

# Why and How the Oil fund should invest in unlisted renewable infrastructure at scale

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# Content

Executive Summary	3 -
1: Introduction	5 -
Climate change is upon us	5 -
Present commitments and funding fall short	5 -
This creates business opportunities for investors in renewables	6 -
Technological developments and policy changes create big risks for fossil fuels	6 -
All of these developments have a direct impact on Norway's Oil Fund	7 -
2: The case for the Oil Fund divesting from oil and gas	9 -
The Norwegian economy is heavily overexposed to the oil and gas sector	9 -
Norway also has a very large financial exposure to the price of oil	9 -
The importance and urgency of divestment cannot be overstated	11 -
Addressing the points raised by the expert group against divestment	11 -
3: The case for investing in unlisted renewable infrastructure	14 -
Why NBIM ought to invest in renewable energy	14 -
The diversification case	14 -
The performance case	16 -
The ethical case	16 -
The opportunity case	16 -
Why NBIM should invest in unlisted infrastructure	18 -
Why unlisted renewable infrastructure is a particularly attractive investment	19 -
4: How NBIM should make unlisted renewable investments	22 -
Environmental mandate vs. the real estate mandate template	22 -
	22 -
How big should the unlisted renewable infrastructure mandate be?	. 22 .
How big should the unlisted renewable infrastructure mandate be?	23 -
How big should the unlisted renewable infrastructure mandate be? How should the management of these investments be structured? What approach should be taken to Risk Management?	23 -
How big should the unlisted renewable infrastructure mandate be? How should the management of these investments be structured? What approach should be taken to Risk Management? Which countries should NBIM invest in?	23 - 24 - 25 -
How big should the unlisted renewable infrastructure mandate be? How should the management of these investments be structured? What approach should be taken to Risk Management? Which countries should NBIM invest in? How should the decision processes work?	23 - 24 - 25 - 27 -
How big should the unlisted renewable infrastructure mandate be? How should the management of these investments be structured? What approach should be taken to Risk Management? Which countries should NBIM invest in? How should the decision processes work? How will NBIM ensure transparency in its unlisted investments?	23 - 24 - 25 - 27 - 27 -
How big should the unlisted renewable infrastructure mandate be? How should the management of these investments be structured? What approach should be taken to Risk Management? Which countries should NBIM invest in? How should the decision processes work? How will NBIM ensure transparency in its unlisted investments? How should NBIM approach partnerships?	23 - 24 - 25 - 27 - 27 - 28 -



### **Executive Summary**

#### The challenge of climate change

Climate change is the greatest challenge that humankind faces. The faster the deployment of renewables to replace fossil fuels, the greater the likelihood of limiting warming and the negative consequences of climate change.

#### A case for divesting from oil and gas

Norway is both economically and financially heavily overexposed to oil and gas. This over-reliance poses great danger for the Norwegian economy in the future, especially with rising pressures to tackle climate change and to minimize the use of fossil fuels. Recognising this imminent danger, in 2017 NBIM decided to recommend divestment from oil and gas stocks in opposition to the position of the Finance Ministry.

The expert group set up by the government to consider NBIM's proposal did not fundamentally disagree with NBIM's analysis but proposed that there were other policy instruments that may have a much bigger impact on diversifying oil risk. That is not wrong, but such measures are absent and not even on the political horizon. NBIM's divestment is a good second-best option, as we show again in this report.

#### NBIM should be allowed to invest 5 % in renewable energy infrastructure

One policy measure through which NBIM could further reduce the excessive fossil fuel risk it is exposed to, is to deploy the money freed up from divestment in renewable infrastructure investments. This sector has been shown to be the only one that performs well under various climate change scenarios, even as fossil fuel investments suffer badly. Such a strategy would thus be good for diversification.

Investments in renewable infrastructure present a unique mix of opportunities for investors, and NBIM itself has made the case for being allowed to invest in infrastructure several times, starting in 2006, and most recently in 2016. Renewable energy investments, in particular, offer remarkable long-term growth potential, which has low correlation to other asset classes, while offering enhanced risk-adjusted returns. They also provide stable cash flows and meaningful dividend yields.

Many of NBIM's peers already have infrastructure allocations of between 5% and 15% of their portfolios. The Parliament majority has suggested that an opening for renewable infrastructure should be within the so-called environmental mandate. This mandate is small today, less than 1% of the fund. We show why this should be expanded to at least 5% of the fund, for it to be in line with what NBIM itself and the expert group on infrastructure have both suggested, and for this mandate to make any real impact on the Fund itself.



#### Opening up for emerging economies

NBIM has suggested restricting initial investments to developed economies. The bulk of these opportunities will however come from emerging economies. A better approach would therefore be to allow NBIM to invest in all of the 78 markets that it can make listed investments in today. This would also reflect the reality that in non-OECD countries power sector investment, including renewables, has been driven mainly by the need to meet fast-rising electricity demand, and no longer need subsidies that creates a political risk in established markets.

Investing alongside Development Finance Institutions and multilateral banks carries the added advantage of the possibility of risk mitigation, deep local expertise and sector knowledge that NBIM lacks, and even the possibility of partial political risk insurance. Such investments would also offer additional diversification benefits in emerging economies for an investor such as NBIM that is heavily concentrated in slow growth, developed economies.

The fear of reputational risk can be dealt with by only investing in brownfield projects where risks from the construction phase have already been dealt with, in countries where this is considered a challenge. The mechanics of turnkey greenfield solar and wind projects are so well-established by now though that greenfield investments should not pose serious reputational or other risks in most countries.

#### Renewable Investments should be executed by a new subsidiary

The present environmental mandate focuses on listed equities and green bonds, which requires a very different skill set, institutional set up, human capacity and risk management approach compared to what will be needed for managing unlisted infrastructure. We therefore suggest that NBIM should set up a new subsidiary, modelled roughly on its real estate subsidiary NBREM, Norges Bank Real Estate Management and its protocols. Much of the legal, back-office and other expertise can be shared between NBREM and an "NRIM", "Norwegian Renewable Investment Management". This would help keeping costs low.

It may be easier for NBIM to make its first infrastructure investments together with other organizations rather than just on its own account. A sensible option would be to invest together with a knowledgeable partner and project developer, or institutions such as multilateral or regional development banks or national infrastructure banks that have experience and expertise in such investments. NBIM's approach to risk management should combine concrete investment restrictions, thorough due diligence ahead of investments, and continuous follow-up. Broadly speaking, this can mirror the investment process used for investments in unlisted real estate.



# 1: Introduction

#### Climate change is upon us

Climate change is happening apace. Year 2017 saw some of the highest average surface temperatures ever recorded, and it was the second-warmest year since reliable recordkeeping began in 1880, trailing only 2016<sup>1</sup>. Seventeen of the eighteen warmest years since record-keeping began have occurred since 2001.

Global warming and extreme weather is set to get much worse as the temperature keeps rising, which is why the Paris commitment to "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C" is so important. The difference between 1.5 and 2 degree warming on crop yields, floods, extreme heat, sea levels and droughts is very significant, and 2 degrees could be much worse than our models predict<sup>2</sup>. As the most recent IPCC report shows, the 1.5 degree and the 2 degree scenarios are a "world apart", with many of the worst effects of climate change at least twice as worse in the latter<sup>3</sup>.

#### Present commitments and funding fall short

However, current nationally determined commitments fall far short of even the 2 °C scenario. Even if all countries meet their non-binding targets they have pledged to, some projections estimate global temperatures could still rise by more than 3 °C, and possibly by over 4 °C. This would have a devastating effect on the planet, raising sea levels as much as 1.5 metres, putting cities like Amsterdam and New York under water and causing widespread famine<sup>4</sup>.

The faster the deployment of renewables to replace fossil fuels, the greater the likelihood of staying under the 2°C limit, but the evidence is not too encouraging. The world is lagging behind on all renewables with Solar PV the only renewable technology on track to meet Sustainable Development Scenario targets with record-level new deployment in 2017<sup>5</sup>. Net annual capacity additions for all renewables must increase over 2017-30, while the share of renewables in global electricity generation must reach 47% by 2030, from 25% in 2017.

To meet the 1.5-degree target, wherein emissions will need to fall to less than half of today's levels already by 2030, and to zero by 2050, the investments in renewables will need to go much faster<sup>6</sup>.

According to the World Business Council for Sustainable Development, reaching the Paris goal will require investing an additional \$1 trillion per year until 2050 in clean energy and other sustainability projects. Yet current investment levels are still far below that target level<sup>7</sup>.

<sup>2</sup> https://www.vox.com/energy-and-environment/2018/1/19/16908402/global-warming-2-degrees-climate-change

<sup>&</sup>lt;sup>1</sup> <u>https://www.nytimes.com/interactive/2018/01/18/climate/hottest-year-2017.html</u>

<sup>&</sup>lt;sup>3</sup> https://www.wri.org/blog/2018/10/half-degree-and-world-apart-difference-climate-impacts-between-15-c-and-2-c-warming

<sup>&</sup>lt;sup>4</sup> https://www.independent.co.uk/environment/climate-change-model-scenario-rcp85-global-warming-illinios-study-a8353346.html <sup>5</sup> <u>http://www.iea.org/tcep/power/renewables/</u>

<sup>&</sup>lt;sup>6</sup> https://www.wri.org/blog/2018/10/8-things-you-need-know-about-ipcc-15-c-report

<sup>&</sup>lt;sup>7</sup> https://www.wbcsd.org/Overview/Resources/General/Bridging-the-gap



#### This creates business opportunities for investors in renewables

The renewable-energy sector can already rely on proven technologies such as wind and solar power, as well as on a stable market framework. These technologies present strong business opportunities and "will attract up to 60% of the projected \$11.4 trillion that Bloomberg New Energy Finance estimates will be invested in global power generation by 2040, yielding strong growth and profitability along the way<sup>8</sup>".

It is not just the amount of investments that matter, but also where they happen. Energy needs are most acute in developing and emerging economies. This may take companies and investors alike out of their comfort zone, but according to the WBCSD, "emerging economies offer interesting projects, superior returns, and innovative financing—and they are crucial to achieving ambitious targets for reining in CO2 emissions".

The insurer Allianz reinforces the conclusions from Bloomberg New Energy Finance and the World Business Council on Sustainable Development that renewables offer an attractive investment opportunity for investors. It believes that infrastructure investing presents a unique mix of opportunities for investors. Specifically, "investments in Renewable Energy Infrastructure offer strong long-term growth potential with low correlation to other asset classes, while also providing stable cash flows and meaningful dividend yields"<sup>9</sup>.

Allianz also believes that the breakneck pace of growth in global infrastructure development - especially in renewables - will remain in place for the long run, a scenario consistent with the ongoing energy transition and the need for that to accelerate.

# Technological developments and policy changes create big risks for fossil fuels

If there is any chance for us to meet the Paris commitments, global GHG emissions must peak and begin to fall by 2020. This limits the prospects for fossil fuels, including oil and gas, which are responsible for the majority of GHG emissions in the world.

Just recently, Wood Mackenzie, a highly regarded oil and gas consultancy that advises several majors, brought forward its date for peak demand for oil by several years to 2036, much earlier than what oil majors such as BP and Exxon consider while making investment decisions<sup>10</sup>. It expects demand for oil to already peak by 2030, driven by a tectonic shift in the growth of Electric and Autonomous vehicles.

A working paper from 2 Degrees Investing, a think tank, illustrates that oil demand could drop around one-third in the next couple of decades, if current promising technology trends in artificial intelligence, autonomous driving, sharing economy and others continue. In an optimistic scenario where these technologies progress faster, as much as half of oil demand may disappear<sup>11</sup>. The results are dramatic and stand in stark

#### <sup>8</sup> ibid

<sup>&</sup>lt;sup>9</sup> https://www.wespath.com/assets/1/7/Allianz-July-2017.pdf

<sup>&</sup>lt;sup>10</sup> https://www.ft.com/content/a12af4be-85cf-11e8-96dd-fa565ec55929

<sup>&</sup>lt;sup>11</sup> <u>https://2degrees-investing.org/a-vision-for-the-future-how-breakthrough-technologies-can-reduce-oil-demand-by-50-in-the-next-20-years/</u>



contrast to a baseline scenario of increasing oil demand of around 10-15%, and even higher under the so-called 'Current Policy Scenario' of the International Energy Agency.

However, the biggest threat to fossil fuel comes from the inexorable rise of renewables, particularly solar PV and wind. The levelized cost of electricity (averaging costs over a generating asset's lifetime) dropped an average of 15.5% per year for utility solar, and 13% for wind in the past eight years. This has made them the two cheapest sources of energy, provided storage is not required<sup>12</sup>.

The International Renewable Energy Agency (IRENA), analysing the effects of the energy transition until 2050 in a recent study for the G20, found that over 80% of the world's electricity could come from renewable sources by that date. Solar photovoltaic (PV) and wind power would at that point account for 52% of total electricity generation<sup>13</sup>. Storage costs also continue to fall, with the cost of storage in 2020 expected to be half of the level in 2017<sup>14</sup>, as demand for storage surges.

#### All of these developments have a direct impact on Norway's Oil Fund

Given this background of worsening climate change, the need for urgent action on renewable investments, the significant opportunities for investors and the threats to the future of fossil fuels, recent developments in the policy discussions on the investment strategy of the \$1 trillion Norwegian Oil Fund are particularly interesting.

There have been three major developments in these in the past three years.

The first was NBIM's recommendation to divest from all oil and gas related stocks that was announced in late 2017<sup>15</sup>. The Ministry of Finance, which has opposed such divestment earlier in 2017, appointed an expert group to consider NBIM's request for divestment<sup>16</sup>. This expert group has rejected NBIM's request<sup>17</sup>, but NBIM is presenting more evidence to bolster its case<sup>18</sup>.

The second was the rejection by the Finance Ministry of recommendations by its own external experts and NBIM to allow the Fund to invest in private equity<sup>19</sup> and unlisted infrastructure<sup>20</sup>.

<sup>&</sup>lt;sup>12</sup> https://qz.com/1125355/solar-and-wind-are-now-the-cheapest-energy-around-unless-you-need-to-store-it/

<sup>&</sup>lt;sup>13</sup> http://www.irena.org/-/media/Files/IRENA/Agency/Publication/2017/Oct/IRENA\_Electricity\_Storage\_Costs\_2017.pdf

<sup>&</sup>lt;sup>14</sup> <u>https://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/the-new-economics-of-energy-storage</u>

<sup>&</sup>lt;sup>15</sup> <u>https://www.ft.com/content/611c2e9e-cad9-11e7-aa33-c63fdc9b8c6c</u>

<sup>&</sup>lt;sup>16</sup> <u>http://www.pionline.com/article/20180216/ONLINE/180219896/group-appointed-to-study-whether-norway-sovereign-wealth-fund-should-divest-energy</u>

<sup>&</sup>lt;sup>17</sup> https://www.ipe.com/countries/norway/norways-sovereign-fund-should-stay-invested-in-energy-

 $<sup>\</sup>underline{stocks/www.ipe.com/countries/norway/norways-sovereign-fund-should-stay-invested-in-energy-stocks/10026360.full article_sourc$ 

<sup>&</sup>lt;sup>18</sup> <u>https://www.bloomberg.com/news/articles/2018-10-03/world-s-biggest-wealth-fund-beefs-up-case-for-dumping-oil-stocks</u>

<sup>&</sup>lt;sup>19</sup> <u>https://www.verdict.co.uk/norways-oil-fund-wont-be-allowed-to-invest-in-unlisted-companies/</u>

<sup>&</sup>lt;sup>20</sup> <u>https://www.ipe.com/news/asset-allocation/norway-rejects-infrastructure-allocation-for-sovereign-fund/www.ipe.com/news/asset-allocation/norway-rejects-infrastructure-allocation-for-sovereign-fund/10018425.fullarticle</u>



The third was the unanimous vote by the Norwegian Parliament's Finance Committee instructing the Finance Ministry to present a proposal on how the Fund could invest in unlisted renewable energy assets<sup>21</sup>.

While the government has proposed to limit this discussion to the narrow environmental mandate that amounted to NOK 75 billion (less than \$10 billion), which is less than 1% of the Fund, the Finance Committee has said it should be "significantly higher".

Given the present state of this discussion, this brief paper has a narrow focus.

- It first reinforces the case for divesting from oil and gas.
- Next, it builds a case for allowing NBIM to make investments in unlisted renewable energy assets.
- Last, but not the least, it shows how to operationalise such investments.

<sup>&</sup>lt;sup>21</sup> <u>https://www.reuters.com/article/us-norway-swf/norway-parliament-to-debate-next-year-whether-wealth-fund-can-invest-in-unlisted-renewables-idUSKCN1IW1BD</u>



# 2: The case for the Oil Fund divesting from oil and gas

The Norwegian economy is heavily overexposed to the oil and gas sector Norway is both economically and financially heavily overexposed to oil and gas<sup>22</sup>. This would in itself signal the need for Norway to diversify its economy. But as the developments discussed in Chapter 1 indicate, the possibility of falling demand for oil and gas in the near future reinforces the need for and urgency for diversification.

This overdependence on oil was on full display when Norwegian growth ground to a halt in late 2015, when oil price collapsed from more than \$100 in August 2014 to less than \$30. More than 50,000 people lost their jobs in the oil sector. This led Bloomberg to say that for Norway, oil below \$50 was worse than the financial crisis of 2008/09<sup>23</sup>.

This was understandable, given that petroleum accounted for more than half of all exports, about a quarter of the GDP, more than a fifth of all investments, and as much as a third of all government revenue. The value of the state-owned oil fields, or the State Direct Financial Interest (SDFI), managed by Petoro, fell by more than \$50 billion, or nearly a third<sup>24</sup>. Equinor, the national oil firm, went from reporting near record profits into a sharp loss, and government revenue from the oil sector fell sharply.

The crisis led to the Prime Minister acknowledging the need for change saying "Through the oil and gas sector, we have built a large services sector that can be used to support other sectors in the future. In the long-term, Norway will have an economy that is more diversified, and that is greener<sup>25</sup>".

However, three years down the line evidence of that change is rather thin on the ground. As the country's largest bank DNB puts it, "Based on the macro data that we now have we can't say that the Norwegian economy has gone through a massive transitioning<sup>26</sup>."

Researchers at the BI estimated that as much as half of Norway's GDP is exposed to the oil and gas sector indirectly<sup>27</sup>. At its peak, more than half of the exports come directly in the form of oil and gas. Add ancillary services related to the sector, and this share can be as big as two thirds of all exports.

#### Norway also has a very large financial exposure to the price of oil

In its note recommending the divestment from oil and gas, NBIM acknowledges that Norwegian government petroleum wealth naturally has significant exposure to oil price risk. The most significant component of petroleum wealth, in terms of oil price risk, is the net present value of government cash flow from petroleum activities. It attributes the three main sources of this exposure to the state's direct financial interest, to its share of taxes on oil revenues from the North Sea and to its significant stake in Equinor<sup>28</sup>.

<sup>&</sup>lt;sup>22</sup> "The Norwegian Disease: Why Norway needs to urgently diversify its economy", (Forthcoming) Re-Define, 2018.

<sup>&</sup>lt;sup>23</sup> https://www.bloomberg.com/news/articles/2015-08-10/for-norway-oil-at-50-is-worse-than-the-global-financial-crisis

<sup>&</sup>lt;sup>24</sup> <u>https://techcrunch.com/2016/06/26/after-oil-norway-looks-to-startups-for-economic-growth/</u>

<sup>&</sup>lt;sup>25</sup> <u>http://www.bbc.com/news/business-35318236</u>

<sup>&</sup>lt;sup>26</sup> https://www.bloomberg.com/news/articles/2018-01-31/western-europe-s-biggest-oil-producer-is-getting-another-fix

<sup>&</sup>lt;sup>27</sup> <u>https://www.zero.no/wp-content/uploads/2016/06/Nest-Eggs-in-a-Fragile-Basket.pdf</u>

<sup>&</sup>lt;sup>28</sup> https://www.nbim.no/en/transparency/discussion-notes/2017/petroleum-wealth-and-oil-price-exposure-of-equity-sectors/



NBIM estimated the net present value of the government's cash flow from petroleum activities to be around NOK 4,000 billion and calculated the value of NBIM's oil and gas stock holdings and the value of the government's stake in Equinor to be worth about NOK 320 billion each. The following graph from NBIM shows how sensitive the return on oil and gas investments is to the oil price and is a good proxy for the sensitivity of Norwegian oil wealth to the price of oil.



Source: NBIM

NBIM, using just pure financial considerations, concluded that it ought to divest all of its oil and gas holdings.<sup>29</sup> Norges Bank became concerned that any permanent drop in the price of oil would damage the Norwegian economy badly, given its overexposure to the oil and gas sector on multiple fronts. The Norwegian government now relies on transfers from NBIM for one in every six NOK of public spending, and such an event would increase the need for transfers from NBIM. So any fall in the value of investments held by NBIM would be doubly damaging to Norway. It would be very risky in such an event for NBIM to also be exposed to oil and gas stocks that would lose value under such a scenario.

It was in order to diversify away this double exposure to oil and gas that NBIM decided to recommend divestment from oil and gas stocks in opposition to the position of the Finance Ministry. In the words of the governor of the Norges Bank, Norway *"needed more legs to stand on*<sup>30</sup>."

The state has direct financial interests in 193 production licences, 34 producing fields and holdings in 15 joint ventures that own pipelines and onshore facilities, which constitute the State Direct Financial Interest (SDFI). The market value of this stake is somewhere between \$100 billion and \$150 billion. Add the state's 67% stake in Equinor, which has a total market capitalisation of around \$85 billion, and the value of Norway's state stake in oil and gas is already in the \$150 - \$200 billion range. The state also has

<sup>&</sup>lt;sup>29</sup> https://www.framtiden.no/aktuelle-rapporter/825-the-promise-of-sustainable-investing/file.html

<sup>&</sup>lt;sup>30</sup> https://www.upi.com/Despite-tough-energy-recovery-Norways-debt-decreases/3431487337658/



large stakes in firms such as Aker, which provide services to the oil and gas sector, and the value of such stakes adds up to tens of billions of dollars.

Around 50 of the 188 companies on the Oslo Stock Exchange, which has a market capitalisation of around \$250 billion, are energy firms<sup>31</sup>. By market capitalisation, the share of oil and gas is even higher, as some of the biggest firms are active in the petroleum sector. Around 5% of the ownership of firms listed on the exchange rests with Folketrygdfondet, the government's domestically oriented wealth fund<sup>32</sup>. This means that the fund owns at least a few billion dollars' worth of the oil and gas sector in Norway.

Add in ownership stakes and credit provided by the state-owned DNB, Norway's biggest bank, as well as stakes held by KLP and other pension funds and insurance firms, and the state's direct and indirect financial stake in the oil and gas sector exceeds \$200 billion, or more than half of Norway's \$370 billion GDP in 2017. Exposure in the private sector in Norway probably adds another few tens of billions of dollars to this huge financial stake.

#### The importance and urgency of divestment cannot be overstated

The discussion above shows that Norway's financial exposure to the oil and gas sector in general, and oil price in particular, is even greater and more widespread than the analysis by NBIM captures. This reinforces the urgency and importance of NBIM divesting from all oil and gas investments.

All of NBIM's significant holdings in oil and gas, with the exception of BP, are around 1% or less. NBIM holds 2.17% of BP stock, worth more than \$3 billion<sup>33</sup>. These are non-strategic minority stakes and a year is enough time to sell them down gradually without any adverse market reaction.

The urgency of the case for divestment is further reinforced by findings from Wood Mackenzie that demand for oil may peak at an earlier date than many energy majors use in their scenario planning<sup>34</sup>.

#### Addressing the points raised by the expert group against divestment

The report of the Expert Committee on divestment came out against NBIM's proposals, but the report's conclusions were widely misunderstood to have been against divestment in principle. In fact, the report acknowledges Norway's huge exposure to oil and gas. It simply says that it is so large that NBIM's divestment would make little difference. Instead, it suggests that Norway may go for much bigger divestment, including through the reduction in the state's stakes in Equinor and through a reduction of the States Direct Financial Interest, SDFI<sup>35</sup>.

<sup>&</sup>lt;sup>31</sup> https://www.oslobors.no/ob\_eng/

<sup>32</sup> http://www.folketrygdfondet.no/about-us/category390.html

<sup>33</sup> https://www.nbim.no/en/the-fund/holdings/holdings-as-at-31.12.2017/?fullsize=true

<sup>&</sup>lt;sup>34</sup> https://www.ft.com/content/a12af4be-85cf-11e8-96dd-fa565ec55929

<sup>&</sup>lt;sup>35</sup> https://www.ipe.com/countries/norway/norways-sovereign-fund-should-stay-invested-in-energy-

stocks/www.ipe.com/countries/norway/norways-sovereign-fund-should-stay-invested-in-energy-stocks/10026360.fullarticle



So the report's main argument is that NBIM's suggested divestment is too small in terms of its impact on the reduction of fossil fuel risk for Norway. This is not wrong, as we have shown above. In fact, beyond NBIM, Norway needs to go much further to diversify its economy<sup>36</sup>, and the two best options for diversification are divestment and green investments, as we will lay out in this report.

The second concern raised by the expert group is that the divestment would detract from NBIM's successful passive index tracking model<sup>37</sup>. However, this is a poor strategy for the Oil Fund in the first place that has led to NBIM underperforming its peer group<sup>38</sup>. Also, NBIM, as the next chapter will show, has already started moving beyond this strategy as exemplified by its unlisted illiquid investments in real estate. It also excludes investments in certain sectors such as weapons of mass destruction and coal, based on ethical considerations. The divestment would simply be yet another small tweak to the model, which is overdue.

The third concern raised by the expert group has been more implied, which is that somehow the divestment could lead NBIM to underperform. NBIM itself has addressed this concern recently, as evidenced by the slide below. It shows three different scenarios, in which had NBIM divested in 2008, in 2013 or in 2015. In all of the scenarios, it would have outperformed the current strategy.



Source: Bloomberg<sup>39</sup>

NBIM's presentation of these numbers led to a backlash by some academics that criticized its use of certain divestment dates to show outperformance<sup>40</sup>. But this misses the point. NBIM's motivation for showing these was meant to expose the hollowness of those who say divestment will lead to underperformance by the fund. It shows that it

<sup>&</sup>lt;sup>36</sup> The Norwegian Disease, Why Norway needs to urgently diversify its economy, (Forthcoming) Re-Define, 2018

<sup>&</sup>lt;sup>37</sup> https://www.theguardian.com/business/2018/aug/24/norway-1tn-wealth-fund-urged-to-keep-oil-and-gas-investments

<sup>&</sup>lt;sup>38</sup> https://www.bloomberg.com/view/articles/2017-12-04/how-not-to-run-a-sovereign-wealth-fund

<sup>&</sup>lt;sup>39</sup> <u>https://www.bloomberg.com/news/articles/2018-10-03/world-s-biggest-wealth-fund-beefs-up-case-for-dumping-oil-stocks</u>

<sup>&</sup>lt;sup>40</sup> https://www.bloomberg.com/news/articles/2018-10-03/world-s-biggest-wealth-fund-beefs-up-case-for-dumping-oil-stocks



can historically equally well have led to outperformance. The motivation for the sell-off is however not performance, but diversification and risk reduction, which has not been challenged. Coincidently, Re-Def

ine had recommended divestments in 2008, 2013 and then again 2015<sup>41</sup>.

<sup>&</sup>lt;sup>41</sup> <u>https://www.regjeringen.no/en/dokumenter/nou-2008-14/id525832/sec3</u>



## 3: The case for investing in unlisted renewable infrastructure

A case for NBIM investing in unlisted renewable infrastructure has three parts to it:

- 1) Why NBIM should invest in renewable energy,
- 2) Why NBIM should invest in unlisted infrastructure and
- 3) Why NBIM ought to invest in unlisted renewable infrastructure.

We address each in turn.

#### Why NBIM ought to invest in renewable energy

What is clear from the above analysis is that even after NBIM divests from all oil and gas stocks, the Norwegian economy will remain heavily overexposed to oil and gas and susceptible to any permanent drop in the oil price.

#### The diversification case

After all, \$40 billion of exposure is less than 10% of Norway's residual exposure to oil and gas. As an analysis from Mercer<sup>42</sup> shows, oil, utilities and materials sectors are particularly negatively affected by climate change. Together these sectors account for about 15% of NBIM's equity holdings<sup>43</sup>.



Source: Mercer

A very interesting observation from the Mercer analysis is that renewables is the only sector that performs strongly when stress tested for climate change and the policy action needed to address it. Also, the performance of renewables is sharply negatively correlated under these scenarios to the performance of fossil fuels.

<sup>&</sup>lt;sup>42</sup> <u>https://www.mercer.com/our-thinking/wealth/investing-in-a-time-of-climate-change.html</u>

<sup>&</sup>lt;sup>43</sup> <u>https://www.nbim.no/contentassets/db0b28dc13934aa6a56596d81d47a33a/return-and-risk-2017---government-pension-fund-global.pdf</u>



This shows the additional diversification benefits that investing in renewables can bring to Norway, given the large residual exposure of the Norwegian economy. It also helps build an additional financial case for the oil fund to have a dedicated investment window for renewable energy.

This case is further reinforced by a second, more sophisticated level of analysis that examines the performance of various sectors under four different scenarios, as captured by the graph below.

INDUSTRY SECTOR	т 🛄	R	$\nabla$	Р 🏧
ENERGY	-0.25	-0.75	-0.75	-0.75
Oil	-0.50	-0.75	-0.75	-0.75
Gas	<0.25	-0.50	-0.75	<0.25
Coal	-0.50	-0.75	-0.75	-1.00
Renewable	0.50	-0.25	-0.25	1.00
Nuclear	0.50	-0.75	-0.25	0.50
UTILITIES	-0.25	-0.75	-0.50	-0.50
Electric	-0.50	-0.75	-0.50	-1.00
Gas	-0.25	-0.75	-0.25	-0.50
Multi	-0.25	-0.75	-0.50	-0.75
Water	-0.25	-0.50	-0.25	-0.75
MATERIALS	<0.25	-0.75	-0.25	-0.50
Metals and mining	<0.25	-0.75	-0.25	-0.75
INDUSTRIALS	<0.25	>-0.25	-0.50	-0.25
Transport and infrastructure	<0.25	>-0.25	-0.75	<0.25

*Source: Mercer* (T: Technology, R: Resource Availability, I: Physical Impact and P: Public Policy)

Mercer stress-tested various energy intensive sectors and also renewables to various scenarios in the evolution of climate change and the battle to mitigate it. The results look quite disturbing for NBIM, with large negative effects on sectors it has an almost 30% exposure to. But once again, renewables emerge as the clear winner that help both diversify the exposure and protect against the worst downsides under the various scenarios.

In Re-Define's report on sustainable investing in which we recommended that taking the national wealth perspective would lead NBIM to divest all oil and gas holdings, we reasoned that "the residual exposure of the Norwegian economy to fossil fuels is so large that the Fund would need to significantly expand investments in industries such as renewables, which are negatively correlated to fossil fuels, in order to meet its mandate of maximising returns for moderate risk<sup>44</sup>."

<sup>&</sup>lt;sup>44</sup> <u>https://www.framtiden.no/aktuelle-rapporter/825-the-promise-of-sustainable-investing/file.html</u>



#### The performance case

Less directly, but still significantly, there is already evidence that firms that focus on reducing their GHG emissions perform better on stock markets. This has been captured well in a study by the Blackrock Investment Institute that shows that divided firms into quintiles based on changes to their GHG footprint and found that those which were in the top quintile performed much better on the stock market, as captured in the graph below.



Source: Blackrock45

#### The ethical case

Another factor reinforcing the political case for investing in renewables is of course the fact that according to a survey in the newspaper Vårt Land, eight out of ten Norwegians thought it important that the Oil Fund should not make investments harmful to the environment or people, 65% thought that the Fund should contribute to development in poor countries, and 72% said they would like it to contribute to clean energy<sup>46</sup>.

#### The opportunity case

In its note on investing in renewable energy NBIM notes that one could argue that there is a climate investment gap of 1 trillion dollars per year. Concerns about climate change have inspired efforts to increase the share of energy produced from renewable energy

<sup>&</sup>lt;sup>45</sup> <u>https://www.blackrock.com/corporate/literature/whitepaper/bii-climate-change-2016-us.pdf</u>

<sup>&</sup>lt;sup>46</sup> <u>https://www.framtiden.no/aktuelle-rapporter/825-the-promise-of-sustainable-investing/file.html</u>



sources, which has grown markedly over the last ten years, and developments in technologies and costs make it a market in constant change<sup>47</sup>. It states that this "can create interesting investment opportunities for an institutional investor. The bulk of these opportunities are expected to materialise as unlisted investments<sup>48</sup>."

For an institutional investor, large-scale renewable energy infrastructure projects are the most relevant type of projects that offer many of the attributes of "core" infrastructure assets such as downside protection, steady cash flows and long duration. Moreover, the inflation-linked payment streams that power purchase agreements (PPAs), increasingly common with renewables, can provide may be particularly attractive for investors.

NBIM acknowledges that investments in renewable energy replace other more conventional types of energy in rich economies, whereas in emerging markets these investments provide new generation capacity to respond to growing demand for energy. The IEA has predicted that most developed countries will have moderate or even negative power demand, while power demand in developing countries will treble and the biggest additions will be in renewables.

As Bloomberg New Energy Finance documents, renewable energy investments now amount to several hundred billion a year<sup>49</sup>. Global solar installations will be at least 107GW in 2018, up from the higher-than-expected 98GW last year, and new countries will become established as significant markets. China still dominates but Latin America, south-east Asia, the Middle East and Africa will make up a measurable slice of the total. Global wind installations – onshore and offshore – were some 56GW in 2017, slightly above 2016's 54GW but well below the record of 63GW reached the previous year, but the installation capacity will breach that record in 2019.

Recent leaps in technology have increased profit margins for climate action projects, with solar and wind projects specifically providing annualised returns of 10.3 percent and 17.5 percent, respectively<sup>50</sup>. With guaranteed long-term contracts and predictable operating costs, the risk profile for renewable energy projects puts them well within the parameters of institutional investors<sup>51</sup>.

According to ORF, a think tank that specialises in the energy transition, there is a "seemingly perfect confluence of challenges and opportunities, with developing economies needing increased funding for renewable energy projects and institutional investors looking for better returns in future projects<sup>52</sup>."

As the Financial Times writes, the cost of wind turbines, for example, has dropped by a third since 2009 and that of solar panels by 80%. Countries around the world now have 1,200 climate change laws, up from just 60 two decades ago, and renewables now

48 ibid

- <sup>49</sup> <u>https://about.bnef.com/blog/runaway-53gw-solar-boom-in-china-pushed-global-clean-energy-investment-ahead-in-2017/</u>
- <sup>50</sup> http://www3.weforum.org/docs/WEF\_Renewable\_Infrastructure\_Investment\_Handbook.pdf
- <sup>51</sup> https://www.orfonline.org/research/great-walls-addressing-domestic-barriers-climate-action-projects-india/
- 52 ibid

<sup>&</sup>lt;sup>47</sup> <u>https://www.nbim.no/en/transparency/discussion-notes/2015/renewable-energy-investments/</u>



receive policy support in 146 countries - nearly triple the number in 2004. All of these offer the prospect of a substantial upside to those who invest in renewables<sup>53</sup>.

#### Why NBIM should invest in unlisted infrastructure

NBIM itself has made the case for being allowed to invest in infrastructure several times, starting in 2006, and most recently in 2016 on the back of the recommendations of an expert group commissioned by the Finance Ministry<sup>54</sup>.

This expert group concluded that the "the Fund should be allowed to invest up to 10 % of its assets in infrastructure, including in emerging markets and clean energy<sup>55</sup>."

In 2010, NBIM had reiterated its advice that the Fund should be permitted to invest in unlisted infrastructure, as it was well-suited to such investments, and that increased investment in real assets could help reduce uncertainty about developments in the Fund's international purchasing power.

"Investors such as Sovereign Wealth Funds (SWFs) have both unparalleled scale and longer time horizons than typical investors. So they hold clear competitive advantages in markets for long-term, illiquid assets<sup>56</sup>." However, in practice many investors focus their resources and capital on generating returns over periods that rarely exceed two years. So an SWF with much longer investment horizons will 'naturally have a leg up in asset classes for which shorter-term rivals are prevented from entering due to time horizon. One asset class that fits this description is infrastructure<sup>57</sup>.'

The decades-long profiles for such investments, while problematic for short-term investors, are well suited for funds with inter-generational objectives. Also, while 'liquidity is generally a cause for concern among short-term infrastructure investors, it is not a concern for a fund that can hold an investment for the life of the asset. In short, infrastructure's 'problems' do not appear to be problems at all for the community of long-term investors<sup>58</sup>.'

NBIM itself points out that an'investor can also expect to receive a liquidity premium over time. This is a premium to which a long-term investor with no liquidity needs such as the Government Pension Fund Global should be exposed.' It goes on to say that 'the combination of considerable future investment needs, pressure on public budgets and attractive portfolio characteristics make it reasonable to assume that private venture capital will play a growing role in the funding of infrastructure investments in the future. Investment opportunities in this asset class are therefore considered sufficient for the Fund to be able to build up a portfolio of infrastructure investments over time<sup>59</sup>.'

No wonder then that the infrastructure asset class is very popular amongst institutional investors. According to Preqin, 86 percent of institutional funds now invest in

<sup>57</sup> <u>https://www.kirkensnodhjelp.no/contentassets/c1403acd5da84d39a120090004899173/swf-report\_final-version.pdf</u>

<sup>53</sup> https://www.ft.com/content/44ed7e90-3960-11e7-ac89-b01cc67cfeec

<sup>&</sup>lt;sup>54</sup>https://www.regjeringen.no/contentassets/f353169233704a55b3af6b0b36fb3129/ekspertrapport\_eiendom\_infrastruktur.pdf

<sup>&</sup>lt;sup>55</sup> <u>https://www.reuters.com/article/norway-swf-idUSL8N13X2L920151208</u>

<sup>&</sup>lt;sup>56</sup> http://re-define.org/wordpress/wp-content/uploads/2017/11/Investing-for-the-Future\_Report-2013.pdf

<sup>&</sup>lt;sup>58</sup> http://papers.ssrn.com/sol3/papers.cfm?abstract\_id=1837813

<sup>&</sup>lt;sup>59</sup>http://www.nbim.no/Global/Documents/Submissions/2010/enclosure%20to%20the%20letter%2006072010.pdf



infrastructure, and are likely or very likely to increase their participation in the sector in 2017<sup>60</sup>.

This suitability of SWFs to make infrastructure investments prompted Indian Prime Minister Modi to invite Norway's prime minister, Erna Solberg, at the 2017 G20 summit in Hamburg to ask Norwegian pension funds to invest in the National Investment and Infrastructure Fund of India<sup>61</sup>.

# Why unlisted renewable infrastructure is a particularly attractive investment

Within the unlisted infrastructure asset class, renewable infrastructure is particularly important for a number of reasons.

NBIM, looking at the potential for such investments, wrote that "local pollution, climate change and a desire to limit global warming have led authorities in more and more countries to set targets for renewable energy as a share of the total energy supply. Annual investment in renewable energy production has been between 350 and 400 billion dollars in recent years and is expected to grow. Most of this has been financed with private capital<sup>62</sup>."

"The risk associated with such investments appears to be somewhat lower today than when the Bank last considered this question in 2010. The use of renewable energy has accelerated, and costs have fallen substantially as a result of technological advances and economies of scale<sup>63</sup>." It concluded saying that "it is possible to invest in infrastructure for renewable energy with the same required rate of return as for the GPFG's other investments<sup>64</sup>."

When asked what the focus of its infrastructure investment would be, NBIM CEO has said that the fund would focus on the energy transition and renewable energy<sup>65</sup>.

Clearly, this offers a large opportunity set. According to the IEA, net annual capacity additions for all renewables must increase over 2017-30, while the share of renewables in global electricity generation must reach 47% by 2030, from 25% in 2017<sup>66</sup>.

As the IEEFA writes, "renewable investments have been capturing an increasing share of infrastructure investment. Renewable "funds are designed to achieve the same long-term returns—10 to 15% annually—as traditional infrastructure<sup>67</sup>."

It continues saying that "renewable energy is driving the growth of listed and unlisted infrastructure markets", with a combined market value of about \$5 trillion and rising.

<sup>66</sup> <u>http://www.iea.org/tcep/power/renewables/</u>

<sup>&</sup>lt;sup>60</sup> http://docs.pregin.com/reports/Pregin-Special-Report-Infrastructure-Fund-Manager-Outlook-H2-2017.pdf

<sup>&</sup>lt;sup>61</sup> <u>https://www.business-standard.com/article/economy-policy/g20-summit-2017-pm-modi-invites-norway-pension-funds-to-invest-in-india-117070800417\_1.html</u>

<sup>&</sup>lt;sup>62</sup> https://www.nbim.no/contentassets/d4dc0aaf69ba4f73b9112da6bef259c0/nbim\_discussionnotes\_4-15.pdf

<sup>&</sup>lt;sup>63</sup> <u>https://www.nbim.no/en/transparency/submissions-to-ministry/2015/government-pension-fund-global--investments-in-infrastructure/</u>

<sup>&</sup>lt;sup>64</sup>https://www.nbim.no/contentassets/e2fa918bf88642a5abe3f07cd6034c11/2015-12-02-nb\_gpfg---investments-in-infrastructure.pdf <sup>65</sup> ibid

<sup>&</sup>lt;sup>67</sup> http://ieefa.org/ieefa-report-norway-sovereign-wealth-fund-stands-gain-investing-now-renewable-energy-infrastructure/



According to Preqin, a data provider, it is increasingly common, as in 2017, to see that almost half of all infrastructure deals worth hundreds of billions are in renewable energy now<sup>68</sup>. 2016, for example, saw 1,772 renewable energy deals worth \$645 billion, with 42% of the transactions in renewable energy.

Bloomberg New Energy Finance sees \$11.5 trillion being invested globally in new power generation capacity between 2018 and 2050, with \$8.4 trillion of that going to wind and solar and a further \$1.5 trillion to other zero-carbon technologies such as hydro and nuclear<sup>69</sup>.

#### Box: From Renewable Energy Ownership Strategies<sup>70</sup>

Wood Mackenzie, a specialised energy consultancy finds that institutional investors play an important role in the deal flow associated with renewable projects. They "have made renewable energy assets a primary opportunity set over the past few years." This role will "continue to grow and it is likely that private capital and unlisted funds will dominate renewable energy asset ownership over the long term<sup>1</sup>".

The consultancy also surveyed institutional investors asking which asset class provided the best opportunities 2017 and onwards. Fully 64% investors said it was "renewable energy", compared to 43% energy, 34% transport, 21% telecom, 21% utilities, 17% social and 9% waste management. It explains that because renewable energy has megatrends of decarbonization and portfolio greening behind it, so should emerge as a clear winner.

Allianz, the asset manager and insurance giant, has been in agreement with the findings of Wood Mackenzie, by writing that "investments in Renewable Energy Infrastructure offer strong long-term growth potential with low correlation to other asset classes, while also providing stable cash flows and meaningful dividend yields<sup>71</sup>."

Box<sup>72</sup>: The many benefits of investing in unlisted renewable energy infrastructure

Investments in renewable energy infrastructure offer significant advantages to institutions, including strong expected growth rates, portfolio diversification derived from a low correlation with other investment assets, stable cash flows, potential protection from inflation, and compliance with Environmental, Social, and Governance (ESG) standards.

**Attractive growth rates:** Renewable infrastructure assets stand to benefit dramatically over the coming decade from the solid expected rate of growth for the asset class with a resulting beneficial impact on valuations.

**Low Correlation to Other Portfolio Assets:** Renewable energy infrastructure's low correlation of investment returns with other major asset classes can allow for attractive diversification and enhanced risk-adjusted returns. Simply put, what happens in equity

<sup>71</sup> <u>https://www.wespath.com/assets/1/7/Allianz-July-2017.pdf</u>

<sup>&</sup>lt;sup>68</sup> https://d3k9pt3r5jsyv9.cloudfront.net/docs/guarterly/inf/Pregin-Quarterly-Infrastructure-Update-Q2-2017.pdf

<sup>&</sup>lt;sup>69</sup> <u>https://about.bnef.com/new-energy-outlook/#toc-download</u>

<sup>&</sup>lt;sup>70</sup> <u>https://www.woodmac.com/reports/power-markets-renewable-energy-ownership-strategies-13270</u>

<sup>72</sup> ibid



and other financial markets has no impact on the sunshine or wind that drives most of the performance and returns in renewables.

**Stable Cash Flows:** The structure of renewable energy infrastructure projects and the composition of a renewables portfolio are designed to deliver steady cash flows and potential robust dividend yields. This consistent result can be attributed to a combination of geographic and technologic diversification within the portfolio, and to the impact of the long-term Power Purchase Agreements (PPA) that underlie renewables projects. Power produced by portfolio companies is sold at a price determined by set formulas through PPAs lasting up to 15 to 20 years.

	Private Infra- structure¹	REITs US	Listed Private Equity	Commodities	Dow Jones Industrial	Global Equities	Global Infra- structure	Global Oil Companies	Global Government Bonds
Private Infrastructure <sup>1</sup>	1.00								
REITs US	0.64	1.00							
Listed Private Equity	0.52	0.84	1.00						
Commodities	0.50	0.44	0.49	1.00					
Dow Jones Industrial	0.46	0.82	0.84	0.46	1.00				
Global Equities	0.46	0.76	0.88	0.62	0.92	1.00			
Global Infrastructure	0.44	0.76	0.77	0.68	0.82	0.93	1.00		
Global Oil Companies	0.38	0.50	0.61	0.84	0.68	0.82	0.83	1.00	
Global Government Bonds	0.34	0.39	0.33	0.67	0.35	0.51	0.62	0.58	1.00

The graph below reinforces the message of the low correlation of renewable infrastructure that emerges from Allianz.

#### Source: Allianz

Nearly half the infrastructure deals in the US since 2011 have been in renewable energy. The size and unique nature of the opportunity set is one of the many reasons why Allianz believes that "investors looking to participate in this vibrant asset class will benefit from an investment approach focused exclusively on renewables, as opposed to strategies including renewables as part of a broader focus on infrastructure<sup>73</sup>." This provides a solid logical underpinning to the decision of the Norwegian parliament to ask the Oil Fund to open up to investing in unlisted renewables.

<sup>73</sup> https://www.wespath.com/assets/1/7/Allianz-July-2017.pdf



### 4: How NBIM should make unlisted renewable investments

A good starting point to discuss how NBIM should operationalise a possible mandate to invest in unlisted renewable infrastructure is to look at its own recommendations and build on them. This is what we do in this section, while incorporating suggestions for improvement and lessons learnt from other actors.

#### Environmental mandate vs. the real estate mandate template

The first thing to clarify is that the current context of the discussion is to allow NBIM to make such investments as part of its NOK 75 billion environmental mandate. Even if renewables may formally fall within this mandate, in terms of actually operationalising such investments, it is important to remember that there is little in common between the present environmental mandate and making investments in unlisted renewables.

First, the environmental mandate is small, less than 1% of the fund. The proposed renewable mandate is likely to be at least 5% of the fund, for it to be in line with what NBIM itself and the expert group on infrastructure have both suggested, the path followed by the mandate to make real estate investments and for this mandate to make any real impact on the Fund itself and on the real world.

Second, the environmental mandate focuses on listed equities and green bonds, which requires a very different skill set, institutional set up, human capacity and risk management approach compared to what will be needed for managing unlisted infrastructure.

Third, the environmental mandate sits within NBIM, it has little dedicated staff capacity and is mostly managed externally by a set of five external managers. This is very different from the set up for investments in real estate, which are done through a subsidiary, have dedicated staff and a separate approach to risk management. Investing in unlisted infrastructure is likely to resemble that second approach much more than the present approach under the environmental mandate.

Based on our analysis, as well as the recommendations from NBIM itself, it would seem that a good starting point for operationalising unlisted renewable investments would be too look at the set-up of the present real estate mandate for NBIM.

#### How big should the unlisted renewable infrastructure mandate be?

There are several ways of arriving at how big the target should be. An expert group commissioned by the Ministry of Finance to consider whether it made sense for NBIM to be allowed to make investments in unlisted infrastructure recommended that the fund should be allowed to invest up to 10 % of its assets in infrastructure, including in emerging markets and clean energy<sup>74</sup>. NBIM itself has asked for an infrastructure target of a maximum of 5% of its assets<sup>75</sup>.

<sup>&</sup>lt;sup>74</sup> https://www.reuters.com/article/norway-swf-idUSL8N13X2L920151208

<sup>&</sup>lt;sup>75</sup> https://www.nbim.no/en/transparency/submissions-to-ministry/2015/government-pension-fund-global--investments-in-infrastructure/



An estimate of how big the present market in unlisted infrastructure is put it at well above a trillion dollars in mid 2016 already, and it has been growing fast<sup>76</sup>. It is likely that by 2019 this market would be worth at least \$1.5 trillion. NBIM itself has drawn attention to a climate investment gap of a trillion dollars a year<sup>77</sup>.

Many of NBIM's peers have infrastructure allocations of between 5% and 15% of their portfolios  $^{78}\!.$ 

As highlighted earlier in this report, nearly half of the new infrastructure investments happening nowadays are in renewable energy. NBIM is expected to divest from about 4% of its portfolio that is presently invested in oil and gas stocks.

Let us consider what these mean for what a good-sized unlisted renewable infrastructure window would be.

Take the 10% maximum target suggested by the expert group on all infrastructures, and combine that with the fact that about half of all new investments are in renewable energy, and a 5% maximum target for investing in unlisted renewables looks reasonable. This also matches the target originally proposed by NBIM itself.

But at more than \$50 billion, could this prove to be too large a proportion of the total estimate \$1,500 billion unlisted infrastructure market, of which roughly half, around \$750 billion, is likely to be renewables? That amounts to 6.6% of the market, which is significantly higher than the average equity stake, but well within reasonable limits. Given the slow pace of NBIM's build-up of its real estate investments, we expect that NBIM will only be able to deploy the full 5% by the time the market itself is far bigger, so the dangers of excessive concentration and poor deal quality are limited.

Another logical way of thinking about it, in a manner that reinforces the diversification arguments made earlier, is that the money mobilised from the divestment of all oil and gas stocks should be earmarked for the environmental mandate, including unlisted renewables, although the pace of accumulation would be far slower than the pace of divestment. This also point to a size of around 5% to begin with.

Our recommendation is to increase the size of the environmental mandate to 5% of the oil fund for now, but to leave it to NBIM to determine the pace of the build-up.

#### How should the management of these investments be structured?

We recommend that these investments follow the model of the real estate investments to which they bear the most resemblance. Those investments are done by a subsidiary, complete with its management team and in-house expertise.

NBREM, Norges Bank Real Estate Management has more than 150 employees managing more than \$27 billion across 775 properties with an average size of about \$35 million.

<sup>&</sup>lt;sup>76</sup> <u>http://www.rareinfrastructure.com/wp-content/uploads/PLSA-Article-Only.pdf</u>

https://www.nbim.no/en/transparency/news-list/2015/discussion-note-on-renewable-energy-investments/

<sup>78</sup> http://www.ifswf.org/



Likewise, NBIM should set up a "NRIM", Norges Bank Renewable Infrastructure Management subsidiary and start building staff capacity. Because infrastructure deals are likely to be significantly bigger, upwards of at least \$100 million, and fewer, they are likely to require far less employees, perhaps no more than 50.

NBIM is confident its experience in real estate will help it with unlisted infrastructure investments saying that the "experience from building up real estate management at Norges Bank has been positive to date. Unlisted real estate investments need to be managed in a different way to the Fund's other investments. The Fund's real estate activities have given the Bank relevant experience of investments in unlisted assets, the operational challenges this can entail, and the demands this makes of the organisation<sup>79</sup>."

Like with real estate, NBIM does not want unlisted renewable infrastructure investments to be part of its benchmark index but wants them in its investible universe. This is critical, as it gives the experts at NBIM, rather than the arm's length overseers at the Ministry, control of when and how to make such investments and at what pace.

"The Bank's view is that unlisted infrastructure investments will not form part of the benchmark index but will be included in the limit for tracking error<sup>80</sup>." "At the same time, given strict limits on the tracking error of just 1.25%, this allows the Ministry to ensure that NBIM does not take on excessive risk and that its performance remains within acceptable parameters." We believe that the tracking error should be increased to 2% as the renewable investments ramp up. The very nature of risk diversification and low correlation that such investments offer will mean that the deviation from the index will be higher from year to year even as portfolio volatility is reduced and returns are potentially higher.

#### What approach should be taken to Risk Management?

NBIM's peers that make similar large allocations to unlisted infrastructure follow a multi-pronged approach to risk management. They combine concrete investment restrictions, thorough due diligence ahead of investments, and continuous follow-up. NBIM should follow that same approach.

On investment restrictions, NBIM suggests using the present restrictions on unlisted real estate as a starting template. It also suggests that such restrictions should be put in place by the board of Norges Bank, not the Finance Ministry, in line with the regulation and oversight of unlisted real estate investments<sup>81</sup>. NBIM's current approach is explored below.

<sup>&</sup>lt;sup>79</sup> <u>https://www.nbim.no/en/transparency/submissions-to-ministry/2017/review-of-norges-banks-management-of-the-government-pension-fund-global/</u>

<sup>&</sup>lt;sup>80</sup>https://www.nbim.no/contentassets/9d5fb76898594146a3dda54f3aaaaca0/2016-12-20-nb\_gpfg-investments-in-unlistedinfrastructure.pdf

<sup>&</sup>lt;sup>81</sup> <u>https://www.nbim.no/en/transparency/submissions-to-ministry/2016/investments-in-unlisted-infrastructure-in-the-government-pension-fund-global/</u>



#### Which countries should NBIM invest in?

On countries, NBIM asserts the following: "the operation of infrastructure assets is normally subject to public regulation. Unexpected changes in regulatory conditions can affect the value of these investments. One possible strategy for reducing the risk this presents for the Fund is to limit investments in unlisted infrastructure to jurisdictions with well-functioning legal systems, where the authorities have experience of private ownership of infrastructure. It may therefore be appropriate to limit the universe for unlisted infrastructure investments to the most developed markets in Europe, North America and Oceania<sup>82</sup>". Furthermore, in its latest letter to the ministry<sup>83</sup>, NBIM suggests that it should begin such investments in developed markets.

With regard to project types, NBIM's reasons the following: "the risk in an infrastructure project will vary according to whether it is a greenfield or a brownfield project. In the development and construction phase, there may be risks in areas such as permissions, rights and contract negotiations as well as construction risks and general uncertainty about demand for the service in question. To begin with, it will be appropriate to look at investments in infrastructure where there is a high degree of confidence about future income<sup>84</sup>".

We agree that NBIM's approach to risk management should combine concrete investment restrictions, thorough due diligence ahead of investments, and continuous follow-up. We disagree however with NBIM's ask for restricting initial investments to developed economies. A better approach would be to allow NBIM to invest in all of the 78 markets that it can make listed investments in today. In fact, NBIM should concentrate its renewable energy infrastructure investments in the 38 developing economies it presently invests in already. Furthermore, it should seek to expand the universe of countries it targets.

This better reflects the reality that in non-OECD countries power sector investment, including renewables, has been driven mainly by the need to meet fast-rising electricity demand, which has grown at an average annual rate of 6.5 percent over the past decade - several percentage points higher than the sluggish growth in developed economies.

The IEA predicts that developing economies are likely to add 2-3 times more renewable energy than developed economies, so that is where the best opportunities may lie. The main driver behind power capacity additions in these markets over the next 25 years will be consumption growth, which stems from their current low electrification rates, growing population and economic expansion, a good framework for generating profits.

In OECD countries, the growth in renewable energy investments has been largely driven by government policies and incentives. This creates more policy risk in otherwise stable markets. In less mature markets, however, investments in renewable energy have been

<sup>&</sup>lt;sup>82</sup> <u>https://www.nbim.no/en/transparency/submissions-to-ministry/2016/investments-in-unlisted-infrastructure-in-the-government-pension-fund-global/</u>

<sup>&</sup>lt;sup>83</sup> https://www.nbim.no/en/transparency/submissions-to-ministry/2018/investments-in-unlisted-renewable-energy-infrastructure-in-thegovernment-pension-fund-global/

<sup>&</sup>lt;sup>84</sup> <u>https://www.nbim.no/en/transparency/submissions-to-ministry/2016/investments-in-unlisted-infrastructure-in-the-government-pension-fund-global/</u>



driven by growth in demand for energy<sup>85</sup>. This means that investing in less mature markets in renewables may not be riskier overall, but that the risk profile may be different.

The expert group on infrastructure investment set up by the Finance Ministry explicitly asked for NBIM to be allowed to invest in emerging economies, by saying "we recommend that the Ministry open up for unlisted emerging-market infrastructure investments in the management mandate to Norges Bank<sup>86</sup>".

Expanding its presently minimal exposure to developing economies, which already constitute almost 60% of global GDP and an even larger share of global growth, will also help NBIM diversify some of the structural and systemic risks it faces by being overexposed to slow growth ageing OECD economies.

NBIM admits that "In theory, such investments increase liquidity risk for NBIM". However, they state that the "likelihood of large unexpected withdrawals from the Fund is limited, and even then most of the Fund will still be invested in assets that can be sold quickly. The chances of a situation arising where NBIM is forced to sell one of our infrastructure investments are therefore small." Their conclusion in thus that "The Fund is ideal for investing in infrastructure assets with a long lifespan"<sup>87</sup>.

One major argument from the Ministry of Finance against investing in unlisted infrastructure in general, and in emerging markets in particular, has been a fear of reputational risk, considered especially harmful for a state-owned fund. The concerns may be understandable e.g. in a construction phase of larger scale hydro- or windprojects, where land rights and possible protests may cause conflicts.

This may however easily be avoided for example by only investing in brownfield projects in countries where this is considered a major risk, where these risks from the construction phase have already been dealt with. By buying out investors that are less risk averse, e.g. DFIs like Norfund, NBIM could free up their capital to invest in new projects.

In any case, investing in listed OECD country securities, as the Fund mostly does, also exposes it to reputation risk as became clear in the controversy regarding POSCO, a South Korean steel maker<sup>88</sup>. Listed firms also make large investments that come up against contentious issues of land, water and indigenous people rights. So the Fund already has to grapple with and manage reputational risks from its many existing investments and is well placed to be able to handle additional ones that might arise in clean infrastructure.

<sup>&</sup>lt;sup>85</sup> https://www.nbim.no/contentassets/d4dc0aaf69ba4f73b9112da6bef259c0/nbim\_discussionnotes\_4-15.pdf

<sup>&</sup>lt;sup>86</sup> <u>https://www.regjeringen.no/en/aktuelt/investments-in-real-estate-and-infrastructure-in-the-government-pension-fund-global-gpfg/id2466252/</u>

<sup>87 &</sup>lt;u>https://www.nbim.no/en/transparency/submissions-to-ministry/2016/investments-in-unlisted-infrastructure-in-the-government-pension-fund-global/</u>

<sup>&</sup>lt;sup>88</sup> https://www.reuters.com/article/norwayfund-posco/oecd-monitor-criticises-norway-wealth-fund-on-ethical-investment-policyidUSL5N0E80QE20130527



#### How should the decision processes work?

The decision process for unlisted renewable infrastructure should mirror that used for investments in unlisted real estate. According to NBIM, these are "governed by investment mandates, committee mandates and job descriptions", and "boards and committees, consisting of both internal and external advisers, meet regularly to consider relevant investments", and they "take account of investments in unlisted assets being costly to reverse"<sup>89</sup>.

In line with NBIM's own suggestions, we agree that in areas such as the drafting of partnership agreements, valuation, accounting, risk management and reporting, NBIM will be able to draw on experience from real estate management. This is in line with the Ministry's assertion that it would be best to build experience in unlisted real estate investments before also permitting other types of unlisted investment<sup>90</sup>. NBIM also has extensive manager evaluation skills, practical experience from unlisted real estate action state investments, and experience of managing the total risk in the portfolio within a comprehensive framework<sup>91</sup>.

Furthermore, NBIM has argued that unlisted investments should not serve to increase the complexity of management significantly beyond that which already follows from parts of the Fund being invested in unlisted real estate<sup>92</sup>.

In its annual presentation, NBREM asserts that the organisation for investing in unlisted real estate has been built up at low cost. Total costs as a share of average assets under management have trended downwards since inception, from 0.91 percent in 2011 to 0.65 percent in 2016. Similarly, internal costs fell from 0.57 percent in 2011 to 0.25 percent in 2016<sup>93</sup>.

This is a good sign that the costs of managing unlisted renewable investments should also be reasonable, and can be definitely kept below the 1%, and even the 0.5% mark, as these investments will require fewer employees and less frequent bigger deals, even if the expertise needed may be more expensive than what is necessary in real estate.

#### How will NBIM ensure transparency in its unlisted investments?

NBIM has been clear that it "attaches great importance to openness about the management of the Fund"<sup>94</sup>". Since "Less information is publicly available on unlisted investments than on listed ones", NBIM has a stronger responsibility to ensure as much transparency as possible on its investments, risks, costs, practices and partners. In the Fund's unlisted real estate investments, NBIM says their experience has been that they "have good access to information as an investor and there is no reason to think that this would not be the case in unlisted infrastructure."

<sup>&</sup>lt;sup>89</sup> <u>https://www.nbim.no/en/transparency/submissions-to-ministry/2017/review-of-norges-banks-management-of-the-government-pension-fund-global/</u>

<sup>&</sup>lt;sup>90</sup> <u>https://www.regieringen.no/contentassets/d0f08d6b04ac4b6b9f4efba17b4acff8/en-gb/pdfs/stm201020110015000en\_pdfs.pdf</u>
<sup>91</sup> ibid

<sup>&</sup>lt;sup>92</sup> https://www.nbim.no/en/transparency/submissions-to-ministry/2018/government-pension-fund-global--unlisted-equity-investments/

<sup>93</sup> https://www.nbim.no/en/transparency/reports/2017/real-estate-investments-2017/

<sup>94</sup> https://www.nbim.no/contentassets/e4ecdbe3a0844c61a907a43de42bc516/2018-01-08-gpfg---unlisted-equity-investments.pdf



We believe that investors in unlisted infrastructure have access to a far greater set of information about the projects than the typical investor in a listed company does. However, some of this information may be bound by confidentiality agreements.

That is why NBIM will have to report on unlisted infrastructure in a manner that helps outsiders assess the performance. As it has suggested for unlisted equity, NBIM should prioritise access to information and the right to share this information with others. These are factors that can be included when drafting the agreements it enters into<sup>95</sup>. Unlisted infrastructure's contribution to excess return could be reported on separately. Returns on unlisted infrastructure should be compared with relevant return metrics, but should also take account of the fact that the return on investments in a fund may be uncertain until the they are fully mature.

Drawing on the experience with NBREM, NRIM should follow the established practice for the fund's unlisted real estate investments. Management costs could be reported in such a way that they can be compared with those for the Fund's listed investments. An overview of partners and external managers should be included in the annual reporting, and holdings of unlisted investments should form part of the holding lists published each year<sup>96</sup>.

In its own words, "NBIM will aim to paint the broadest possible picture of the drivers of returns on infrastructure investments and the types of risk these investments expose the fund to.<sup>97</sup>". They have also promised to "provide the same detailed information on the Fund's investments in unlisted infrastructure as on the Fund's other investments<sup>98</sup>."

#### How should NBIM approach partnerships?

In NBIM's own words, "it will not be natural for NBIM to make its first infrastructure investments on its own, but it would seek partnerships instead"<sup>99</sup>. One approach may be to invest together with companies NBIM already knows that are considering sourcing private capital to finance individual projects. Another possibility may be to invest together with other investors, financial institutions or development banks. Partnerships of this kind are often used for large infrastructure investments<sup>100</sup>.

An investor can go into a partnership or form a joint venture with a more experienced investor – another institutional investor or a bank, manager or industrial player. Partnerships mean that investors can pool some investment costs, while retaining control over the investment decision. Another alternative is a co-investment, where a fund manager allows fund investors to invest directly in the fund's underlying assets. Surveys suggest the majority of institutional investors have used co-investing as an alternative to solo direct investment<sup>101</sup>.

<sup>&</sup>lt;sup>95</sup> <u>https://www.nbim.no/en/transparency/submissions-to-ministry/2018/government-pension-fund-global--unlisted-equity-investments/</u> <sup>96</sup> ibid

<sup>&</sup>lt;sup>97</sup> <u>https://www.nbim.no/en/transparency/submissions-to-ministry/2016/investments-in-unlisted-infrastructure-in-the-government-pension-fund-global/</u>

<sup>&</sup>lt;sup>98</sup> <u>https://www.nbim.no/en/transparency/submissions-to-ministry/2016/investments-in-unlisted-infrastructure-in-the-government-pension-fund-global/</u>

<sup>&</sup>lt;sup>99</sup> <u>https://www.nbim.no/en/transparency/submissions-to-ministry/2016/investments-in-unlisted-infrastructure-in-the-government-pension-fund-global/</u>

<sup>100</sup> ibid

<sup>&</sup>lt;sup>101</sup> https://www.oecd.org/finance/OECD-Pooling-Institutional-Investors-Capital-Unlisted-Equity-Infrastructure.pdf



NBIM's peer group of sovereign wealth funds are significantly more likely to make direct investments in infrastructure than comparable investors. 42% of sovereign wealth funds invest in infrastructure solely through direct holdings, while a further 49% combine direct and unlisted fund investment<sup>102</sup>.

Partnering with more experienced investors, infrastructure specialist, OEM suppliers for solar and wind, reputable project developers, development finance institutions such as Norfund or the IFC<sup>103</sup>, or striking up strategic partnerships with destination country governments are all good options that can be used in parallel to deploy NRIM's capital quickly, efficiently and effectively.

The Indian government's recent announcement of a roadmap to 100 GW solar power roadmap, together with PM Modi's invitation to PM Solberg to get Norway's SWF to invest in Indian infrastructure create a good opportunity for a strategic partnership<sup>104</sup>. Absent the availability of capital from sources such as NBIM, India is likely to burn as much as 50% more coal by 2030, something that would certainly mean that the limits agreed under the Paris agreement simply can't be met<sup>105</sup>.

Investing alongside DFIs and multilateral banks carries the added advantage of the possibility of risk mitigation for investments in developing economies, local expertise and knowledge that NBIM lacks, and even the possibility of partial political risk insurance - all of which can make such a partnership especially attractive.

# **5** Conclusion

Our concluding recommendations based on the analysis above, are thus the following:

- 1. NBIM should be allowed to divest from oil and gas
- 2. NBIM should be given a mandate to invest at least up to 5 % in unlisted renewable infrastructure.
- 3. The investments should not be restricted to OECD-countries, but especially seek to take advantage of the much more promising growth opportunities in emerging and developing markets.
- 4. NBIM should establish a subsidiary for renewable infrastructure management based on the model of NBREM and build experience by partnering with other investors.

<sup>&</sup>lt;sup>102</sup> <u>http://docs.pregin.com/newsletters/ra/Pregin-RASL-May-16-Feature-Article.pdf</u>

<sup>&</sup>lt;sup>103</sup> http://re-define.org/sites/default/files/sites/default/files/images/ReDefineReportonNorwaySWF.pdf

<sup>&</sup>lt;sup>104</sup> <u>http://blogs.worldbank.org/ppps/strategic-investment-funds-and-government-innovations-infrastructure-development</u>

<sup>&</sup>lt;sup>105</sup> https://www.economist.com/asia/2018/12/08/why-india-is-one-of-the-most-polluted-countries-on-

 $<sup>\</sup>underline{earth? fsrc=scn/fb/te/bl/ed/why india is one of the most polluted countries one arth poisonal laround$