CLIMATE PROOFING YOUR FINANCES: MAKING YOUR MONEY FOSSIL FREE

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“Unless we take action on climate change, future generations will be roasted, toasted, fried and grilled.”[1]

International Monetary Fund managing director Christine Lagarde

“The looming choice may be either stranding those [fossil fuel] assets or stranding the planet.”[2]

OECD Secretary-General Angel Gurría

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YOUR MONEY AS A FORCE FOR GOOD

This paper deals with the way many Australians' personal finances contribute to global warming and so are exposed to proposed public policy action to mitigate climate change. At present many institutional investors are assessing their exposure to this 'unburnable carbon risk'; prudent individuals should do likewise. A companion paper addressed to certain 'mezzanine level' institutional investors – for example, churches, foundations, state government authorities and universities – is also available.

Richard Denniss, Howard Pender and Tom Swann were involved in the preparation of this paper.

GLOSSARY

Carbon bubble: the large financial risks faced by fossil fuel companies and their shareholders and investors stemming from action towards the internationally agreed target of limiting global warming to two degrees.

Engagement: informal 'talk' initiated by shareholders with company boards.

ESG: environmental and social governance.

Ethical investment: investment processes that combine investors' financial objectives with ethical concerns about ESG issues.

Fossil fuel reserves: coal, oil or gas currently in the ground that companies or countries expect to mine or extract – for example, the coal located below a mine that has been planned but not built. These assets are considered in fossil fuel companies' share evaluations.

Responsible investment: is based on the premise that ESG issues affect returns and so consideration of these issues is required to minimise investment risk.

Screening (aka 'exit' or 'walk'): preventing a portfolio from including certain types of investments such as coal or tobacco. For example, an 'ethical investor' may exclude coal mining companies because they do not wish to part-own an environmentally destructive operation. A 'responsible investor' may want to screen out coal mining companies to avoid loss from owning stranded assets.

Shareholder advocacy: formal and public 'talk' where some shareholders ask questions, lodge statements or resolutions for consideration by all shareholders and then solicit support or proxy votes.

Stranded: an economic term used to describe an asset that loses economic value prior to the expiry of its useful life. For example, if you throw out a working incandescent light bulb and replace it with a compact fluorescent or LED bulb, the incandescent bulb has become 'stranded'.

Thermal Coal: coal used for generating power. Burning thermal coal is the largest source of greenhouse gas emissions, but is also the most at risk from climate change policy as it is carbon intensive and readily substituted with other sources of power.

Unburnable carbon: the amount of fossil fuel reserves that we must not burn if we are to stop dangerous runaway climate change.

INTRODUCTION

Are your personal finances helping to damage the climate? Chances are, they are, without you even knowing it. Do you have a bank deposit? Are you a member of a super fund? If so, your money is probably being used to finance the companies that extract and burn coal, oil and gas and cause climate change. Emissions from fossil fuels are the main cause of climate change – threatening damage to ecosystems, human health and economies across the globe.

You may own shares in fossil fuel companies, directly or through a managed fund. The value of these shares is at risk from action to prevent the worst effects of climate change. Nations have agreed to limit global warming to below two degrees. To meet this target, most fossil fuel reserves cannot be burnt. But if we decide to treat them as 'unburnable carbon', these reserves will essentially be worthless.

This report helps Australians find out how their personal finances are used to fund fossil fuels and to consider ways in which they can respond to the challenge of unburnable carbon. It first explains that challenge (Section 2). It then explains how your personal finances may be involved (Section 3) and outlines what you can do about it (Sections 4–6). The report also explains how making the switch to 'fossil fuel free' finance options can involve little cost or risk to your financial wealth, while protecting your finances from the long term risks of the carbon bubble.

> *If it's wrong to wreck the planet, then it's wrong to profit from that wreckage.*

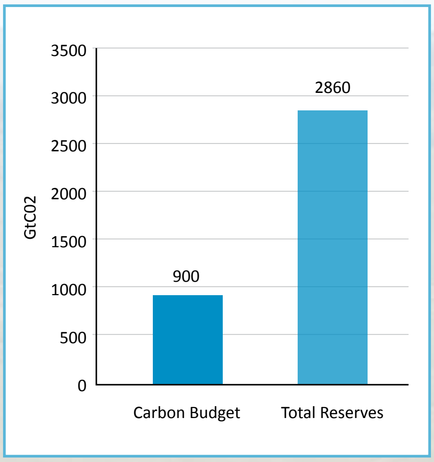
Bill McKibben, 350.org co-founder

1. UNBURNABLE CARBON – THE FOSSIL FUEL RESERVES WE CANNOT BURN

Stopping catastrophic climate change means most of the world's coal, oil and gas reserves must remain unburnt and in the ground. This result was set out in analysis by Carbon Tracker, a London based think-tank,[3] and backed up by the Intergovernmental Panel on Climate Change (IPCC).[4]

At the UN climate talks, countries have agreed that, "according to science", average global warming must be kept below two degrees Celsius to avoid dangerous and possibly unstoppable climate change impacts. This two-degree limit sets a 'carbon budget' for how much more greenhouse gas we can emit from burning fossil fuels.[5] But fossil fuel companies have committed to extract more than three times this budget. At present, fossil fuel reserves are counted as assets in a company's share evaluations, but in future it is likely that these listed companies will have to write down, or leave 'stranded', a substantial portion of their reserves. This would have a big impact on the value of those companies.

Figure 1: Listed public company fossil fuel reserves compared to the carbon budget[6]



This is bad news for owners of shares in fossil fuel companies.

It's difficult to say how this 'carbon bubble' will play out. Action is building in a 'patchwork' of policies around the world, but coordinated global action may be delayed for some years. Whatever form carbon limits take, they will affect companies differently, depending on their costs of production and the carbon intensity of fuels they extract.

So there is a larger financial risk to owners of thermal coal and expensive unconventional gas than to owners of oil reserves. Major reductions in fossil fuel use will also impact countries differently depending on the make-up of their domestic industry, domestic policy and policy in export markets. But prudent investors don't wait for certainty.

Many institutional investors are now evaluating their exposure to the 'unburnable carbon bubble' and taking steps to reduce their exposure. So should you.

Today, we're piling up carbon emissions in the atmosphere. When there's a recognition that it cannot absorb an unlimited amount of carbon, there's a risk that people will very quickly revalue all the assets producing those emissions.

Dr Robert Litterman, Risk Committee Chairman, Kepos Capital LP, 2013.

2. PERSONAL FINANCES, FOSSIL FUELS AND WHAT YOU CAN DO

Without you even knowing it, your personal finances are likely to be helping to blow the world's carbon budget. You might:

- have a **bank deposit** with a bank that lends your money to companies and projects that build the infrastructure used to extract, transport and burn fossil fuels;
- be a **member of a super or managed fund** invested in fossil fuel companies;
- have **direct share holdings** in fossil fuel companies.

If you are concerned about your carbon investment there are three main ways to act:

- you might choose to **act for ethical reasons** and completely divest from all companies directly involved in extracting fossil fuels, for example by selling shares in these companies, or switching to super funds or banks that do not invest in them. Perhaps you agree with author and environmentalist Bill McKibben: "If it is wrong to wreck the climate, then it is surely wrong to profit from that wreckage."
- you may choose to **protect your savings** by starting to divest from those companies most likely to have to write down substantial reserves, such as coal mining companies
- you might also want to become involved in **engagement** and **advocacy**, speaking out as a shareholder, bank customer or super fund member.

If you have a financial adviser, ask them to help you assess your fossil fuel exposure. If you have a financial adviser, ask them to help you assess your exposure. If you do not have an adviser, or wish to change advisers, consult with the Responsible Investment Association of Australasia (RIAA). They list advisers likely to be most knowledgeable about carbon risks.[7]

> *Climate change is a deeply moral issue…once again we can join together as a world and put pressure where it counts.*
>
> ***Desmond Tutu, 2013***

3. FOSSIL FUEL SHARES AND WHY GOING FOSSIL FREE IS NOT A RISK

Owners of shares listed on the Australian Stock Exchange (ASX),[8] either directly or through a super fund, may suffer significant financial loss when fossil fuel reserves are stranded. But what about missing out on returns from fossil fuels in the short term, if climate action is delayed? Will you suffer loss by excluding fossil fuel companies from the stocks you or your super fund own? A wealth of evidence and literature says there is little risk.

Screening out companies or sectors does not generally decrease financial returns provided the screen is not too restrictive. In Australia, staff at the leading asset consulting company Russell surveyed over 40 studies of the impact of ethical, sustainable or socially responsible screens on performance. They conclude that "there is no necessary performance penalty" from such an approach.[9]

This principle applies to screening out fossil fuels. A diversified portfolio of at least 15 to 20 companies that excludes any or all of the fossil fuel companies below can earn risk-adjusted returns on par with the market if held over the business cycle for seven years or more.

To illustrate, we created a hypothetical 'fossil free' portfolio by screening out companies heavily exposed to fossil fuels. We first categorised companies on the ASX 200 by their level of fossil fuel exposure (Figure 2).

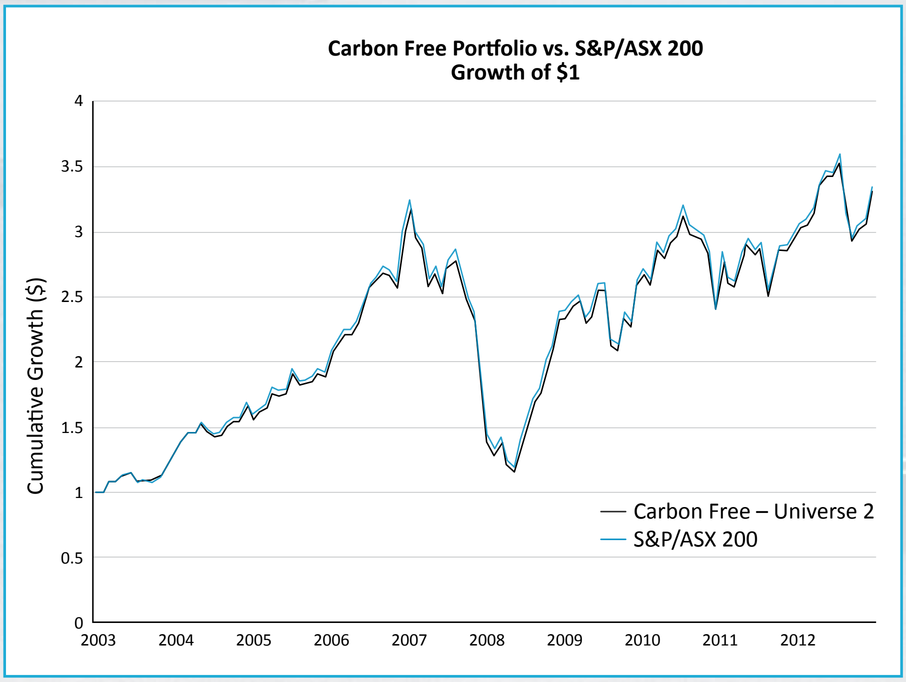
Figure 2: ASX 200 companies with fossil fuel exposure: suggested investor attitude

CATEGORY	SUGGESTED RESPONSE	COMPANIES
TIER 1: substantially involved in fossil fuel extraction.	Divestment candidates	WOODSIDE PETROLEUM, ORIGIN ENERGY, SANTOS, CALTEX, OIL SEARCH, BEACH ENERGY, AURORA OIL & GAS, WHITEHAVEN COAL, KAROON GAS, AWE, SENEX ENERGY, DRILLSEARCH, LINC, AQUILA RESOURCES, HORIZON, BURU ENERGY, COALSPUR
TIER 2: substantial exposure, including fossil fuel generation and pipelines	Divestment candidates	ENVESTRA, APA GROUP, AGL ENERGY, ENERGY WORLD
TIER 3: large fossil fuel reserves, but smaller exposure relative to overall company activity	Divestment or engagement candidates	BHP BILLITON, RIO TINTO, WESFARMERS
TIER 4: indirect fossil fuel exposure.	Initial engagement candidates; divestment if outcome of engagement unsatisfactory (see Section 6)	ASCIANO, ANZ, AURIZON, AUSDRILL, BOART, CARDNO, COMMONWEALTH BANK, DECMIL GROUP, DOWNER EDI, INCITEC PIVOT, LEIGHTON HOLDINGS, LEND LEASE, MACQUARIE GROUP, MINERAL RESOURCES, MONADELPHOUS, NATIONAL AUSTRALIA BANK, NRW HOLDINGS, ORICA LIMITED, QBE INSURANCE, QUBE HOLDINGS, SUNCORP, TOLL HOLDINGS, TRANSFIELD SERVICES, TRANSPACIFIC INDUSTRIES, UGL, WESTPAC, WORLEYPARSONS

We selected 21 'Tier 1' and 'Tier 2' companies with a business model dominated by fossil fuels and removed them from the ASX 200.[10] Aperio Group then constructed an 'optimised' a portfolio based on the remaining shares in the ASX 200, and ran a simulation of investment performance over a 10-year period, comparing our 'hypothetical' portfolio to a portfolio consisting of all companies listed on the ASX 200. Consistent with the results described by Russell, there was no significant impact on investment returns, as shown in Figure 3. (Results summarised in Appendix B.)

"Most Australians are accidentally funding the fossil fuel industry through their bank accounts and superannuation...

Figure 3: Historical simulation: fossil free portfolio, optimised to minimise tracking error[11]



These results show that screening out fossil fuel extraction and downstream industries can have negligible impact. That might seem surprising, given the attention paid to the Australian mining boom and ongoing (but declining) role of fossil fuels in Australia's energy mix. But the results simply illustrate a well-established result from a substantial body of theoretical and empirical literature: screening doesn't need to impact returns, provided it's not too restrictive.[12]

The bottom line is you don't need to invest in fossil fuel companies to make competitive returns, but avoiding fossil fuels protects you from carbon bubble risks.

Investors may also have concerns about also excluding Tier 3 companies. These companies are more diversified, less dominated by fossil fuels, and together make up a larger portion of the ASX 200. A portfolio designed without such stocks is less likely to follow the index than one based simply on screening Tiers 1 and 2. That said, investors may still want to consider screening some or all of these stocks, and some ethical investors are already taking this approach.[13] Those who decide against divestment in the first instance should consider options for engagement and advocacy.

If you choose to avoid investments in fossil fuels, you may also want to put your money into clean energy industries. Clean energy outperformed the market in 2013.[14] Goldman Sachs has said renewables now face a 'transformational moment' and has allocated $US40 billion for clean energy.[15] But because it is an emerging industry, clean energy sector shares can be more volatile than other stocks, and are sensitive to changes and uncertainty in government policy. You can manage these risks through specialist clean energy managed funds. If you have a share portfolio, you also could consider 'greening' your whole portfolio, by looking for companies that are carbon and energy efficient for their sector. You could also consider investing in a community-owned solar or wind farm,[16] or in energy efficiency measures and solar for your house to save energy and increase property value.

...By putting our money where our mouth is, we can help the climate without compromising the hip-pocket.

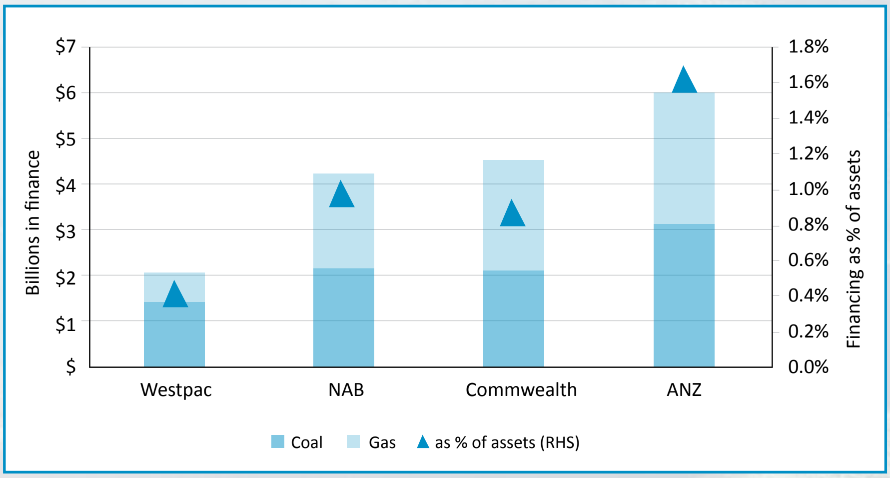
Bill McKibben, 350.org co-founder

4. AUSTRALIAN BANKS FINANCING FOSSIL FUELS

Not everyone owns shares, but nearly everyone has a bank account. If you are with one of the big four Australian banks, your money is being used to finance fossil fuel projects.

The big four Australian banks make loans for fossil fuel intensive projects and businesses and arrange finance from other lenders. Without big four involvement, these projects would be far less likely to go ahead. Since 2008, the big four have together loaned close to $19 billion to fossil fuel projects such as coal mines, coal-fired power stations, coal ports, gas plants and gas export facilities.[17] This includes projects threatening ecosystems such as the Great Barrier Reef and NSW's Leard State Forest. ANZ is the biggest lender to coal and gas projects, both in total and as a proportion of its assets, but each of the big four have offered billions in finance (see Figure 4).

Figure 4: Big four bank lending to fossil fuels, 2008–2013[18]



Australian banks have increasingly financed renewables, but on a lesser scale than for fossil fuels. Between 2005 and 2010, Westpac led in renewables lending, both relative to its size and relative to its coal financing; ANZ was next, followed by the Commonwealth Bank and NAB.[19] Westpac reports around half its financing for power generation since 2010 is for renewables. This does not include financing for extraction and export projects, where Australia's contribution to fossil fuel supply is rapidly increasing.[20]

Some may view renewables as 'offsetting' fossil fuel finance, as renewables are necessary for a low carbon economy. Even so, the big banks still offer more financing to fossil fuels than renewables. Others argue the current scale of fossil fuel financing cannot be justified, even with more renewables. While renewable energy is a critical climate change solution that requires investment, continuing to invest in fossil fuels will result in sustained or increased levels of carbon emissions, which science already indicates are dangerously high. Fossil fuel emissions must fall soon and quickly if we are to avoid catastrophic climate change.

None of the big four banks have ruled out further fossil fuel financing. By contrast, the World Bank and many other development banks – including in the US, Scandinavia and the UK – have ruled out financing new coal power plants in all but exceptional circumstances.[21]

Most of the Australian banks have 'wealth management' arms.[22] How they manage carbon risk reflects on the banks' approach to fossil fuels. Figure 6 shows selected ratings from the global Asset Owner Disclosure Project (AODP). AODP surveys and rates the world's 1,000 biggest funds on how they manage carbon risk.[23] Note AODP rates how carbon risk is managed; it does not directly rate fossil fuel exposure.

Figure 6: Carbon risk ratings of selected wealth management arms of Australian banks

BANK	WEALTH MANAGEMENT ARM	AODP RATING
Westpac	BT Super for Life	AA
Commonwealth Bank	Colonial First State	D
ANZ	Onepath	D
NAB	MLC[24]	A

For those concerned about letting their savings help extract and burn fossil fuels, there are many alternatives. Many of the smaller listed retail banks have not been involved in fossil fuel financing. Banks that confirm they do not lend to coal and gas include:

- bankmecu
- Defence Bank
- Bendigo Bank
- Members Equity Bank
- Beyond Bank
- People's Choice Credit Union

Many mutual funds and credit unions have also stayed away from financing fossil fuels. The Market Forces website provides a fuller list of banks that state they do not lend to coal and gas,[25] as well as a short 'How to Switch Banks and Make it Count' guide on how to maximise the impact of your switch.[26]

"For years, investors have looked on corporate reserves of coal, oil or gas as an asset, that can only lead to long term profits. Times are changing. Now, the smart money is figuring out that more fossil fuels are a liability, right now."

Steve Kretzman, Executive Director of Oil Change International

5. SUPERANNUATION AND MANAGED FUNDS

Most Australians have super and also have a choice about their superannuation fund.[27] Many Australians have their own Self-Managed Super Fund (SMSF).[28] It is likely most super funds include substantial fossil fuel exposure. Most superannuation funds are secretive about their investments, so it is difficult to assess their exposure to unburnable carbon.

That said, some larger Australian funds participate in the AODP, which rates and ranks the funds on their website.[29] The AODP ratings for some of the larger Australian super funds are listed in Figure 7. Most Australian super funds have still not completed the survey. If a fund isn't rated by AODP it may be because it is too small or has not provided information for rating.

AODP surveys investors on their approach to carbon risks and gives them ratings based on how they perform across a wide range of factors. To get a top rating, a fund must do things like measure and reduce different kinds of carbon risk (including from fossil fuel reserves), engage or advocate with their investee companies on climate change risks, and be transparent with their members and with the public on these matters.

Figure 7: Carbon risk rating of selected major Australian super funds[30]

1. LARGE FUNDS[31]	AODP RATING
Local Government Super	AAA
Vicsuper	AAA
CareSuper	AA
AustralianSuper	AA
BT Super for Life	AA
AMP	A
Cbus	A
Unisuper	BBB
Commonwealth Super Corporation	CC
HOSTPLUS	CC
Colonial First State	D
First State Super	D
Australian Government Employees Super Fund	N/A
Health Super Fund	N/A
Macquarie	N/A
Suncorp	N/A

Note that funds can receive a good rating for 'carbon risk management' while still owning fossil fuels. If you are considering 'sustainable' options offered by super funds, look closely at what the fund considers 'sustainable', as this can vary greatly. Many of these options include fossil fuels.

Some specialist funds not rated by AODP have substantial screens against fossil fuels. Figure 8 explains the policies of selected ethical and responsible funds in Australia relevant to fossil fuels – 2 super funds and several managed funds open to individuals.

Figure 8: Selected specialist managed funds and super funds with little or no fossil fuel exposure[32]

2. SUPER FUNDS	STATED POLICY
Australian Ethical Investment ('Australian Ethical Super')[33]	Deep Green 'ethical charter'; screens out coal, oil and unconventional gas; prioritises renewables.
3. MANAGED FUNDS	**STATED POLICY**
Hunter Hall ('Deep Green Trust')[34] All retail funds will exclude all coal, oil and gas processing and production from 30 June 2014	Screens for positive impact on 'wellbeing'. No thermal coal or unconventional oil or gas, positive screen for renewables.
Australian Ethical Investment ('Smaller Companies Trust' plus a range of other specialist managed funds)	Deep Green 'ethical charter'; screens out coal, oil and unconventional gas; prioritises renewables.
Ethical Investment Advisors (Mid-Cap Separately Managed Account)[35]	Screens out companies involved in the production, refinement and transportation of fossil fuels (oil, gas, coal, and coal seam gas), tobacco, uranium mining, and weapons. Positive screen for companies which are providing positive solutions to global issues like aged care, sustainable property, healthcare, renewable energy, medical technologies, education, and information technology.
Perpetual ('Wholesale ethical SRI fund')[36]	Four-stage ethical and responsible screening process. Current portfolio has no energy stocks.

It is generally fairly easy to move between super funds. In many cases you can empower your new fund to manage the transition for you. Of course, when choosing a super or managed fund you should consider performance and service factors.[37] You also need to watch for any 'exit fees' and implications for insurance associated with your move.

6. ENGAGEMENT AND ADVOCACY – TALK BEFORE WALK

Going fossil free is not the only response available to concerned individuals. Rather than 'walking' away, there are a range of avenues for first 'talking' with companies, banks or funds. Talk is most powerful in the context of listed companies, where shareholders can **engage** (informal consultation) or conduct **advocacy** (formal resolutions tabled at AGMs and voted on by all shareholders). There are also opportunities to talk with your bank and super fund.

Both engagement and advocacy seek to ensure companies respond appropriately to the risks from unburnable carbon. There are some great examples of how these strategies have worked to change company policies.

Shareholder advocacy is not as common in Australia as it is in the US, Japan, Canada and Northern Europe, where religious groups, local governments and universities often play a leadership role. One prominent leader is Sister Patricia Daly, a US Dominican Nun, whose numerous resolutions through her coalition of religious shareholders have helped change company behaviour on climate change and other issues.[38]

But there are some Australian examples. At the Woodside Petroleum AGM in 2011 a resolution was put that the company describe its assumptions about future carbon prices. In 2013 Ian Dunlop, a fossil fuel-executive-turned-climate-advocate, stood for election as a director of BHP on a platform that he would assist the company to reduce its carbon emissions. Shareholder advocacy has also played a powerful role in the campaign against the Gunns pulp mill in Tasmania.

> *...business-as-usual' is not a viable option for the fossil fuel industry in the long term.*
>
> ***Paul Spedding, Oil & Gas Sector Analyst HSBC***

There are also options for 'talking' with your bank and super fund. Super funds are obliged to explain to members how they manage risks to their money. The Vital Few is an online campaign helping customers to put pressure on their super funds to disclose their management of carbon risks.[39] You can use their online tool to start a conversation with your fund and ask for information, and even seek to lodge formal complaints. For banks, you can join a campaign to help you 'Put Your Bank on Notice', telling the big four that you will change banks if they don't rule out financing fossil fuel export infrastructure threatening the climate and Australian icons such as the Great Barrier Reef.[40]

7. CONCLUSION

Whether directly, through shares, or indirectly, through banks and funds, most of us have money involved in fossil fuels. But meeting the international commitment to the two-degree limit on global warming means most fossil fuel cannot be burnt, so our money faces risks from a carbon bubble. There are lots of ways we can respond.

Smart investors will assess how their personal finances are involved in fossil fuels and think about the response that is right for them. Some may choose to take an ethical stance and divest completely from all institutions that finance fossil fuels, while others may opt to protect their assets by choosing a super fund with less carbon exposure. Some will start talking with companies, or to their funds and banks, holding them to account and pressuring them to change. Some might choose to combine elements from all of these approaches. Regardless of your approach, you have little to lose and everything to gain in taking action. In doing so, you will be supporting the transition needed to deflate the carbon bubble and help keep unburnable carbon in the ground.

> *The world is taking climate change seriously and global pressures to reduce fossil fuel use will only grow stronger.*

Jack Ehnes, CEO of the California State Teachers' Retirement System, the nation's second-largest public pension fund

APPENDIX A: WHAT CAN SMSF TRUSTEES DO?

Can trustees of a Self-Managed Super Fund (SMF) adopt an active approach to the risks of unburnable carbon? Can they divest holdings in companies with material revenue from, say, thermal coal extraction? Can they support shareholder resolutions on carbon emission issues? What legal issues are involved?

It is clear that trustees may not make screening decisions based on their personal attitudes to social or environmental issues.[41] However, trustees may judge that a fossil fuel free screen is unlikely to compromise and may indeed improve risk-adjusted returns. In this case they are free to adopt it.

SMSF trustees are obliged to develop and implement an investment strategy. This might include, for example, an objective such as ‘perform in accord with the ASX 200’. On the basis of the theoretical and empirical results discussed in section 4, this objective can be achieved by holding a ‘fossil fuel free’ portfolio – with no downside if international climate action is not ambitious in the near term, and with significant upside as the carbon bubble bursts.

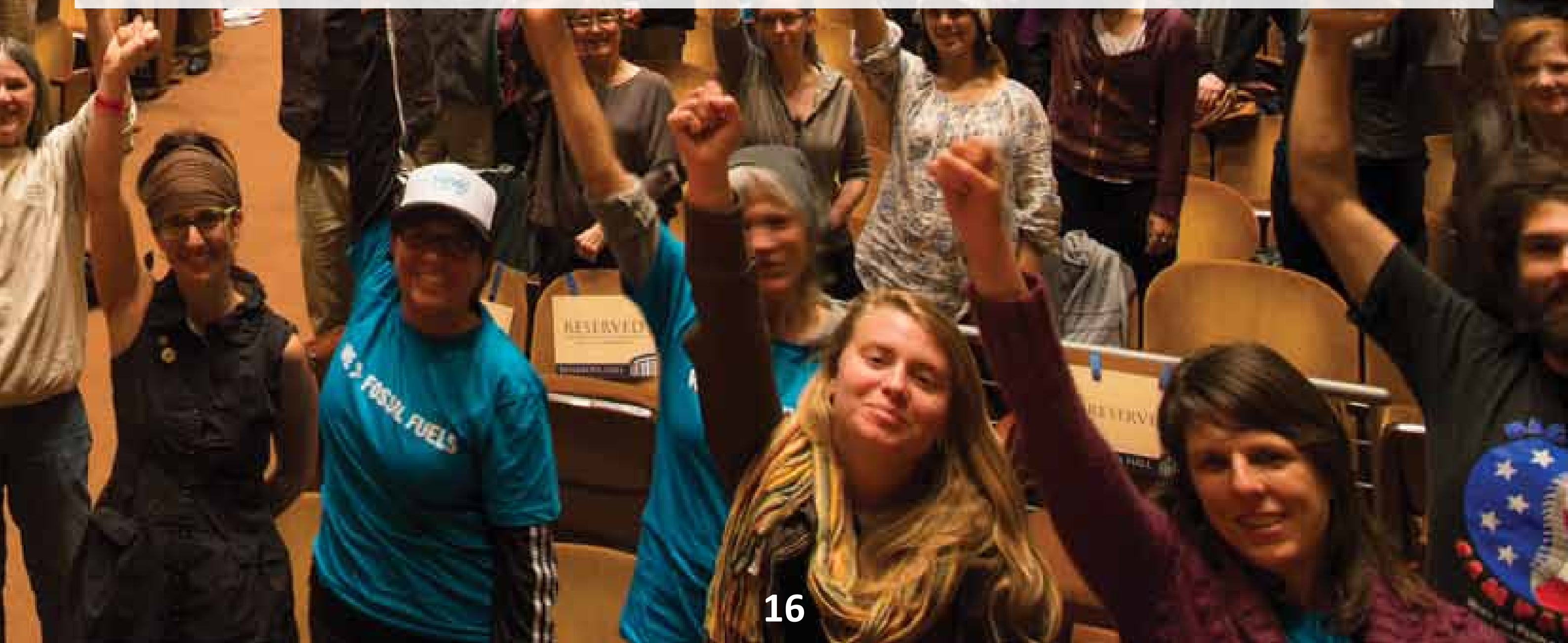
Engagement and advocacy do not impact risk-adjusted returns. Provided the members of the fund do not suffer undue administrative costs, supporting resolutions raises no issues for SMSF trustees under the *Superannuation Industry (Supervision) Act 1993.*

APPENDIX B: RESULTS OF FOSSIL FREE SIMULATION

To assess the impact on investment returns we eliminated Tier 1 and Tier 2 companies and simulated performance of a 'fossil fuel free' portfolio based on historic data. A fictional portfolio was constructed by optimisation to track the broad share market very closely – achieving very similar month to month returns. For more discussion, see the companion report *Climate Proofing your Investments – Moving funds out of fossil fuels.*[42]

Figure 9: Results from simulation[43]

BARRA SCENARIO PORTFOLIO METRIC	S&P ASX 200	SCREEN TIER 1 & 2 OUT OF ASX 200
Beta	1	0.99
Tracking Error (%)	0.00	0.88
Annual Return	13.36% pa	13.22% pa



ENDNOTES

1. <http://www.theglobeandmail.com/globe-debate/roasted-toasted-fried-and-grilled-climate-change-talk-from-an-unlikely-source/article8077946/>
2. <http://www.oecd.org/about/secretary-general/the-climate-challenge-achieving-zero-emissions.htm>
3. Carbon Tracker 2013b, <http://carbontracker.live.kiln.it/Unburnable-Carbon-2-Web-Version.pdf>
4. <http://www.climatechange2013.org/images/uploads/WGI_AR5_SPM_brochure.pdf>
5. Carbon dioxide takes a long time to be sequestered and causes disruption when it accumulates in the atmosphere. This means we have a limited amount we can emit over time – the 'carbon budget'. Analysis of the carbon budget includes assumptions about how much we can reduce other sources of greenhouse gases.
6. Source: Unburnable Carbon 2013 p19, <http://carbontracker.live.kiln.it/Unburnable-Carbon-2-Web-Version.pdf>. Note the fossil fuel reserves owned by publicly listed companies, whose shares are bought and sold on stock exchanges, is equivalent to 762 GtCO2, just under the carbon budget for 2 degrees. The rest is owned by governments and private companies. It is very unlikely that all reserves not owned by companies listed on stock exchanges could stay in the ground, allowing the publicly listed reserves to consume the budget. The pro-rata share for publicly listed companies is 240GtCO2. Banks and super funds may have exposure to reserves owned by companies not listed on stock exchanges.
7. See <http://www.responsibleinvestment.org/testimonials/financial-adviser/>
8. By international comparison, the ASX has a higher than average fossil fuel intensity. See <http://www.carbontracker.org/wp-content/uploads/downloads/2011/07/Unburnable-Carbon-Full-rev2.pdf>
9. See Taylor, N and Donald, S *Sustainable Investing marrying Sustainability concerns with the quest for financial return for superannuation trustees,* Russell Research August 2007.
10. This modelling is described in more detail in the companion paper for institutional investors. See *Climate proofing your investments: Moving funds out of fossil fuels* <http://www.tai.org.au/content/climate-proofing-your-investments-moving-funds-out-fossil-fuels>
11. The back tested simulation used 10 years of data up to October 2013.
12. Discussion of theory of evidence is provided in the companion report. See Section 2.3 and the final Appendix <http://www.tai.org.au/content/climate-proofing-your-investments-moving-funds-out-fossil-fuels>
13. Active investors, who pay closer attention to the merits and risks of particular stocks, may be more amenable to such a screen than passive investors who are more concerned about tracking the index, as will investors open to spreading risk outside of the index, for example through impact investing.
14. <http://reneweconomy.com.au/2013/clean-energy-shines-as-climate-index-outperforms-equities-77372>
15. <http://reneweconomy.com.au/2014/goldman-sachs-sees-transformational-moment-in-renewables-investment-90317>
16. See the Community Power Agency, <http://www.cpagency.org.au/>
17. Collected from third party records. Total financing may be higher. <http://www.marketforces.org.au/banks/map/#> While each of the banks lend heavily to coal, they do not directly own substantial assets. In recent years only the Commonwealth Bank has directly owned coal assets: a 8.2 per cent stake in the brown coal fuel Hazelwood Power Station in Victoria, which it applied to sell in September 2013. <http://environmentvictoria.org.au/media/cba-sells-its-hazelwood-power-stake>
18. Total financing between 2008 and 2013 for projects related to coal and gas. Right hand side is the total divided by the average assets over this period. This measures financing relative to the 'size of the bank', not the proportion of financing that went to fossil fuels. <http://www.marketforces.org.au/banks/map/#>, <http://www.apra.gov.au/adi/Pages/Australian-Banking-Statistics.aspx>

19. <http://www.banktrack.org/manage/ems_files/download/australian_banks_financing_coal_and_renewable_energy/profundo_report.pdf>
20. p. 23 <http://www.westpac.com.au/docs/pdf/aw/ic/2013_Annual_Review_and_Sustainability_Report.pdf>, <http://www.westpac.com.au/docs/pdf/aw/sustainability-community/2013_WBC_Sustainability_Glossary.pdf>
21. See <https://theconversation.com/fossil-fuel-campaigners-win-support-from-unexpected-places-19394>
22. These are bank-owned businesses that sell investment management and information services. The banks have a number of wealth management arms, which they sometimes restructure. We have selected the major examples.
23. <aodproject.org>
24. MLC is listed as 'National Australia Bank' on the AODP index (AODP, personal communication).
25. <http://www.marketforces.org.au/banks/compare/>
26. <http://www.marketforces.org.au/wp-content/uploads/2013/10/Switching-Banks-Guide.pdf>
27. For more information on choice of fund, see <http://www.superguru.com.au/about-super/choosing-fund>.
28. Appendix A deals with the legal situation applicable to these funds.
29. <Aodproject.net>
30. AAA best response to D lowest evaluated rating.
31. None of these funds yet has a divestment policy. If your fund isn't here, check its attitude to climate issues by seeing whether it belongs to the Investor Group on Climate Change, <http://www.igcc.org.au/who_are_we>.
32 . Note Australian Ethical (AEI) and Hunter Hall specialise in ethical and responsible investment. Perpetual is a large, mostly conventional, fund manager, but it has one ethical fund which has performed exceptionally well. The AEI product is also available for super.
33. See <http://www.australianethical.com.au/who-we-invest-in>
34. See <http://www.hunterhall.com.au/managed_funds_GDG.php>
35. See <http://www.ethicalinvestment.com.au/latest-ethical-investment-news/ethical-mid-cap-sma>
36. See <http://www.perpetual.com.au/pdf/131_PFP.pdf>
37. See <http://www.superguru.com.au/about-super/choosing-fund>
38. Daly has effectively changed company conduct, for example ceasing funding to denialist groups. She is motivated by ethical and religious concerns, but always proposes resolutions in the interests of shareholders, arguing social, environmental and governance factors are central to good long-term returns.
39. See <http://www.areyouthevitalfew.org/>
40. See <http://action.marketforces.org.au/page/s/banks-on-notice>
41. The most significant authority on this issue in Anglophone law is a UK case *(Scargill)* which made clear trustees must put to one side strongly held personal interests and views when assessing investments.
42. < http://www.tai.org.au/content/climate-proofing-your-investments-moving-funds-out-fossil-fuels>
43. The back tested simulation used 10 years data until October 2013.