inherent danger of this approach is that the pursuit of self-interest by one – such as through refusal to uphold pledges, falsifying records, gaming the system or withdrawing from the agreement altogether – undermines the common interest for all (Hoegh-Guldberg et al., 2018). The sincerity and dedication with which Norway pursues domestic decarbonization and the global goal of mitigating catastrophic climate change therefore has far-reaching ramifications.

At present, the cumulative impact of countries national determined contributions – often self-reported as ‘fair and ambitious’ – is far off the total emissions reductions required in line with the Paris Agreement (Anderson et al., 2020; Kerry, 2021; du Pont et al., 2017). Meeting the Agreement requires leaving the vast majority of known fossil fuel reserves in the ground. These so-called *stranded assets* have been described as a 20 trillion dollar ‘carbon bubble’ (Carrington, 2019), presenting a looming threat to the global economy. Norway remains a champion of the Paris Agreement and has recently divested the Oil Fund from fossil fuels. With regards to its own fossil fuel reserves, policy-makers have tacitly decided that Norway is not going to be the one left stranded. Yet, equity considerations are crucial to ensuring developmental priorities are met in a just decarbonization transition (Grasso & Vladimirova, 2020), especially with regarding to fossil fuel extraction in low-income countries (Kantha et al., 2018).

A related issue is then whether committing to the Paris agreement and the actions this entail solves the collective action problem. Rather than a top-down, binding



internationally agreed solution, the Paris Agreement is a framework requiring countries to determine their own 'fair share' in the form of regular Nationally Determined Contributions (NDCs). It has been termed the 'Goldilocks solution' – 'neither too strong (and hence unacceptable to key states) nor too weak (and hence ineffective)' (Bodansky, 2016). Currently, Norway's self-declared 'fair share', which focuses solely on domestic emissions and not exported emissions, is not considered by the Climate Action Tracker research consortia to be in line with limiting global temperatures to below 1.5–2°C 'unless other countries make much deeper reductions and comparably greater effort' (Climate Action Tracker, 2020).

There are different ethical principles to conceptualize 'fair shares' and how to divide the costs of climate action, including polluter pays, beneficiary pays and ability to pay (Caney, 2014). Establishing distribution principles is especially relevant given the unmet human development and energy needs across much of the world, which, if met, could use a large amount of the remaining carbon budgets (Lamb & Rao, 2015). This problem is enshrined in the 1992 United Nations Framework Convention on Climate Change (UNFCCC) guiding principle of 'common but differentiated responsibilities and respective capabilities' which was reaffirmed in the Paris Agreement (United Nations, 2015).

While there is no agreed formula to distribute the costs of effective climate mitigation, researchers have started to quantitatively examine responsibility, capability and 'fair shares' through the use of carbon budgets (Hickel, 2020; Holz et al., 2018). For example, Holz et al. (2018) have developed a 'Climate Equity Reference Calculator' which combines a country's cumulative emissions ('historical responsibility') and income ('capability to act'). Their work highlights the mitigation burden of high-income, high-capacity, high-responsibility countries, like Norway, in the context of finite carbon budgets and the need for a more transparent and consistent approach to establishing national fair shares in line with carbon budgets (Holz et al., 2018).

The International Panel on Climate Change estimated in 2018 that the carbon budget to retain a two in three chance of limiting global temperature rise below 1.5°C – a target the Norwegian government<sup>17</sup> supports (Det Kongelige Klima og Miljødepartement, 2021) and which has growing international political<sup>18</sup> (Kerry, 2021) and scientific support (Hoegh-Guldberg et al., 2018; NASA, 2019) – was 420 GtCO<sub>2</sub>e (Hoegh-Guldberg et al., 2018, p. 96). Around 290 GtCO<sub>2</sub>e remain and at current rates the budget will be exhausted in 7 years (Mercator Research Institute on Global Commons and Climate Change, 2021).

Norway is a small country of 5.3 million people, comprising only 0.07% of the global population (World Bank, n.d.): surely, the argument follows, any contributions Norway can make to overall emissions reductions through its own actions or setting a good example are marginal at best? Between 1991 and 2014, Norway exported 16 billion barrels of oil which, when used, emitted 8 gigatonnes of carbon dioxide-equivalents (GtCO<sub>2</sub>e) (Biello, 2014) – ten times the country's total domestic emissions and 0.52% of global emissions over this period (Asheim et al., 2019).

Today, half of the oil reserves in the Norwegian continental shelf remain, and major investments in exploration continue, while extraction is accelerating (Sølvberg, 2020). Although equity holdings in the entire Oil Fund<sup>19</sup> are estimated to be around 0.1GtCO<sub>2</sub>e in 2018 (Norges Bank Investment Management, 2019d), the Petroleum Directorate projects the extraction of 1.4–1.6 billion barrels of oil equivalents per year

across the next decade, emitting around 7.5 GtCO<sub>2</sub>e (Sølvberg, 2021). This represents 2.6% of the remaining 1.5°C carbon budget, far exceeding any projected emission reductions from greening of oil and gas operations (Sølvberg, 2021), increase in Carbon Capture and Storage (CCS)<sup>20</sup> capacity (Norwegian Ministry of Petroleum and Energy, 2020) or even low-carbon ambitions for the domestic economy as a whole (Det Kongelige Klima og Miljødepartement, 2021). This reflects the broader discrepancy between current emission pathways and the reductions needed to meet the Paris Agreement's 1.5–2°C commitment, even in so-called 'climate progressive' nations (Anderson et al., 2020).

## The Case for Public Deliberation

Thirty years ago, the Tempo Commission explored a range of options for managing Norwegian oil wealth, including whether oil left in the ground would be a better store of value for future generations than the financial returns of extracting the resource and investing the returns (Tempo Committee, 1983). The idea rested on the assumption that future generations would extract it later, hence the problem was economic, rather than social or ecological. In light of climate change, this question – could oil in the ground be a better store of value for future generations? – has a renewed force. The institutional and financial arrangements separating oil exploration, oil extraction, Oil Fund investments and public spending of revenues may have achieved a political stalemate, however, drilling for oil, championing the Paris Agreement and building the oil fund – all in the name of future generations – are increasingly in tension with the equitable distribution of finite carbon budgets.

Across the political divide there is agreement on the importance of climate change and high levels of public concern; however, no major national political party in Norway is currently advocating a significant shift away from fossil fuel dependence (Berg, 2020). This is reflected in the 2019 Government Pension Fund report, which states: 'there is a broad consensus that the Fund shall not be used as a [...] climate policy tool' (Norges Bank Investment Management, 2020). The divergence between concern and action may reflect what Stephen Gardiner calls 'moral corruption' (Gardiner, 2006); the selective attention to certain considerations, some of the time, while ignoring difficult aspects of the issue or emphasizing aspects which make action impossible – or even highlighting aspects which make it desirable.<sup>21</sup> The appeal to future generations could be one such example, which detracts from the underlying issue of needing to leave the majority of known oil reserves in the ground, overlooks the equity dimension of decarbonization transition and obscures the underlying self-interest of those holding power in profit maximization and high-paying jobs (Adomaitis, 2019).

While policy-makers have not considered the Oil Fund to be a tool of climate policy, this is not for policy-makers alone to decide. Responsibility for the direction of the Oil Fund is clearly stated in the fund's strategy: the Ministry of Finance decides the investment strategy, with oversight from parliament, but ultimately 'the fund is owned by the Norwegian people' (Norges Bank Investment Management, 2019a). Ownership denotes not only a share of the profits but also a share of responsibility. Nourishing a debate that

engages the public and captures the trade-offs involved requires, at a minimum, a menu of options facing policy-makers and some form of public deliberation.

A wide range of methods for public participation have been described, each with different strengths and weaknesses (Rowe & Frewer, 2005). Public deliberation is in part about the issues – what do an informed, representative group of the population think after careful consideration of a given issue? It is equally about credibility, transparency and legitimacy in policy making (Fournier et al., 2011). An example of a method which has recently been used to support policy-makers navigate complex climate issues is the citizen panel (Hügel & Davies, 2020), reflecting the experience that members of the public can – given the appropriate resources, time and facilitation – contribute to challenging policy decision-making.

Further empirical work to understand the costs and benefits of specific policy actions such as ceasing oil exploration and extraction, and direct pro-climate investments from the Oil Fund to spur the low carbon transition, together with clarity on the normative dimensions of future generations (i.e. ‘who are being referred to?, what are their interests?’) will help policy-makers navigate the trade-offs they face.

## Conclusion

Since first discovering oil, Norwegian policy-makers have faced a series of trade-offs and value judgments; first, to avoid the ‘resource curse’<sup>22</sup> and then to ensure the wealth benefits society in the long term. Norway has traditionally been considered an exemplar of effective oil management; however, climate change has put this reputation on trial. This paper set out to explore how the interests of future generations, an intended beneficiary of the Oil Fund, are incorporated into Norwegian oil policy. It is evident that a guiding premise of the Oil Fund – maximizing the financial value is in the best interests of future generations – has not been seriously reexamined in light of climate change. Nationwide deliberation with the public – the owners of the Oil Fund – could support policy-makers detoxify an often polarizing political issue, lend decision makers valuable popular legitimacy and help determine Norway’s fair share under the Paris Agreement. As global temperatures rise, Arctic sea ice recedes and oil exploration continues apace, it is time to collectively pause and ask: whose interests are the growing Oil Fund serving?

## Notes

1. NOK 10,6 trillion = USD \$1.15 trillion, based on Norges Bank exchange rates on 5 October 2020. Further monetary values will be given in Norwegian Krone only.
2. Investment areas are equity investments (up to 70%), real estate (up to 7%) and fixed-income bonds (up to 30%) (Norges Bank Investment Management, n.d.-a)
3. Currently around 20% (Norges Bank Investment Management, 2019b)
4. ‘The objective of ensuring that future generations also benefit from Norway’s petroleum wealth is met by spending the expected real return on the Fund while leaving the principal untouched.’ (Thøgersen, 2015)
5. Used as shorthand in this paper for oil exploration, oil extraction and investment of the Oil Fund.

6. The Norwegian Sovereign Wealth Fund goes by several names – ‘Oil Fund’, ‘Sovereign wealth fund’, ‘Petroleum Oil Fund’, ‘Pension Fund’, ‘Norwegian Pension Fund – Global’. I will generally use ‘Oil Fund’ or ‘The Fund’ in line with common usage (see <https://www.nbim.no/>).
7. Government revenues refer to petroleum taxes, carbon tax, the State’s Direct Financial Interest (government owned exploration and production licenses), royalties and area fees, and Equinor dividends (Petroleum Directorate, n.d.)
8. The Dutch Disease refers to the phenomenon in which finding and exporting natural resources leads to structural change in the economy with over dependency on a finite commodity.
9. The Government Pension Fund includes the Government Pension Fund – Norway (‘Folketrygdfondet’), a smaller fund which invests in is tasked with investing in the Nordic region
10. The potential future impacts of climate change have been extensively documented by the International Panel on Climate Change, government and numerous academic consortia. For the purposes of this article and in line with the Paris Agreement I assume that global carbon emissions must rapidly decrease in order to reduce the risk of potentially catastrophic warming, which would have major impacts on future generations.
11. With a complex range of implications out with the scope of this article. For an overview of these issues, see Parfit (1982)
12. The state oil company ‘Statoil’ was re-named Equinor in 2018
13. ‘These are issues that cannot be resolved from a purely economic theory or risk theory perspective, and therefore fall outside the scope of the discussions and recommendations of the Commission’ (Skancke Commission, 2018).
14. Capped at 2%.
15. If we intend to serve the interests of future generations rather than compensate them, this perspective is necessary.
16. An increase in carbon emissions in one country due to a reduction of emissions by another country with stricter climate policies.
17. ‘We do not have time to lose. In order to limit global warming to 1.5 °C, global CO<sub>2</sub> emissions must be reduced by 40–50% by 2030. In order to achieve the targets in the Paris Agreement, it is necessary for several of the major emission countries to strengthen their national targets under the agreement’ (Det Kongelige Klima og Miljødepartement, 2021).
18. ‘Now without question, I think everyone understands this, the best adaptation is to treat the crisis as the emergency that it is and do more to hold the Earth’s temperature increase to the Paris’ stated 1.5 degrees. I think that scientists more and more are landing on the 1.5 as a critical figure.’ John Kerry, Special Presidential Envoy for Climate, 25 January 2021
19. Whether equity holdings in the Oil Fund should be included in Norway’s national emissions is out with the scope of this article.
20. The Petroleum Directorate has estimated that around 1.25 billion tonnes of CO<sub>2</sub> can be effectively and safely stored in the Norwegian continental shelf, with 1.5 million tonnes of CO<sub>2</sub> per year from 2024 (Norwegian Ministry of Petroleum and Energy, 2020).
21. For example, Equinor states on there website: ‘Our analyses indicate that the world will need significant amounts of oil and gas even in the two-degree scenario, the global climate target. Oil and gas in volumes equivalent to the volumes produced today will also be necessary in 2040. Production from current fields is falling every year. This means that the world must find and put into production as many as 50–60 million new barrels in 2040. This is the equivalent of five times the current production of Saudi Arabia, or 100 new Johan Sverdrup fields’ (Equinor, n.d.).
22. The negative impacts of natural resource wealth on economic growth – for a broader discussion in relation to the Norwegian experience see (Larsen, 2004)

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