

OPEN LETTER TO THE NEW ZEALAND GOVERNMENT

FROM SENIORS CLIMATE ACTION NETWORK (SCAN)

THE NEED TO RESCIND ALL PERMITS FOR NEW DRILLING AND MINING FOR ADDITIONAL FOSSIL FUELS

AND

THE NEED TO DEVELOP ADDITIONAL RENEWABLE ENERGY AND ALLIED INFRASTRUCTURE

Background

The New Zealand Greenhouse Gas Inventory measures New Zealand's progress against obligations under the United Nations Framework Convention on Climate Change (the Convention) and the Kyoto Protocol and is the official basis for measuring New Zealand's progress towards its international emissions reduction targets. New Zealand ratified the Convention on 16 September 1993 and the Paris Agreement on 4 October 2016. In 2017, New Zealand's gross greenhouse gas emissions were 80,853 kilotonnes carbon dioxide equivalent comprising 45% carbon dioxide, 42% methane, 11% nitrous oxide and 2% fluorinated gases (MFE, 2018). New Zealand's gross emissions had increased by 23% since 1990 with an average growth rate of 0.8% per year,

The Climate Action Tracker website provides an independent scientific analysis which tracks government climate action and measures it against the globally agreed Paris Agreement aim of holding warming well below 2°C, and pursuing efforts to limit warming to 1.5°C. On 2nd December 2019, Climate Action Tracker rated New Zealand's commitment to reducing greenhouse gases as being "Insufficient". The rating of "Insufficient" is described by Climate Action Tracker as follows:

"Commitments with this rating [Insufficient] are in the least stringent part of their fair share range and not consistent with holding warming below 2°C let alone with the Paris Agreement's stronger 1.5°C limit. If all government targets were in this range, warming would reach over 2°C and up to 3°C."

New Zealand became one of the first countries in the world to ban new oil and gas exploration permits in 2018, but this ban does not apply to permits issued before the ban (NZ Herald, 2018). New oil and gas exploration can still continue under previous permits. The Austrian oil giant OMV is one of the top 100 oil and gas producers in the world which, together, account for 71% of global industrial greenhouse gas emissions (Griffin, 2017). OMV holds the majority of permits to drill for oil and gas offshore from New Zealand. In July 2019, OMV confirmed that it would be drilling a one-off exploration off the coast of Otago in the summer of 2020 at the cost of about \$80 million (Otago Daily Times, 2019).

Additional fossil fuel exploration is not needed because a large proportion of proven reserves of fossil fuels need to stay in the ground in order to achieve a 2°C pathway to mitigating climate change (McGlade & Ekins, 2015; UNEP, 2019). OMV's investment in additional fossil fuel exploration is an example of becoming a stranded asset (Carbon Tracker Initiative, 2015), especially when there is currently a global groundswell of divestment in fossil fuel exploration (The Guardian, 2020):

"Barclays is being urged to stop offering loans to fossil fuel companies as part of the first ever shareholder climate resolution aimed at a UK bank. A group of 11 pension and investment funds managing more than £130bn worth of assets have filed a resolution calling for Barclays to set clear targets to phase out services to energy companies that fail to align with Paris climate goals."

New Zealand's ban on new oil and gas exploration permits does not go far enough to accomplish its commitments to reduce greenhouse gas emissions. For the following reasons, all permits issued before the ban to undertake new drilling and mining for additional fossil fuels should be immediately rescinded.

The New Zealand government has recently announced plans to spend \$12 billion on extra infrastructure (Beehive, 2020). For the following reasons, it is prudent for the New Zealand government to divert a substantial proportion of available investment to developing additional renewable energy and allied infrastructure now rather than later. Investment in the New Zealand railway network is a step in the right direction.

Urgency to reduce greenhouse gas emissions due to risk of triggering tipping points

A climate change tipping point is where positive feedback processes pass a threshold and start to dominate negative feedback processes resulting in an irreversible cascade of climate change (IPPC, 2015). The current thawing of permafrost and release of methane (CH₄) which is 30 times more potent than carbon dioxide (CO₂) is one example of a potential tipping point. CO₂ and CH₄ released to the atmosphere result in higher global temperatures which, in turn, accelerate the thawing of permafrost which, in turn, releases more CH₄ (Tarnocai et al., 2009; Dolman et al., 2010). This process will continue to accelerate unless the current rate of global greenhouse gas emissions is curbed and the net volume of global greenhouse gas emissions is reduced to zero.

A study by Steffen et al. (2018) of potential tipping cascades caused by interactions of tipping elements - the melting of permafrost is but one element - concludes that the risk of triggering tipping points is real and should be taken seriously. Greenhouse gas emissions are cumulative in the atmosphere and the higher the concentrations in the atmosphere, the greater are the risks of triggering tipping points. A runaway of irreversible tipping points constitutes an existential threat to humankind and ecosystems upon which we are dependent for survival. All countries should avoid the risk of runaway tipping points by reducing their greenhouse gas emissions as quickly as possible. One way to do this is to invest in renewable energy and allied infrastructure now rather than later and not invest in new drilling and mining for additional fossil fuels when the fossil fuels used during exploration and success of exploration can only but result in additional greenhouse gas emissions.

Urgency to reduce greenhouse gas emissions due to the dynamics of air pollutants

The combustion of fossil fuels produces emissions of CO₂, a long-lived gas, and also short-lived pollutants (sulphur dioxide SO₂ etc.) which contribute to the formation of atmospheric aerosols. Short-lived atmospheric aerosols cool the planet and mask the full potential of global warming due to emissions of greenhouse gases.

Aerosol particulates are highly toxic when inhaled and lead to millions of premature deaths per year. Phasing out of fossil fuel combustion will provide health benefits, but will also reduce the extent to which the warming induced by greenhouse gases is masked by aerosols. There are trade-offs between the rate of change in reductions in aerosols (flue-gas desulphurisation of coal-fired power plants) and reductions in CO₂ emissions. According to recent research by Shindell and Smith (2019), if aerosols alone are rapidly removed, then the rate of warming could accelerate from current levels of about 0.2 °C per decade to 0.4 to 0.8 °C per decade.

China and other countries are undergoing programmes of reductions in SO₂, but global levels of CO₂ are currently not decreasing (Climate Action Tracker). Shindell and Smith (2019) conclude:

“The apparent success of ongoing efforts to reduce air pollution in countries such as China therefore adds to the urgency to phase out the use of fossil fuels.”

Reductions in CO₂ levels need to keep pace with reductions in SO₂ and other pollutants so as to avoid a pulsing effect of a sharp increase in global warming. A go-slow approach to reducing greenhouse gas emissions is a risky approach.

Urgency to reduce greenhouse gas emissions due to the dynamics of transition from fossil fuels to renewables

Sgouridis et al. (2016) address the dynamics of a global transition from fossil fuels to renewables while mitigating the impact of climate change. A key result of their publication echoed by a number of peer reviewed publications is that a transition from fossil fuels to renewables should take place not only as soon as possible, but also at the highest rate that is possible while still reducing greenhouse gas emissions. Unwarranted delays in transition would make a transition more difficult, if not impossible. Enabling an immediate and rapid transition without increasing greenhouse gas emissions will require diversion from production that bolsters continued use of fossil

fuels to that of renewables and allied infrastructure. Reductions in wasteful consumption will also be necessary. Business as usual is not an option.

A transition from fossil fuels to renewable energy will reduce greenhouse gas emissions, but a major problem is that this transition will require use of fossil fuels to set up new infrastructure, plant, machinery, vehicles etc. (embodied energy) at the very same time as the need to reduce greenhouse gas emissions. Investment in new drilling and mining for additional fossil fuels can only but exacerbate present day CO₂ emissions, whereas investments in renewable energy will result in reductions in CO₂ emissions. In order to reduce CO₂ emissions while at the same time investing in renewable energy, it is necessary to divert unnecessary investment, including new drilling and mining for additional fossil fuels, to investments in additional renewable energy and allied infrastructure.

Sgouridis et al. (2016) conclude:

“... we need the energy from fossil fuels to transition away from their use. This requirement is analogous to ‘the sower’s strategy’ ... the long-established farming practice to save a fraction of the current year’s harvest as seeds for the next. Fossil fuels are finite but we can ‘sow’ what these fuels provide: energy and minerals to create the capital needed for the transition.”

The need to keep fossil fuels in the ground

In order to avoid an existential threat to humankind and our ecosystems, the vast bulk of existing fossil fuel reserves need to be kept in the ground. Globally, we already have more than sufficient proven fossil fuels reserves to eliminate the Antarctic ice sheet with a resulting 58 metre global sea-level rise (Winkelmann et al., 2015). Globally, a third of oil reserves, half of gas reserves and over 80 % of current coal reserves should remain unused in order to meet the IPCC target of 2°C (McGlade & Ekins, 2015). ‘

By all means, nations should use natural gas from existing wells to replace coal so as to reduce CO₂ emissions, but only if flaring of CH₄ to CO₂ and inevitable leakages of CH₄ are minimised to a level where there are actual reductions in CO₂ equivalents. However, there are serious doubts whether actual reductions are achieved and climate change is mitigated with a transition from coal to gas. In a study of coal combustion to gas and the influence of methane leakage, Wigley (2011) concludes:

“When gas replaces coal there is additional warming out to 2050 with an assumed leakage rate of 0%, and out to 2140 if the leakage rate is as high as 10%. The overall effects on global-mean temperature over the 21st century, however, are small.”

Wigley’s (2011) study does not take into account the additional embodied fossil fuels and attendant greenhouse gas emissions involved in replacing coal combustion with gas combustion plants. This use of fossil fuels is better served to develop additional renewable energy and allied infrastructure.

Regardless of the above, the rationale that coal should be replaced with gas because gas produces approximately half the amount of CO₂ per unit of primary energy compared with coal is equivalent to the smoker saying he will reduce his cigarette consumption from 20 cigarettes per day to 10 cigarettes. The smoker is really saying he wants to continue smoking as usual and that he has no real commitment to stop smoking. Given our crisis of climate change, business as usual cannot and should not continue. We need to curb and reduce our greenhouse gas emissions now. We need to curb and reduce burning fossil fuels now. There is no wiggle room for prevaricating.

According to McGlade & Ekins (2015):

“It has been estimated that to have at least a 50 per cent chance of keeping warming below 2°C throughout the twenty-first century, the cumulative carbon emissions between 2011 and 2050 need to be limited to around 1,100 gigatonnes of carbon dioxide (Gt CO₂). However, the greenhouse gas emissions contained in present estimates of global fossil fuel reserves are around three times higher than this, and so the unabated use of all current fossil fuel reserves is incompatible with a warming limit of 2°C”.

The United Nations estimates the world will produce 50% more oil, gas and coal than is necessary to keep temperatures below 2°C, and there will be 120% more fossil fuel production than we can have if we want to limit warming to 1.5°C if business as usual should continue (UNEP, 2019). This includes continued exploration for additional fossil fuels.

United Nations climate official Christiana Figueres has told The Guardian (2019):

“Ensuring a liveable planet for future generations means getting serious about phasing out coal, oil and gas. Countries such as Costa Rica, Spain and New Zealand are already showing the way forward, with policies to constrain exploration and extraction – others must now follow their lead. There is no time to waste.”

New Zealand’s ban on new oil and gas exploration permits will not constrain exploration and extraction of fossil fuels when permits issued to do so before the ban remain exempt.

Summary

- If greenhouse gas emissions are not sufficiently curbed as soon as possible, then there are real risks of triggering tipping points, the cascading of which will result in an existential threat to humankind and ecosystems.
- Reductions in CO₂ levels need to keep pace with reductions in SO₂ and other pollutants so as to avoid a pulsing effect of a sharp increase in global warming. A go-slow approach to reducing greenhouse gas emissions is a risky approach when China and India have every incentive to reduce their emissions of aerosol pollutants into the atmosphere.
- A transition from fossil fuels to renewables should take place not only as soon as possible, but also at the highest rate that is possible while still reducing greenhouse gas emissions. Unwarranted delays in transition would make a transition more difficult, if not impossible.
- A major proportion of proven fossil fuels reserves need to stay in the ground in order to avoid climate change exceeding the globally agreed Paris Agreement aim of holding warming well below 2°C.

Conclusions

The New Zealand Government should immediately rescind all permits for new drilling and mining for additional fossil fuels and divert a substantial proportion of available investment (\$12 billion) to developing additional renewable energy and allied infrastructure now rather than later.

Signed on behalf of Seniors' Climate Action Network (SCAN - greater than 50 members).

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Facebook: <https://www.facebook.com/groups/964056880274284/>

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