

Nest Eggs in a Fragile Basket

Why Norway's Oil Fund Should Divest from Fossil Fuels



ZERO





Middlebury

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Norway Doubles Down on Oil

Investing an oil-producing country's savings in oil and gas stocks breaks the cardinal rule of prudent investment – mitigating risk by diversifying into non-correlated asset classes.

Norway is the world's third-largest natural gas exporter and seventh largest oil exporter. In 2012, 69% of Norway's exports came from oil and gas, and the sector contributed NOK 270 billion in tax and other revenues to the country's NOK 4.7 trillion sovereign wealth fund (commonly known as the Oil Fund). The Oil Fund's management has in turn invested NOK 280 billion in companies in the coal, oil and gas sectors. Norway has doubled down on its bet on the fossil fuel industry, a wager that looks increasingly risky.

This bet is occurring at a time when the world has begun to realize fossil fuels have a dim, not-too-distant future. *The Economist* predicted in its August 2013 issue that peak demand for oil will be reached in seven years, driven by new technologies, reduced subsidies and a China interested in developing its own, cleaner sources of energy. On the supply side, the picture is no prettier. Oil is getting increasingly hard to find and expensive to produce. *The Financial Times* recently reported that in the 2nd quarter of 2013, for the first time ever, several of the oil majors borrowed money to pay their dividend as they spent more money attempting to find new oil fields than they earned from operations. These companies are now in a desperate search to justify their future (and share price) while much of the world is starting to bet against them - and for more energy efficient and renewable alternatives.

Global warming adds an additional risk for fossil fuel investors. At least 2/3rds of the identified reserves valued on oil, gas and coal companies' balance sheets can never be extracted if the Earth's warming is held to the 2 degree limit that 141 countries (including Norway) committed to per the 2009 Copenhagen Accord. Climate pressure will lead to an increasing focus on energy efficiency, renewable alternatives, carbon pricing, phasing out of oil subsidies and stricter regulation – all initiatives that will reduce the demand for fossil fuels.

So how does the Oil Fund defend its fossil fuel shareholdings? With the standard institutional investor rhetoric of benchmark targets, a need for portfolio diversification and the claim that fossil fuel shares represent a “relatively small” percentage of its portfolio. However, the Oil Fund is not like other institutional investors whose capital is sourced from a diverse range of sectors. The Oil Fund is, by its very design, already *incredibly long* fossil fuels - further investment into fossil fuel shares seems both unwise and unnecessary.

With an 80+ year investment horizon and a duty to “safeguard Norway's wealth for future generations”, the Norwegian Oil Fund represents the world's most compelling financial case for divestment from fossil fuel shares.

The
Economist

Yesterday's fuel



Why demand for
oil will fall

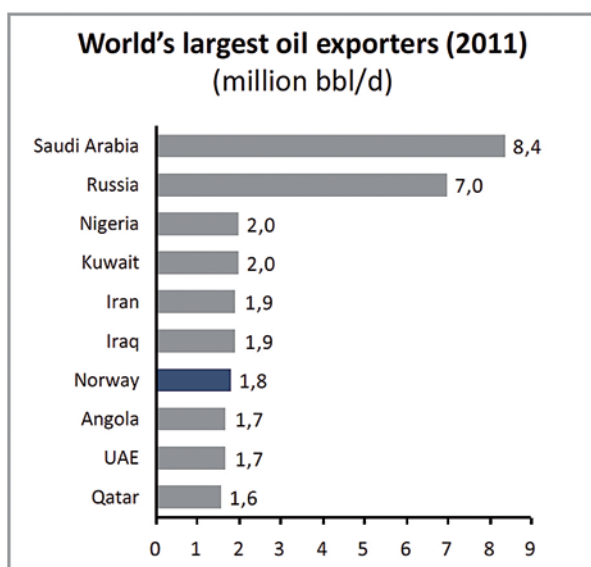
"I find the parallels between how some investors refuse to recognize the trends and our reaction to some of our environmental challenges very powerful. There is an unwillingness to process unpleasant data....You don't want to listen to the climate people who are telling you it is getting worse and even worse unless you do this and that. You want to listen to the good news."

- Jeremy Grantham, legendary investor, commenting on how the carbon bubble is the worst bubble he has seen in his 50-year career.

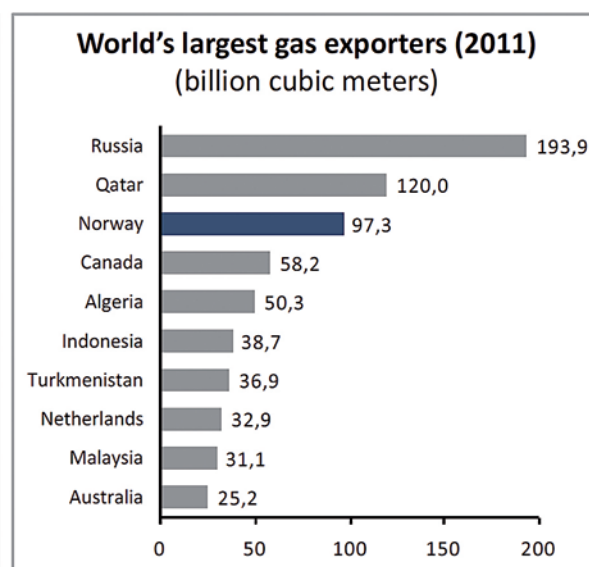
I. Norway's Oil Economy

Norway's direct exposure to the fossil fuel industry amounts to nearly NOK 2 trillion; its indirect exposure is much, much larger.

Since the discovery of the Ekofisk oil field in 1969, the Norwegian corporate and financial sectors evolved around one emerging, profitable and dominant industry – petroleum extraction. For the past 40 years, Norway's best and brightest engineering graduates have gone to work for Statoil, Norsk Hydro, Aker and other companies focused on oil and gas production. Financial graduates went to work for banks heavily focused on raising debt and equity capital for oil and gas companies. Some of these professionals eventually started their own drilling, shipping and extraction businesses, creating a massive concentration of Norway's intellect, intellectual property, revenue base and financial foundation on one asset - North Sea crude.



Source: Facts 2013



Source: Facts 2013

Of the 231 companies listed on the Oslo Stock Exchange, 61 (accounting for 49% of the total market capitalization) are in the energy sector¹. In 2012 alone, the petroleum production sector accounted for 23 percent of the total value creation in the economy².

In addition to driving the Norwegian economy, the petroleum industry is a significant source of revenue for the State. Production taxes and dividends from oil fields provided 30% of 2012 government revenue, totaling NOK 270 billion³. This revenue is transferred to the Norwegian Government Pension Fund – Global (the sovereign wealth fund known as the Oil Fund), which holds 60% of its assets in listed equities and the remainder in bonds and real estate⁴. As of October 1st 2013, the Oil Fund has total assets of NOK 4.68 trillion, equal to more than NOK 930 000 per capita⁵.

1 Oslo Børs: *A Practical Guide to Listing*.

2 Norwegian Petroleum Directorate: *FACTS 2013*.

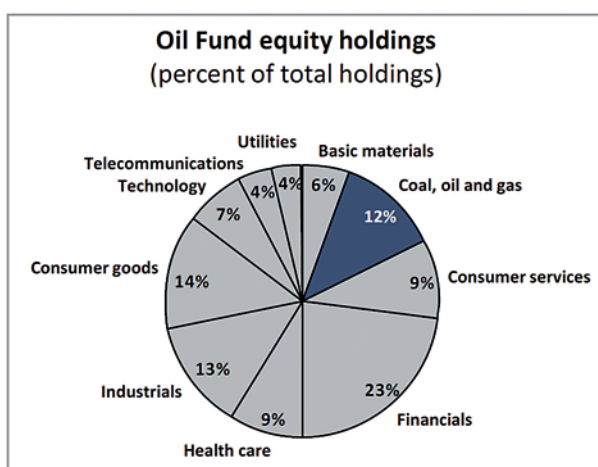
3 Norwegian Petroleum Directorate: *FACTS 2013*.

4 Government Pension Fund Global: *"Investment Strategy"*.

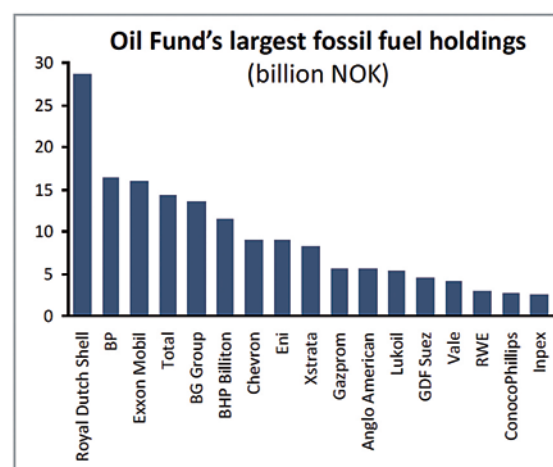
5 www.nbim.no.

Norway's Fossil Fuel Investments	Estimated Value 2012 (NOK)
Ownerships in oil & gas fields	1 140 billion
Statoil ASA (67% government-owned)	300 billion
Oil Fund fossil fuel holdings	280 billion
Total	1 720 billion

Norway as a country has a significant concentration of fossil fuel investments on its national balance sheet. The State owns a minority interest in most of the oil and gas fields on the Norwegian continental shelf. The value of these interests was approximately NOK 1 140 billion at the start of 2012⁶. The State also owns a 67% interest in Statoil ASA (Norway's leading oil company), a position valued at approximately NOK 300 billion⁷. In addition, the market value of the Oil Fund's equity holdings in companies operating (directly or indirectly) in the coal, oil, and gas sectors was NOK 280 billion at year-end 2012.



Source: Facts 2013



Source: NBIM

In addition to this direct exposure, Norway's entire economy is indirectly exposed to the trickle-down effect of salaries and wealth created from its primary industry. Housing prices, commercial bank loan portfolios, the Norwegian kroner – all are indirectly linked to the price and sustainability of oil and gas extraction. A recent study by The Norwegian School of Management (BI) estimates the share of the Norwegian economy that is directly or indirectly correlated to the price of oil is nearly 50%.

⁶ WoodMackenzie; *Valuation of State Direct Financial Interest*, 2012.

⁷ www.regjeringen.no.

II. The Courage to Divest

Norway needs to look beyond benchmarks and act like the financial leader it has become.

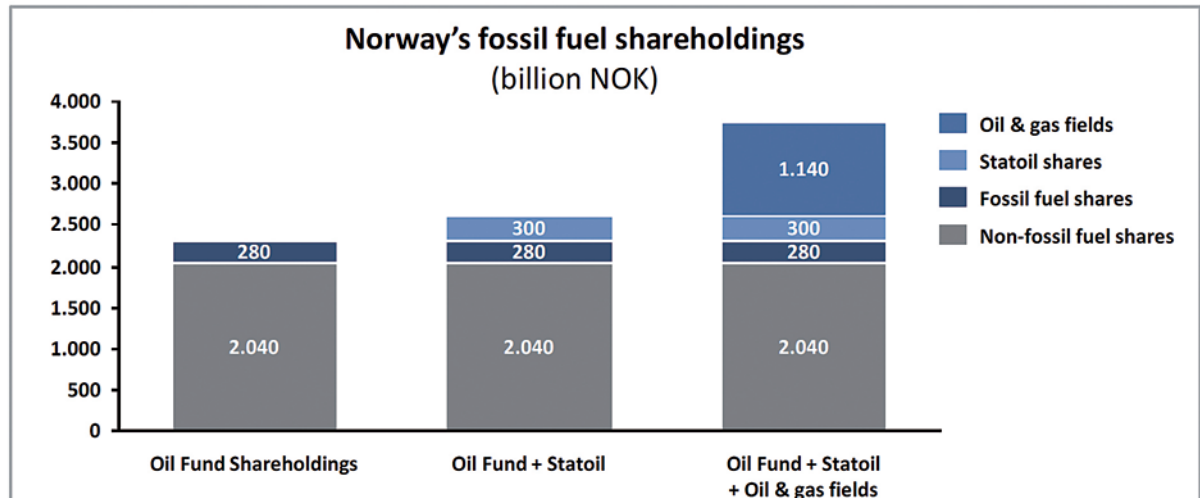
So how can a country as progressive, transparent and oil-reliant as Norway choose to “safeguard its future” in fossil fuel shares? Oddly, the answer in part is the thoughtful and conservative structure the country established to manage its unexpected oil windfall. Rather than allow the investment of the country’s savings to become politicized, Norway established a highly independent professional investment team, restricted the Oil Fund from investing in Norway, and limited annual withdrawals for budgetary purposes to 4% of total assets. However, by sheltering the Oil Fund from political intervention, the country has abdicated responsibility for conducting appropriate portfolio management at a national level.

The Oil Fund is managed by Norges Bank Investment Management (NBIM), an arm of the Norwegian central bank. NBIM acts like a third party money management firm, selecting its investment portfolio subject to the parameters outlined by its seven member Board of Directors (comprised substantially of Norwegian central bankers, ex-oil company executives and academics). The Board itself operates under a mandate from the Ministry of Finance and the Norwegian parliament. NBIM has a large, professional staff (340 employees) and manages 96% of the Oil Fund’s assets internally. NBIM compensates its professionals with market rate salaries and performance pay relative to identified benchmarks.

In its quest to create an independent and cautious manager of its savings, Norway has fallen into the institutional trap of using consultants and benchmarks to avoid taking responsibility for the portfolio it owns. So long as it hides behind the results and composition of the FTSE/MSCI benchmark (for listed equities), it does not need to ask the tough questions, like ‘should Norway be further exposed to fossil fuel shares?’ NBIM cannot be expected to answer this question – its mandate is clearly apolitical and it operates a classic Wall Street model of significant bonuses based on short term, relative performance. However, as the world’s largest investor, and one owned by a highly educated population, Norway as a country is uniquely positioned to move beyond benchmarks and do what makes financial sense.

Norway and the Oil Fund have no peers. There are some extreme differences between a traditional money manager and the Oil Fund / NBIM, and it is these differences that make divestment from fossil fuel shares so compelling. These include:

- 1. Fossil fuel shares do not provide diversification for the Oil Fund.** Most investment funds (and the benchmarks they track) include energy shares in their holdings as part of a diversification strategy across many sectors. Institutional investors spend considerable time building risk models to ensure their portfolios are highly diversified and can withstand external shocks in one sector without excessively impacting total return. As the sole contributor of its revenue, the Oil Fund is already massively exposed to the oil and gas sector. There is no financial justification for wagering the country’s savings on further fossil fuel bets.
- 2. The Oil Fund has a nearly infinite investment horizon.** Most institutional portfolio managers are not focused on the long or medium term. The average mutual fund holds positions for only 18 months, the average listed share is held for 3 months and 70% of all stock trading is now executed by high frequency traders who hold their equity positions for a few seconds or hours at most. The period of analysis for most of these investors ranges from a few minutes to at most 10 years – any negative events occurring beyond this timeframe is likely irrelevant to their investment thesis.



Source: NBIM, Norway Central Bank, Statoil, Wood Mackenzie

The Oil Fund has exactly the opposite goal – namely to provide for Norwegians more than 80 years into the future. With an 80+ year horizon, the Oil Fund needs to be highly focused on large macro events that can impact share prices from here to there. If the two degree goal of the Copenhagen Accord is to be achieved, shares in all of the fossil fuel companies will inevitably re-price downward at some point.

3. **The Oil Fund has a single, captive client: Norway.** The typical portfolio manager has many clients that measure his performance quarterly based upon results relative to a benchmark. If the portfolio manager underperforms for just one or two quarters, many of his investors may redeem their investments and move on to someone new. This dynamic creates not only lemming-like behavior but an all-consuming focus on short term performance. Highly negative events 5 - 10 years or more in the future are often considered irrelevant. The Oil Fund does not have this pressure. It has a single client that is highly aligned with its mandate of achieving long-term, moderate-risk performance. Lacking the fear of client redemptions – the Oil Fund is well positioned to act independently and take the long view.
4. **The Oil Fund is one of the most powerful institutional investors in the world.** As the world's largest sovereign wealth fund with a rapidly increasing asset base, the Oil Fund is an extremely influential investor. The Oil Fund's NOK 4.7 trillion in assets is likely larger than all of the university endowments in the world combined. One of the universities' primary arguments against fossil fuel divestment is their small size and inability to control outside managers who invest on their behalf. Given its size, influence and internal management, the Oil Fund has complete discretion over the strategies it pursues.

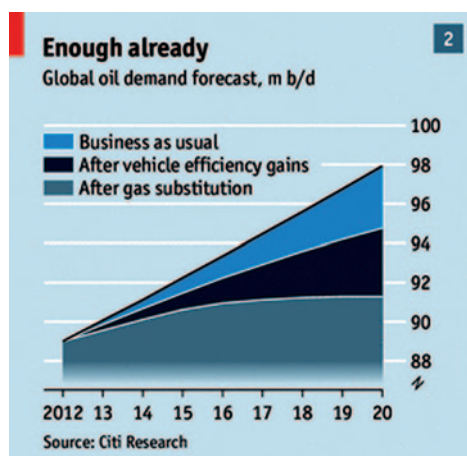


III. Fossil Fuel Shares: Racing Against the Clock

Investing in fossil fuel shares today offers limited upside with significant risk.

Given Norway's massive exposure to fossil fuels, and its apparent desire to own yet more through the Oil Fund portfolio, one would assume these shares reflect a uniquely high potential investment opportunity that cannot be found in other sectors. The reality is the potential for these shares has never been lower and determining their intrinsic value has never been harder.

Investors long ago gave up on fossil fuel companies as a growth play, but were comfortable holding these shares given their large, consistent dividends. However, the sustainability of the dividends themselves has recently been called into question as the costs of extraction are threatening the future profitability of these historically prolific cash generators.



ability of these historically prolific cash generators. Investors are growing increasingly skeptical – as a group the five oil majors have heavily underperformed the S&P 500 for the past few years, and year-to-date have delivered a 1.8% return versus the S&P 500's 16%.

Lacking growth or a sustainable dividend, the remaining investment thesis seems to be that fossil fuel companies are a value play - temporarily mispriced relative to their intrinsic value. This thinking stretches even the most creative mind. The world is changing rapidly - *The Economist* recently predicted demand for oil will peak in 7 years. It has become increasingly clear that there are serious flaws in the once great oil and coal business models.

New developments that threaten the long-term performance of fossil fuel shares include the following:

Expensive New Supply

After decades of pumping the “easy” and established fields in the Middle East and the North Sea, producers are now in a desperate quest to source new supply. As *The Financial Times* noted, producers are “pushing into ever more remote, technically challenging and more capital intensive frontiers⁸”. The true cost of sourcing new product showed up in the 2nd quarter results of the oil majors – massively increased capital expenditures forced several of these companies to borrow money to pay dividends. This is a troubling dynamic for investors – betting these companies can find new oil to justify the capital investment. Bernstein Research estimates the total marginal cost of production for the 50 largest oil and gas producers increased from \$83/bbl in 2010 to \$92/bbl in 2011, an annual increase of 11%⁹.

Innovation & New Technologies

Perhaps the greatest threat to fossil fuel shares is the rapidly emerging technological developments that are transforming energy markets around the globe. While the most obvious and immediate threat to tra-

8 Financial Times, “Oil Majors Trapped in Cycle of Spending More, But Finding Less”. August 11th, 2013.

9 Bernstein Research, “Era of Cheap Oil Over”, May 2, 2012.

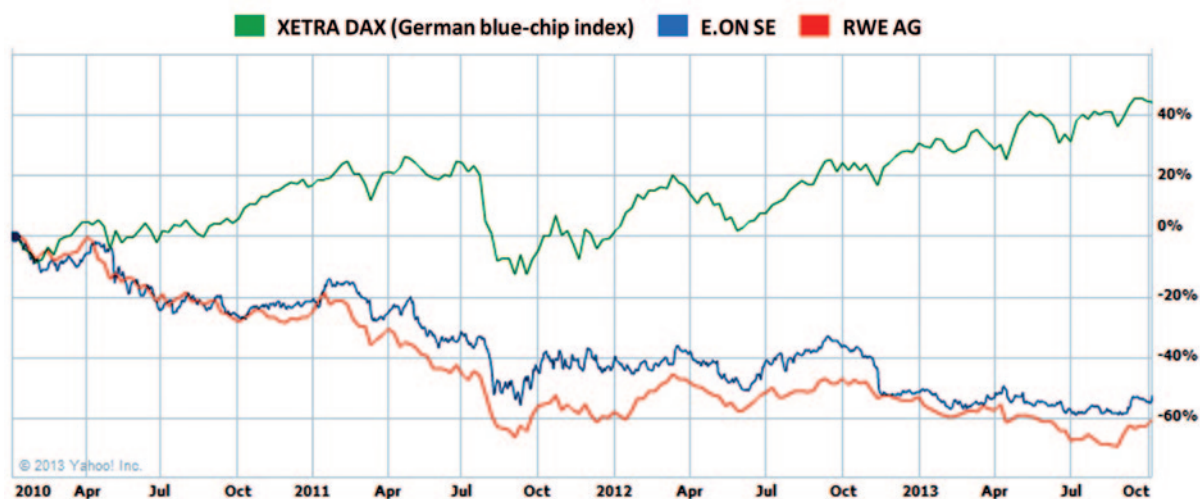
ditional fossil fuels is the emergence of shale gas in the U.S., less understood is the degree to which new technologies and renewable initiatives are beginning to have a profound impact.

Solar energy is now at price parity with fossil fuel generated electricity in many parts of the world. And solar is getting cheaper. Another area of remarkable progress is the increased fuel efficiency of automobiles and the potential of electric cars. Citi Research estimates the U.S. will mandate efficiency of 47-62 miles per gallon by 2025, a dramatic improvement that could significantly diminish the demand for fossil fuels.

Some institutional investors acknowledge fossil fuels have a dim future, but believe they can market time their exit, as the real impact of changes in supply, demand and the climate won't appear for many years. Markets are hardly perfect, and can often take years or decades to factor in relevant systemic changes. However, this strategy is risky, for when a paradigm shifts, it often shifts quickly.

The German utility sector is a perfect example. Following the implementation of the EU Renewables Directive in 2009, Germany issued its National Renewable Action Plan in 2010, setting a target of 38.6% share of renewables in the electricity sector by 2020. German renewable policies have subsequently lead to massive private investment in solar and wind technology, which in turn has contributed to a 30% reduction in wholesale power prices.

This rapid transition toward renewables has heavily impacted traditional energy producers. Shares of Germany's two largest (primarily coal burning) utilities (RWE and EON SE) are down 60% since 2010. On August 17, 2013, RWE announced it was shutting down 6% of its total power generation capacity, conceding that "due to the continuing boom in solar energy, many power stations throughout the sector and across Europe are no longer profitable to operate¹⁰."



China's Evolving Energy Policy

China has long been considered the future demand driver for fossil fuels, with China accounting for over 40% of the increased demand for oil in the past 5 years. However, China has emerged as the most aggressive backer of renewable energy and the one suffering most from the polluting effects of fossil fuels. A recent research report identified that outdoor air pollution contributed to 1.2 million premature

10 Financial Times, "Solar Energy Takes Shine of RWE" August 17th, 2013.

deaths in China – representing a loss of 25 million healthy years in the Chinese population¹¹. Seeing the worsening congestion, dangerous levels of air pollution, and increased dependence on foreign oil, Beijing used the 2011-2015 Five Year Plan to abruptly halt generous subsidies and tax breaks for the traditional automobile industry.

While it is likely China will remain a major consumer of fossil fuels in the short term, it is also likely China (and India) may opt to leapfrog inefficient and polluting technologies, just as they did by embracing mobile phones and skipping over fixed line telephony. As the dominant producer of wind technology, silicon and solar panels, China is well positioned to execute on a leapfrog strategy.

National Oil Companies (NOC's)

A less understood dynamic is the degree to which national oil companies (such as Rosneft, Petro China and Petrobras) have matured and replaced oil majors as the future of the fossil fuel industry. As Bain & Company highlighted in a recent report¹², in the 1970's NOC's controlled less than 10% of the world's oil and gas reserves, today they control over 90%. Historically, the NOC's relied on the oil majors for the technical expertise to develop and manage their oil and gas assets. Today, the NOC's have this expertise in house or can obtain it from 3rd parties, and no longer need to partner with oil majors. In addition, the NOC's often have the benefit of much cheaper and plentiful capital, so they can generally outbid or overpay for opportunities. The combination of NOC's independence, assets, cost of capital and political influence certainly pose a major threat to the traditional oil majors' approach to business development.

Regulatory Action

Despite weak efforts to date, few doubt that governments will eventually be forced to end fossil fuel subsidies and put a price on carbon. Fossil fuel producers are unique in that they do not have to pay for the pollution they cause. Virtually nobody disputes the damage done by fossil fuels, so it is only a matter of time before the political will emerges to implement a carbon tax or other punitive regulatory actions. Emission trading systems (ETS) are being introduced worldwide, with even China launching seven pilot schemes in 2013.

Additionally, the \$500 billion in annual coal, oil and gas consumer subsidies¹³ are likely to be reduced over time. It is increasingly difficult for governments to aid and abet the fossil fuel polluters at the same time they are committing to fight climate change. The reduced subsidies will in turn decrease demand for fossil fuels and increase the cost competitiveness of renewable energy.

For an investor in fossil fuel shares, this shift in policy poses great risk and is not already factored into market pricing. The producers themselves continue to operate as though change will never come – oil companies are underwriting a 3-4 degree warmer world in their projections (see Statoil's recently published *Energy Perspectives 2013*). After so many decades of free riding, fossil fuel producers cannot imagine a world where carbon is truly priced and alternatives exist.

Overvalued Reserves

The oil majors' aggressive pursuit of new supply is even more concerning given that 2/3rds of the world's known fossil fuel reserves must stay in the ground in order to limit global warming to the 2 degree consensus. The Norwegian Environmental Ministry recently ordered a report from Rystad Energy (a leading Norwegian oil research firm) to determine the impact of limiting global warming to 2 degrees on oil and

¹¹ Global Burden of Disease Study 2010, December 13, 2012.

¹² Bain & Company, *National Oil Companies Reshape the Playing Field*.

¹³ International Monetary Fund, *Energy Subsidy Reform: Lesson and Implications*.

gas production. Rystad conducted detailed financial analysis on 68,000 oil & gas fields throughout the world. The Rystad report was based on the International Energy Agency's 2 degree scenario¹⁴ which assumes 78% of known coal resources are left in the ground. Rystad concluded that based upon these assumptions, all oil fields currently in production or under development could be produced. However, 59% of all oil and gas reserves identified but not yet sanctioned for development, along with 45% of likely oil and gas finds from undiscovered reserves will be left stranded.

Realizing so much of the reserves cannot be commercialized, some investors are beginning to question how to value fossil fuel producers. Other investors argue the current price already reflects a discount on potential value, and thus justifies current share prices. That may be so, but this rationale assumes business as usual in a world where business is getting very unusual. **Today's share prices generally reflect the significant gap between investor knowledge/behavior and the scientific reality of climate change.**



¹⁴ International Energy Agency, *Energy Technology Perspectives 2012 – 450 ppm Scenario*.

IV. The Path Forward

Norway's future lies beyond oil and gas

There seems to be an emerging consensus that Norway needs to start planning for life after oil and gas. Yet, when it comes to the Oil Fund's ownership of fossil fuel shares, there has been muted commentary over something that seems remarkably obvious.

Norway has been a pioneer in socially responsible investing – actively and publicly divesting from palm oil, tobacco companies and even Walmart. The Oil Fund needs to show the same level of decisive leadership with fossil fuels. Norway's wealth is too important for the country's future to simply follow the advice of investment consultants by tracking conventional benchmarks without considering the country's entire balance sheet and fossil fuel exposure.

Among institutional investors who acknowledge the need to divest, the common approach is to first divest from the most damaging fossil fuel companies, typically those involved with coal and tar sands development. While this is a sensible approach given that these shares are most vulnerable, there is no practical reason why the Oil Fund could not divest entirely from its fossil fuel shareholdings in a relatively short timeframe. Despite the Oil Fund's massive size (it owns on average 1.25% of all listed shares in the world), most of its holdings are in highly liquid shares.

As an example, the Oil Fund's largest fossil fuel position is Royal Dutch Shell, which totals approximately \$4.8 billion (representing 2.5% of the company's total shares). While this is a significant position, it represents only two days of the average trading volume for the stock – even with Royal Dutch Shell an exit could be achieved in an orderly and efficient manner without moving markets. NBIM should redeploy the NOK 280 billion in capital into various strategies, companies or indexes that provide better diversification and return potential.

In the end of the 20th century, Norway built a wealthy economy and advanced its social welfare state by capitalizing on its natural resource base. The challenge for the 21st century is to diversify in order to safeguard against trends that might threaten that wealth. **With its Oil Fund, Norway is well poised to lead a movement of broader investor awareness that rests on the realization that the booming days of oil and gas production will eventually come to an end. Probably sooner rather than later.**



Zero Emission Resource Organization is an environmental organization dedicated to reducing climate change by demonstrating and gaining acceptance for zero emission energy solutions. We believe a zero emission solution exists for all energy use. Our mission is to work consistently for these solutions.

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