PAST DUE

Tallying the Costs of Oil and Gas Cleanup in Canada

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environmental defence

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A REPORT BY:

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INTRODUCTION

Oil and gas extraction comes at a high environmental cost. Fossil fuel companies have drilled hundreds of thousands of oil wells, created massive toxic tailing ponds, and damaged the environment in other ways. These are collectively referred to as environmental liabilities.

Despite legal requirements for these companies to clean up after themselves[1], oil and gas companies have not been directing their spending here. In recent years, the industry has enjoyed skyrocketing profits, but these profits have flowed mainly to investors and executives, not to cleanup costs.[2] Meanwhile, the spectre of unfunded environmental liabilities grows more worrisome each year as the world grapples with climate change and the urgent need to phase out fossil fuels.

To get a sense of what a responsible approach to addressing these liabilities could look like, we commissioned the Parkland Institute to produce a "balance sheet." What are the costs of cleaning up the damages left behind by fossil fuel companies? What magnitude of payments need to be made as oil and gas production levels decrease over time? And how much of their estimated profits must be directed towards this cleanup?

The full research report from Parkland Institute is available here. This report summarizes the key findings from that research.

Our key take-away: oil and gas companies have the means to pay for the cleanup. However, companies are shirking this responsibility, instead lobbying for giant subsidies and directing their profits into shareholder dividends and share buybacks. **Oil and gas companies need to be forced to use their corporate profits to clean up their mess beginning immediately to ensure those costs don't fall on to the public.**

There are just a few years of remaining oil and gas production in Canada before we go far beyond our carbon budget.[3] During these years, the oil and gas industry is expected to collect immense profits. Whether those revenues are used to clean up the environmental legacy of the industry, or whether they all go to private profit, is a question that we must address.

KEY FINDINGS

With a focus on the western provinces of British Columbia, Alberta, and Saskatchewan, this report examines three different timelines for phasing out the production of oil and gas, which are explained in more detail further below:

- A "Fair Share" scenario with Canada's oil and gas production ending almost immediately, by the end of 2023. This scenario is not politically realistic, but is the only scenario which aligns with global equity, considering Canada's historical emissions and ability to transition.
- An "Economically Efficient" scenario with current production levels continuing for six years.
- A "Business As Usual" scenario with current production levels maintained until 2040. This scenario ignores global equity.

Under the "Economically Efficient" scenario, the percentage industry profits that must go to paying for the cleanup of the oil and gas sector's environmental liabilities is:

37%

For each scenario, the report authors compare the expected revenues from remaining production to the current and mounting cost of environmental liabilities. Under the "Economically Efficient" scenario, at least 37 per cent of industry profits must go to paying for the cleanup of the oil and gas sector's environmental liabilities. Even with longer phaseout timelines in the "'Business As Usual' scenario", nearly 20 per cent of profits must go to environmental cleanup.

Oil and gas corporate profits can cover cleanup costs. Public funding for the cleanup of environmental liabilities is an unnecessary and inefficient subsidy to oil and gas corporations. Yet, the federal government provided $1.7 billion in 2022 for this cleanup, and the Alberta government is piloting a royalty credit program which could see billions more going to subsidize wealthy oil and gas companies for cleanup that they should pay for.

Instead of providing these subsidies, governments in Canada must enforce the Polluter Pays principle which holds oil and gas companies accountable for their environmental liabilities. To date, this is not happening. Governments have not collected nearly enough money from the industry to cover these costs: Saskatchewan holds around two and a half per cent of the funds required,[4] and Alberta holds less than one per cent for the traditional oil and gas sector and around three per cent for tar sands.[5]

As oil and gas production decreases in order to stay within climate-safe carbon budgets, oil and gas companies must be forced to invest their profits into addressing their environmental liabilities to ensure the huge bill they are leaving behind doesn't fall to taxpayers.

METHODOLOGY

This report asks three questions: how much Canadian oil and gas production is remaining within climate-safe temperature limits; how large are current and mounting environmental liabilities; and how much profit will oil and gas companies generate? Using these three inputs, we arrive at an approximation for how quickly liabilities need to be addressed in order to avoid them being stranded and passed on to taxpayers.

To address the first question about remaining oil and gas production levels, carbon budgets are used.

1. A Carbon Budget Approach

Fossil fuels are causing the climate crisis.[6] Most of the emissions from oil and gas come when the oil and gas gets burned – not when it is produced. This means that focusing exclusively on the emissions that come from producing oil and gas – rather than consuming it – ignores 80 per cent of the problem. The industry wants to convince decision-makers that they can reduce emissions through speculative technology, especially carbon capture and storage (CCS). Despite 50 years of investments, for most applications the technology is neither economically sound nor proven at scale. It has a terrible track record and limited potential to deliver significant, cost-effective emissions reductions.[7] That's why global CCS capacity still remains negligible, despite the hype. CCS does nothing about the emissions that come from using fossil fuels, or the methane emissions from the production and transportation of fossil fuels. The bottom line: you cannot separate fossil fuels from their emissions.

The science is clear: the production of fossil fuels needs to be phased out in order to avoid catastrophic climate break-down.[8] Canada is a wealthy and high-emitting country with vast stores of fossil fuels and globally significant historical extraction. Governments in Canada must begin planning for this transition off of fossil fuels. An essential element is determining the pace and scale.

This report examines three different phaseout scenarios, based on different 'carbon budgets'. A carbon budget refers to the cumulative amount of greenhouse gas (GHG) emissions permitted over a period of time to have a given probability of limiting warming to an upper threshold. In this report, we chose to budget for a 50 per cent chance of limiting global heating to 1.5 degrees, the upper limit described by climate scientists to avoid irreversible climate catastrophe.

Scientists have calculated the global carbon budget, which can then be broken up and assigned to countries and industries to set out the emissions they can produce while remaining within the global carbon budget. This breakdown can be calculated in different ways, based on differing levels of global equity or fair share.

The Paris Agreement refers to "common but differentiated responsibilities and respective capabilities", which takes into consideration culpability – meaning historical and continuing GHG emissions – and a country's capacity to reduce emissions, due to greater wealth, access to technologies, and institutional context.[9] High emitting and wealthier countries such as Canada are in the category of most culpable and most able to reduce emissions and transition to renewable energy.[10] These factors help determine Canada's "fair share" of the global carbon budget. (Note: Most fair share analysis finds that Canada is already in climate debt, which means Canada would not be considered as having legitimate title to any of the world's remaining carbon budget.[11])

This report examines potential carbon budgets of Canada's oil and gas sector. Emissions from both the upstream production as well as the downstream use of fossil fuels are included in these budgets (Scopes 1, 2 and 3) to ensure an accurate analysis of the full impact of the oil and gas sector in Canada. This accounting approach is referred to as extracted carbon – the amount of carbon from fossil fuels that is mined and released into the atmosphere.[12]

The carbon budgets are then used to determine how many years of production are left at current levels, resulting in three scenarios, all of them grounded in academic literature and compatible with the IEA's net-zero trajectories.[13] Realistically, production will need to be phased out rather than coming to a full halt at the end of the given time periods.

However these three scenarios serve as discussion points:

- **Fair Share**: A "fair share" carbon budget with Canada's oil and gas production ending almost immediately, by the end of 2023. The carbon budget calculator for this scenario considers historical emissions and assigns every person around the world an equal GHG allocation. This is the only scenario of the three presented which can truly be considered to have Canada staying within its "fair share" of the global carbon budget.

- **Economically Efficient Share**: An achievable share with current production levels continuing for six years then immediately going to zero. This share considers the allowable cumulative GHG emissions from 2022 to 2050 while staying within the 1.5°C goal. Canada's capacity to reduce emissions is taken into account, but it does not consider Canada's historical emissions. This scenario is adapted from Carbon Action Tracker's approach.

- **Business As Usual Share**: A "Business As Usual" approach with current production levels maintained until 2040, then immediately going to zero. This share assumes that current levels of production are maintained until the global carbon budget is filled and ignores both capacity to change and historic culpability. Note that this scenario ignores global equity. This scenario is being considered not because it sticks to a safe or fair carbon budget (it doesn't), but rather because of the immense power of the fossil fuel industry in Canada and the slow pace of action from government to date.

2. Establishing Environmental Liabilities

"Polluter pays" is the essential principle regarding environmental liabilities. In the case of the oil and gas industry, this means that the companies that create, own, and operate wells, tailings ponds and so on are legally accountable for cleaning them up. If this rule is not enforced, then those companies and their investors reap the private benefits, but pass off the liability of the polluted landscapes on to the public.

The report authors estimate current oil and gas industry environmental liabilities to be at least $123 billion. Within these liabilities are the need for nearly 350,000 oil and gas well abandonments, 450,000 well site reclamations, 97,000 hectares of oil sands mine reclamation, and 1,400 million cubic meters of tar sands tailings in need of remediation. See page 12 for a cost breakdown of these liabilities.

There are a range of estimates around the cost of cleaning up oil and gas infrastructure, depending its type. For cleaning up oil and gas wells, the Alberta Energy Regulator puts the cost of around $18.6 billion, whereas the Alberta Liabilities Disclosure Project (ALDP) puts the price tag at $40 to $70 billion.[14] ALDP estimates are calculated with a rigorous and transparent methodology – and the only estimates that include well remediation – and thus the costs of cleanup in this report are based on these figures, rather than the AER figures. To an even greater extent than oil and gas wells, estimations around what it might cost to clean up the oil sands mines and tailings are uncertain. With little transparency around the AER's estimates but also a lack of alternatives, this report uses the conservative upper bound AER public estimate for reclamation.

Due to a lack of available data, pipelines and facilities such as refineries are not included in this report's estimates. All of these will eventually need to be decommissioned. Adding these liabilities, which do not have easily accessible cost estimates, would add to the total cleanup cost.

This report also does not calculate how much oil and gas companies must invest into decreasing emissions associated with the production of oil and gas. The oil and gas sector is Canada's largest source of emissions, yet these companies have been investing negligible amounts in achieving reductions, instead lobbying for enormous subsidies for speculative technology that has not been shown to work at scale, like carbon capture and storage. Some reductions, however, are possible with simple methane capture technologies, for example. Every tonne counts, and these potential reductions should be realized. Governments will need to regulate emissions from the sector to force companies to invest their own cashflows to achieve production emissions reductions.

For each of the scenarios, future liabilities are estimated, in proportion with the length of time before production is phased out.

There are other costs that are not being included in this report, but that should be considered in future analysis, for example pensions liabilities. When corporations go bankrupt, they may default on pension payments. Given the limited timeframe left for the industry, serious attention is required to prevent this from happening, and leaving workers in financial precarity.

3. Estimating Corporate Profits

Canada's oil and gas sector has been highly profitable in recent years. Using the years 2019 and 2021 (omitting 2020 as COVID-19 influenced anomaly), and projecting steady levels of oil production and profitability, gives an estimate of the potential future revenues and profits of the industry for the three carbon budget scenarios.

As a benchmark, this report takes netback, meaning the profitability per barrel of oil produced, from the four largest oil producers in Canada (Suncor Energy, Canadian Natural Resources Limited (CNRL), Imperial Oil, and Cenovus), plus Tourmaline, Canada's largest gas producer. Profitability is calculated using data reported by the companies. That netback is then used to estimate overall profits from the sector as a whole.

RESULTS

TABLE 1: Big Oil's Balance Sheet: the oil & gas industry's revenues, profits, and liabilities

		FAIR SHARE	ECONOMICALLY EQUAL SHARE	BUSINESS AS USUAL SHARE
ASSETS				
	Allowable extraction to stay within 1.5C in mboe (million barrels of oil equivalent)	**2586 mboe**	**17881 mboe**	**53400 mboe**
	Years left at current production levels	**1**	**6**	**17**
CORPORATE PROFIITS ($ BILLIONS)		**$66.67**	**$404.83**	**$1,208.98**
LIABILITIES				
	CURRENT LIABILITIES ($ BILLIONS) (A)*	**$123.15**	**$123.15**	**$123.15**
	FUTURE LIABILITIES ($ BILLIONS) (B)*	**$2.01**	**$24.95**	**$100.50**
	TOTAL LIABILITIES ($ BILLIONS)	**$125.16**	**$148.10**	**$223.65**
PROFITS MINUS LIABILITIES ($ BILLIONS)		**$ -58.49**	**$256.73**	**$985.30**
PERCENTAGE OF PROFITS NEEDED FOR LIABILITIES		**188%**	**36.6%**	**18.5%**

* See the next page for a full breakdown of Current and Future Liabilities

NOTES ON TABLE 1

A. Current Oil & Gas Industry Liabilities

LIABILITY	COST
Orphaned Wells	$1.95 Billion
Well Abandonments	$23.70 Billion
Well Reclamations	$65.95 Billion
Tar Sands Mine Reclamation	$7.26 Billion
Liquid Tailings Remediation	$24.29 Billion

B. Future Oil & Gas Industry Liabilities

	FAIR SHARE	ECONOMICALLY EFFICIENT SHARE	BUSINESS AS USUAL SHARE
New Wells Drilled ($ Billions)	$0.98	$5.85	$17.56
New lands disturbed (tar sands mine) ($ Billions)	$0.12	$0.71	$2.12
New liquid tailings ($ Billions)	$0.92	$18.39	$80.85

In the Fair Share scenario, corporate profits from remaining extraction show a deficit of approximately $58.5 billion and what government revenues will exist from oil and gas production will not be enough to cover the shortfall. However, this is not a politically realistic scenario.

Under the Economically Efficient Share scenario, oil and gas companies must pay $148 billion for the clean-up of environmental liabilities, equating to 37 per cent of their estimated profits from remaining production.

Even the globally unjust Business As Usual scenario requires nearly 20 per cent of profits to go to environmental cleanup, for a total cleanup cost of $224 billion.

There is no time to waste. Government action is critical to ensure these profits are invested into addressing environmental damage – instead of enriching shareholders.

CONCLUSION

The sun needs to set on Canada’s oil and gas industry for a decent chance at meeting emissions targets and doing our part to stabilize the global climate. And in that time there are enormous environmental liabilities that need to be cleaned up. Whether those costs will fall onto the public or the companies who created the mess depends on government action.

Oil and gas companies would love to have governments and the public pick up the tab. But Canada's oil and gas industry has the ability to pay for the liability it has created, and to phase out production with a reasonable carbon budget that gives us a chance at a stable climate.

But it needs to be directed to do so by governments. Otherwise taxpayers will be on the hook.

ENDNOTES

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