Whitlam Institute
WITHIN THE UNIVERSITY OF WESTERN SYDNEY

University of Western Sydney

PERSPECTIVES

Fossil Fuels, Global Warming and Democracy: A Report from a Scene of the Collision

Dr Kevin Taft

September 2014

10

Authored by:

Dr Kevin Taft

Kevin Taft is an author, speaker, and former provincial political leader in Alberta, Canada. He holds a B.A. and an M.A. from the University of Alberta, and a Ph.D. in Business from the University of Warwick. He has extensive public policy experience with the Alberta Government, private sector, and non-profit sector, particularly in health, energy, and economic policy. He is the author of four books and many research studies and articles on political and economic issues in Alberta. He was a member of the Legislative Assembly of Alberta with the Alberta Liberal Party from 2001 to 2012, and Leader of the Official Opposition from 2004 to 2008. Taft continues his career as an author, speaker, and consultant. He currently resides in Edmonton, Alberta, Canada.

This paper reflects Taft's interest in the dynamics of democracy when societies that rely heavily on producing fossil fuels face the need to respond to global warming.

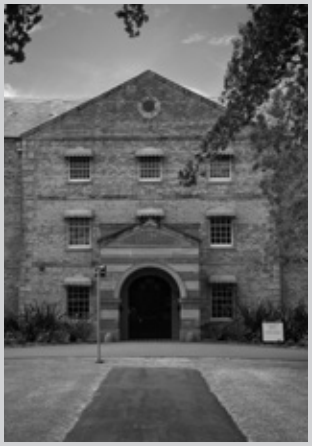
Editing: The Whitlam Institute

ISBN: 978-1-74108-257-9

Whitlam Institute *Perspectives*

Perspectives is a series of essays from the Whitlam Institute. *Perspectives* offers respected public intellectuals an opportunity to canvass ideas and to put their views forward on the policies that would shape a better, fairer Australia. The series is designed to encourage creative, even bold, thinking and occasionally new ways of looking at the challenges of the 21st Century in the hope that the enthusiasm and insights of these authors sparks further thought and debate among policy makers and across the community.

About the Whitlam Institute



The Whitlam Institute within the University of Western Sydney at Parramatta commemorates the life and work of Gough Whitlam and pursues the causes he championed. The Institute bridges the historical legacy of Gough Whitlam's years in public life and the contemporary relevance of the Whitlam Program to public discourse and policy. The Institute exists for all Australians who care about what matters in a fair Australia and aims to improve the quality of life for all Australians.

The Institute is custodian of the Whitlam Prime Ministerial Collection housing selected books and papers donated by Mr Whitlam and providing on-line access to papers held both at the Institute and in the National Archives.

The other key area of activity, the Whitlam Institute Program, includes a range of policy development and research projects, public education activities and special events. Through this work the Institute strives to be a leading national centre for public policy development and debate.

For more information about the Whitlam Institute, please visit our website: www.whitlam.org

Foreword

In 2008 the Whitlam Institute mounted a five-part series of public information forums on Energy Security. That series brought together an exceptional group of speakers: scientists across several disciplines; industry leaders; analysts.* Quite unexpectedly the succession of presentations also alerted us to what we subsequently dubbed the 'democratic challenges of climate change'.

Essentially, while the focus of attention was quite properly on the science, the environmental implications and the appropriate policy responses, it became apparent that there had been little explicit examination of the institutional processes and pressures that accompanied this most critical debate.

Since that time we have been exploring that theme through several occasional papers under our Perspectives series. In December 2010 we published *Democratic Challenges in Tackling Climate Change* [*Perspectives* no. 5] by the Hon Dr Barry Jones AO. This was followed by *Climate Change in a New Democratic Age: why we need more, not less, democratic participation* [*Perspectives* no. 9] by Dr Randal Stewart in December 2013.

The paper before you brings a further dimension to this discussion focusing as it does on the direct experience of government in a resource dependent economy.

Dr Kevin Taft offers his account of the fraught interplay between 'fossil fuels, global warming and democracy' in his home province of Alberta, Canada. He writes as participant in and observer of a 'collision' between the climate change imperatives of cutting carbon emissions and the commercial imperatives being prosecuted by the fossil fuel industry.

Dr Taft is particularly well placed to do so. He brings to the table his experience of eleven years (2001-12) in the Alberta parliament including four years (2004-08) as leader in opposition of the Alberta Liberal Party. He holds a PhD in Business from the University of Warwick, and has written four books addressing major political issues in Alberta centring on government in the provision of services and public accountability.

Dr Taft spent several weeks with the Whitlam Institute earlier this year working on this paper, presenting his work in public and at private gatherings at which he proved himself willing to respond in detail and with a welcome openness to the questions and challenges put to him. As was evident to those he met and will be to readers of his paper, Dr Taft is an astute, though not dispassionate, observer and a rigorous analyst. His willingness to establish a firmly founded case then arguing for it in plain-speaking but measured terms is refreshing in a debate that too often gets lost in the rhetoric and sloganeering.

Yet Dr Taft allows us no pretence that this is a cosy fireside chat, for the question at the heart of his argument is shocking in its implications: can democracy as we know it survive global warming?

No doubt readers will draw their own conclusions. Whatever those conclusions might be, the question is by no means an idle one and not one confined to Alberta alone.

Eric Sidoti
Director
Whitlam Institute within the University of Western Sydney

* You can re-visit these presentations at:
http://www.whitlam.org/the_program/archives/energy_security_the_real_story

Contents

Fossil Fuels, Global Warming and Democracy: A Report from a Scene of the Collision

I. Introduction

Democracy is caught in a collision between two forces: the need to respond to global warming by cutting carbon emissions, and the demands of the fossil fuel industry to increase carbon use and production. This is a slow motion collision that will take decades to conclude, though its ending seems inevitable: coal, and then oil and natural gas, will be replaced by more sustainable energy sources, but only after great damage to the environment.

In this paper I explore the question, What happens to democracy when the fossil fuel industry collides with global warming?

This collision is already making its marks on democratic practices. The fossil fuel industry is using every tool it can to preserve its wealth and power by pressuring governments, political parties, universities, regulators, courts, and voters. It is a process of tough, aggressive, and sophisticated politics that ultimately depends on denying the evidence that global warming poses a danger that needs to be urgently confronted.

Without a theoretical framework to focus this inquiry, it could easily produce little more than a list of anecdotes about politics and influence. The value of good theory is that it reveals the patterns in the evidence, showing how the disparate pieces are connected to one another, and to larger historical, social, and economic factors. In this paper, I drew theory from (among others) Valerie Bunce, Timothy Mitchell, and most importantly Terry Lynn Karl.

I use the work of these scholars to focus on the Canadian province of Alberta. Alberta provides an example of what can happen to democracy in places where fossil fuel production predominates. From time-to-time I link the paper to Australia, which depends even more than Canada on mineral extraction, and which is on the burning edge of global warming.[1]

This paper should be read as a warning to people everywhere who are concerned about fossil fuel dependence, global warming, and democracy. Those who value democracy must ask, Can democracy as we know it survive global warming?

II. The Parameters

A. Democracy

The promise of democracy is that the people being governed are also the supreme authority. Collectively, citizens are their own sovereign; the governed are governing themselves.

Modern democracies are defined by several interdependent features:

- the rule of law, including the equality of all citizens before the law;
- open and fair elections, held regularly;
- guaranteed rights and freedoms, including those of thought and expression, assembly, voting, access to information, etc.;
- a non-partisan state, accountable to elected representatives and citizens, with a professional and rational civil service; and
- independent and effective institutions.

Through these features, democracy expresses itself as an unending contest among people with differing political, social, and economic priorities, within a set of rules that are generally accepted and understood by all participants. In the words of Valerie Bunce, a leading scholar on democracy, "…we need to think of democracy as a two-part proposition, having uncertain results (or competition) but also having certain procedures. Indeed, it is precisely this combination of competition bounded by rules that makes democracy both responsive and effective…".[2] Democratic procedures and democratic results develop together through the endless dynamic of governance, constantly shaping one another. A change in the procedures can tilt the competition and change the results.

The reality of democratic governance is much messier and more complex than this description indicates. But as a working understanding it is a useful basis of analysis.

1 I cordially thank Anna Yeatman and Eric Sidoti of the Whitlam Institute at the University of Western Sydney for encouraging me to write this paper, and for helping me to see that there are links in the issues it addresses between Canada and Australia.

2 Bunce, Valerie. "Comparative Democratization: Big and Bounded Generalizations." *Comparative Political Studies*. August/Sept 2000, Vol. 33, p. 714.

While democracy is founded on the authority of the broad citizenry, there is no denying the importance of elites. Elites compete with one another within the procedures and institutions of democracy for influence, control, and the right to govern. The broad citizenry ultimately calls these elites to account through elections. Bunce and others have found that when there are divided elites with different and competing interests, "the probability of democratic outcomes increases substantially."[3] On the other hand, when one elite with a singular interest becomes dominant, democracy suffers. The "interests, values, and actions" of elites are crucial to the strengthening or weakening of democracy, and "to its survival or collapse under conditions of crisis."[4]

Global warming threatens to create the conditions of just such a crisis.

B. Global Warming

The science of global warming unequivocally shows that human activity, especially the emission of CO2 from the burning of fossil fuels, is changing the atmosphere, causing it to trap more of the Sun's heat. This heat, which is absorbed by the air, land, and oceans, is leading to global warming, causing the climate to change.[5] Global warming is already widely evident, and will increase with time. Droughts, floods, and extreme weather will be more frequent; rising ocean levels will endanger coastal cities; and food production will be disrupted. There will be mass extinctions of animals and plants (already well underway),[6] and immense stresses on human civilization.[7]

The theory and evidence of global warming are now so compelling and well known that one would expect democratic governments to be responding with effective actions to drastically reduce CO2 emissions. Some countries, particularly in Europe, are leading the way. They are investing heavily in energy efficiency and alternate energy sources, and emissions have modestly declined.

Other countries are lagging. Canada and Australia are two of the world's worst performers. Per capita emissions of CO2 in these countries are double those in Germany, France, and Britain, and that gap has been growing. Canada's total CO2 emissions grew 17% from 1990 to 2010, and Australia's per capita emissions are even higher than Canada's. [8,9]

Canadians and Australians have the same information that people elsewhere have, and similar technical and social capacities. Yet their governments are failing to take serious actions. If democracy is "responsive and effective" (to use the words of Bunce) then in Canada and Australia, what is wrong with democracy?

Or, to get at the issue differently, in Canada and Australia, who is democracy being responsive and effective *for*? If it's not for the broad citizenry, then is it still democracy?

C. The Fossil Fuel Industry's Predicament

Australia is among the largest exporters of coal and liquid natural gas (LNG) in the world, and Canada sells more oil and gas to the USA than does Saudi Arabia or anyone else. In Canada, oil production is rising rapidly through the development of the Athabasca oilsands in northern Alberta. In Australia, the already huge coal mining and LNG industries continue to grow.[10,11] Both countries have large and sophisticated domestic fossil fuel corporations, and host major international ones. The prosperity of these corporations helped both countries steer through the 2008 global financial crisis and the resulting recession better than most other countries.

The long-term future for the fossil fuel industry, however, is threatened. Aggressive action to reduce CO2 emissions means that entire societies need to replace fossil fuels with other sources of energy. This menaces the growth, profitability, and value of the fossil fuel industry, and in the long term puts its very existence in doubt.

This vulnerability is made clear in a report titled "Unburnable Carbon," produced by a financial research group called Carbon Tracker.[12] Their research compares the capacity of the atmosphere to absorb extra CO2, to the amount of CO2 that will be released if the proven reserves[13] of coal, oil, and gas of the world's major public, private, and state-owned fossil fuel corporations are actually used. The outcome is ominous. The atmosphere's capacity to absorb extra CO2 by 2050 without heating more than 2°C is 565 gigatonnes.[14] More than that and the risk of runaway global warming becomes very high. Unfortunately, this is a small fraction of the amount of CO2 that will be released if all the proven fossil fuel reserves listed as assets by these corporations are used. That number is 2,795 gigatonnes, or five times the amount the atmosphere can absorb without runaway warming.

3 Bunce, p. 707.

4 Bunce, p. 715.

5 http://www.wmo.int/pages/themes/climate/causes_of_climate_change.php

6 See for example Elizabeth Kolbert's book *The Sixth Extinction*. (2014) New York: Henry Holt and Company.

7 "Climate Change 2014: Impacts, Adaptations, and Vulnerability: Summary for Policymakers." Intergovernmental Panel on Climate Change.

8 http://www.conferenceboard.ca/hcp/details/environment/greenhouse-gas-emissions.aspx

9 http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1370.0~2010~Chapter~International%20comparisons%20(6.5.6)

10 World Coal Association, *Coal Facts 2013*.

11 *World LNG Report – 2013*. International Gas Union. Available at http://www.igu.org/gas-knowhow/publications/igu-publications/IGU_world_LNG_report_2013.pdf

12 *Unburnable Carbon – Are the world's financial markets carrying a carbon bubble?* Carbon Tracker Initiative. 2011. Available at http://www.carbontracker.org/wp-content/uploads/downloads/2011/07/Unburnable-Carbon-Full-rev2.pdf

13 Proven reserves are reserves that are at least 90% likely to be extracted; probable reserves are at least 50% likely to be extracted; and possible reserves are at least 10% likely to be extracted.

14 This number is derived from work by the Potsdam Institute, one of Europe's top climate change research centres. A gigatonne is one billion tonnes.

In effect, then, serious action on global warming will mean that about 80% of the coal, oil, and gas held as proven reserves by the world's fossil fuel industry must be left in the ground as stranded assets. These stranded assets represent a large portion of the value of the industry; Carbon Tracker suggests more than half.[15]

It gets worse. Using information from the International Energy Agency, the report calculates that at the current rate of emissions, the atmosphere's 565 gigatonne capacity to absorb CO2 without triggering runaway warming will be used up by the year 2027. After that, the planet moves into a much higher level of risk. The forces are accelerating in the collision between the fossil fuel industry and global warming.

The consequences of this for financial markets and governments are only beginning to be considered. Fossil fuel companies are among the largest on the planet, and include many of the top Canadian and Australian businesses. The report states that the long-term viability of these businesses rests on their future ability to extract and sell carbon, yet that ability cannot be fulfilled without causing catastrophic global warming. The conclusion of this report is that these companies are badly overvalued for the long run, representing a 'carbon bubble' that investors, regulators, and governments are not yet prepared to handle.

The report is silent on another implication: that the fossil fuel industry and its allies will fight furiously to be able to sell their coal, oil, and gas, regardless of global warming. Global warming endangers the fossil fuel industry as much as it endangers polar bears and coral reefs. But unlike polar bears and coral reefs, the fossil fuel industry is defending its interests.

15 The paper by Carbon Tracker (p. 19) quotes research by McKinsey that "greater than 50% of the value of an oil and gas company resides in the value of cash flows to be generated in year 11 onwards," illustrating the importance of large reserves to the value of these companies. If these reserves cannot be used the value of the companies may be imperilled.

III. Petrostates and Carbon Democracy

A. Mineral Economies

Canada and Australia depend for their prosperity on mineral production much more than other wealthy countries. For Canada, the value of all resource production is 10% of GDP; for Australia, 12%. This is double the proportion in the US, and triple or more the proportions in Japan, Germany, France, and Britain.[16]

Minerals accounted for 30% of Canada's merchandise exports in 2011. (Oil and gas were 20%, other minerals were 10%.)[17] The figure is even higher for Australia, where 67% of merchandise exports were related to mining in 2012, including 27% from coal, oil, and gas.[18]

As high as these proportions are, they get far higher in individual provinces and states. In Alberta, petroleum production accounts for over 30% of GDP, and over 70% of merchandise exports.[19] Royalties from petroleum are "…by far the largest component of government revenues in Alberta," accounting for an average of just over 30% from 1987 to 2007.[20] In 2012 in Western Australia, the resource industry (mostly iron ore production) accounted for 35% of GDP, 87% of merchandise exports, and paid over $5 billion in royalties.[21] In the Northern Territory resources account for over 20% of GDP, led by natural gas.[22]

Mineral production in Alberta, Western Australia, and the Northern Territory is ten and in some cases twenty times the portion of the economy compared to Europe, Japan, and the US. This is bound to have an effect on their politics and democracy.

16 Murray, J.D. "Is There a Commodity Curse?", in Ryan, David, ed. (2013). *Boom and Bust Again*. University of Alberta Press, Edmonton.

17 Moeller, Dylan. "Canada's Trade Performance." CRD Working Paper, Export Development Canada. August 1, 2012.

18 "Merchandise Exports," Cat. No. 5368.0. Australian Bureau of Statistics, May, 2013.

19 Tremblay, Pascal. "Alberta's Merchandise Trade with the World." Library of Parliament Research Publications, Ottawa. 2013. Sourced on May 6, 2014, at http://www.parl.gc.ca/Content/LOP/ResearchPublications/2013-32-e.htm.

20 Landon, Stuart, and Constance Smith, "Government Revenue Volatility in Alberta" in Ryan, David, ed. (2013). *Boom and Bust Again.* University of Alberta Press, Edmonton. The calculation of this percent excludes the value of federal government transfers to the Alberta government.

21 "Western Australia's Resource Industry Fact Sheet," Government of Western Australia Department of Mines and Petroleum. www.dmp.wa.gov.au/documents/132431_Resource_Industry_Fact_Sheet.pdf.

22 "Mining Industry Economic Contribution," Year Book Australia 2012, Australian Bureau of Statistics (24/05/2012).

B. Mineral Politics

Economists and scholars have long realized that mineral economies engender particular political patterns.[23] In most of the world, minerals in the ground are owned by the state until they are mined or extracted. This stems from ancient laws under which all land was owned by the sovereign. Miners paid a fee to the sovereign called a 'royalty' in return for extracting the minerals, as they generally still do.

Because the state owns the raw minerals, it plays a double role in mineral development. In its first role, the state establishes the laws and context for labour, environment, contracts, infrastructure, and so on, and collects taxes. The state is like a referee who collects a fee for setting and enforcing the rules of the game, as it does for all other economic activities.

With mineral development the state also plays a second role, as a direct participant that owns the crucial input (the mineral) and determines the conditions and price of sale to others. With mineral development the state is a player as well as a referee.

In jurisdictions where mineral production is relatively small, the effects on democracy of this double role may not be important. But in places that rely heavily on mineral production it can create hazards for democracy, because the distinctions between economic and political interests for governments and mineral developers can dissolve. As Terry Lynn Karl writes, in these jurisdictions "… economic rationality cannot be easily separated from political rationality."[24]

The state becomes a primary target for resource businesses to influence and try to control. A compliant state can mean both easy rules of development and low royalties. The return on investment from influencing governments can be far better than the return on investment from new equipment, research, or development. The cost of one large mining truck is far more than the cost of a comprehensive political lobbying and public relations campaign to, for example, reduce royalties.[25] (This applies whether the corporations are private or state-owned.)

The incentives go the other direction too, from politicians to corporations, tempting political leaders to cater to mineral interests over the interests of the broader state, in return for political and even personal benefits. For governments with mineral economies, royalties can become a politically addictive way to cut taxes and subsidize services. As a result, politicians can become more devoted to mineral exploitation than to social and economic development or environmental protection. Mineral exploitation can trump all other priorities.[26]

This distorting political-economic dynamic of mineral wealth can be seen in the demise of Imperial Spain (gold and silver) in the 18th century, the struggles in the 20th century of Chile and Peru (copper, nitrates, guano), and more recently in the problems confronted by several 'petrostates.'[27]

C. The Theory of Petrostates

The relation between fossil fuels and democracy has spawned an important body of literature. In the decades of rapid economic growth following World War Two, immense wealth flowed to petroleum producing countries outside the industrialized West, including Venezuela, Mexico, Indonesia, several countries in the Middle East, and eventually Nigeria and other African countries. Economists and others expected this wealth to spur democracy and industrial prosperity. Instead, many of these countries struggled with political oppression, war, corruption, gross inequalities, and weak civil society. By the 1980s, scholars were asking why petroleum wealth often led countries into misfortune. The puzzle was made more intriguing because many underdeveloped countries that did *not* have petroleum flourished (eg. South Korea, Taiwan, Turkey).

Terry Lynn Karl's 1997 book *Paradox of Plenty* became a benchmark in this field, and legitimized 'petrostate' as a scholarly term. Through careful historic, economic, and political analysis she found that "dependence on a particular export commodity shapes not only social classes and regime types… but also the very institutions of the state, the framework for decision-making, and the decision calculus of policy-makers."[28] In other words, "The manner in which a state earns its living influences its own patterns of institutionalization." If a state earns a disproportionate amount of its revenue from minerals, then the policy environment of officials; the goals of the state; the types of public institutions; and the locus of authority are all altered. In the particular case of petrostates, "oil-provoked changes in state capacity are *the* intervening variable…" regardless of geography, religion, culture, or history.[29]

23 For an early example see Nankani, Gobind (August, 1979) "Development Problems of Mineral Countries" written for the World Bank.

24 Karl, Terry Lynn. *The Paradox of Plenty: Oil Booms and Petrostates*. (1997) Berkeley: University of California Press, p.15.

25 A Caterpillar model 797B mining dump truck costs $5 million; Syncrude operates a fleet of 90 of these at its oilsands mine near Ft. McMurray, Alberta.

26 Karl, Chapter 1, pp. 3-22.

27 Karl, Chapter 10, pp. 222-242.

28 Karl, p. 7.

29 Karl, p. 44, italics in original.

This effect, said Karl, explains why countries as diverse as Venezuela, Nigeria, and Iran ended up with similar anti-democratic politico-economic profiles: they were configured by their reliance on petroleum.

What about the exceptions? Why didn't Norway become a petrostate?

Karl's work provides an explanation. Countries that became petrostates did not have well-developed state organizations, social capacities, or even national identities when their petroleum booms began. When the first oil boom hit Venezuela, for example, it had no modern police, court or education systems; no modern civil service or regulators; no modern royalty or tax systems; and very little physical infrastructure. Petroleum companies needed these, so of necessity they and their home governments helped develop them, in Venezuela and many other countries, working with whichever locals were most sympathetic or powerful, and against those who were not.

Time and again traditional societies were overwhelmed by the demands of the petroleum business and its allies, the floods of money, and the pressures of international markets and politics. The origins and character of these states became entangled with and defined by the production of petroleum and the fights over its spoils. Democracy, state-building, and good government were secondary priorities.

In contrast, when North Sea oil was discovered in the 1960s, Norway was a cohesive and deeply entrenched state that had the government, political parties, public service, courts, tax systems, universities, and other features needed to successfully manage the petroleum companies and the surge of wealth. Even then, it was a nearly overwhelming challenge.

"If there is one clear lesson from the experience of oil exporters," writes Karl, "it is that developmental outcomes depend on the character of state institutions."[30] This same lesson, she makes clear, applies to any state that becomes overly dependent for its prosperity on mineral extraction.

D. Carbon Democracy

Petrostates are fascinating and dangerous. They fuel violence and provoke wars, and they disrupt global trade and politics. Making sense of them is strategically valuable for other countries, academics, and corporations.

It took longer to realize there is a reverse issue to be explored. If fossil fuels have the capacity to unmake societies, perhaps they also have the capacity to make societies. Are wealthy, stable and democratic countries in some sense produced by fossil fuels? Maybe these countries aren't just fuelled by coal, oil, and gas, they are fashioned by them.

Fifteen years after Karl published *The Paradox of Plenty*, Timothy Mitchell published *Carbon Democracy*, opening new perspectives on the relation of democracy with fossil fuels. While Karl focused on the ways in which petroleum wealth often confounded democratization and development, Mitchell looked at the ways in which coal and then oil shaped modern democracy's particular form. "Fossil fuels," he wrote, "helped create both the possibility of modern democracy and its limits."[31]

Mitchell's analysis begins with coal, the fuel that made possible the Industrial Revolution. Coal mining and transportation created concentrated workplaces and narrow supply lines that could be easily disrupted by workers. As coal became the essential fuel of industrial society it created conditions that empowered organized labour. A strike by coal miners, or by the railway workers who carried coal to factories and cities, could disrupt the economy of a whole nation in ways that seem unimaginable today. Starting in the 1870s workers in Britain, Germany, and elsewhere used strikes and other tactics to demand better working conditions and a more democratic society. They gained power that was unprecedented for workers, laying foundations for 20th century democracy. The last gasp of this power was the bitter showdown between the government of Margaret Thatcher and the British coal miners in 1984-85.

Oil, which came into wider use during and following World War One, had a different effect. It required less labour to produce and transport, and once discovered it was available in great abundance, seemingly without limit. Through much of the 20th century there was so much oil available that the biggest problem for producers was to limit supply in order to prop up the price. This is the most vital function of the OPEC cartel.

Mitchell argues that the transition from coal to oil concentrated power in fewer hands, gradually weakened organized labour, and changed the nature of democracy. At the end of World War Two the US produced two-thirds of the world's oil, contributing to America's immense power. Drawing on extensive research he argues that the US, through its reconstruction of Europe and other policies, reorganized much of the world's energy system to run on oil, priced and paid for in US dollars. This weakened the powerful communist-leaning coal mining unions in Europe; established the US dollar as the pre-eminent currency of international trade; extended US influence; and enriched the petroleum industry, largely headquartered in the US and Britain.

30 Karl, p. 239.

31 Mitchell, Timothy. *Carbon Democracy*. (2011) London: Verso, p.1.

Oil helped usher in a surge of industrial and consumer prosperity in the second half of the 20th century, providing the model of a consumer society that in various forms is now emulated worldwide. One sign of this is the soaring consumption of oil. It took from 1860 to the late 1980s – 130 years – for humanity to consume its first trillion barrels of oil, while it took only 22 years more to consume the second trillion barrels of oil.[32]

This could not last. Mitchell, writing fifteen years after Karl, foresees something Karl did not: "We are entering the declining decades of the fossil-fuel era…Fossil fuels are not about to run out, but two predicaments make the world they engineered unexpectedly fragile."[33] The first predicament: the decline of inexpensive sources of fossil fuels. The second, more intractable one: the advent of global warming as a result of their use.

Fossil fuels made possible the world of this era, including its particular forms of corporatized democracy, as well as its economic growth, cities, consumer lifestyle, communications, travel, politics, food production, wars, empires, and environmental impacts. The decline of their use will change all of these.

E. Putting the Theory to Use

Timothy Mitchell's work makes clear that fossil fuels shape modern democracies as much as they shape petrostates. Terry Lynn Karl's analysis makes clear that it is state institutions that bear the brunt of pressure in this shaping process. If state institutions are weak and fail, the result is Venezuela, Iran, Nigeria, or gold-addicted Spain of the 17th century. If they are strong and succeed, the result can be Norway.

This emphasis on institutions leads back to the definition of democracy presented early in this paper. Independent and effective state institutions are bulwarks of democracy. They alone are not sufficient to sustain it, but they are necessary for it to survive and flourish. The rule of law requires *institutions* such as parliaments, courts, and police. Open and fair elections require *institutions* such as electoral agencies, media, and political parties. Guaranteed rights and freedoms require *institutions* such as courts and human rights commissions. The education, science, intellectual development, and cultural life of a country require *institutions*.

In its turn, global warming requires that state institutions take action if there is to be an effective response. Individuals acting alone can have a symbolic effect, but little else. They can't even save themselves, for global warming obeys no boundaries. The burning of Australian coal will contribute to heat waves and droughts there, whether that coal is burned in New South Wales or exported to China.[34]

The state, through its institutions, is the only organization with the capacity to impose limits on emissions; to demand higher standards for fuel economy and building codes; to tax carbon to reflect its full environmental cost; to impose penalties, rewards, incentives, permissions, restrictions, and enforcement.

Inevitably then, state institutions must be wielded to challenge the fossil fuel industry. The fossil fuel industry will push back, hard. This contest will largely be fought among elites of business, politics, government, and science.

In jurisdictions where there are many different elites competing in a setting of independent institutions, democracy will be raucous and vital, and there is a reasonable chance of responsive and effective results to curtail carbon emissions. But in jurisdictions where the interest, values, and actions of one elite gain pre-eminence, democracy may be in jeopardy.

The hazard that global warming brings to democracy is that the institutions of democracy will be remade in order to protect the interests of the fossil fuel industry, creating a politics that privileges fossil fuel interests and fails to respond effectively to the democratic aspirations and long-term interests of the broad population.

32 Mitchell, p. 260.

33 Mitchell, p. 231.

34 For a discussion of the risks of specific impacts of human-induced climate change, see "Climate Change 2014: Impacts, Adaptation, and Vulnerability Summary for Policymakers." Intergovernmental Panel on Climate Change, WGII AR5, March 31, 2014.

IV. The Experience of Alberta

A. Alberta as a Petroleum Economy

Canada's oil and natural gas production is concentrated in the province of Alberta. Alberta's petroleum industry developed through a series of expanding steps that began in 1883 with a tiny project by the Canadian Pacific Railroad to exploit natural gas in southeastern Alberta; then an oil boom in 1914 at Turner Valley near Calgary; then the much larger oil booms of central and northern Alberta after 1947; then a surge in natural gas production in the 1990s; and now the largest of all, the development of the Athabasca Oilsands.

The Athabasca Oilsands are the third largest oil reserves on Earth, and are one of the few reserves in the world where production is rapidly and reliably increasing.[35,36] Because of the oilsands the Alberta government, with just 4.1 million citizens (equivalent to one medium-large city in most of the world), owns more oil than Russia, Iran, Nigeria, or the US, and is developing it quickly.[37] From 2001 to 2012, $160 billion were invested in the oil sands, and a further $207 billion is expected from 2013 to 2022.[38]

With a century-long history and the opportunity to develop one of the planet's great carbon reserves, the petroleum industry has a lot of influence in Alberta. An impressive portion of the industry is headquartered there, and it is active in major oil and gas fields around the world.[39] It may be Canada's most successful industry, forming a fully integrated sector from advanced research, software development, geo-engineering, equipment design and manufacturing, financing, production, upgrading, refining, transportation, and marketing.

Different individuals and groups within the industry have differing priorities, attitudes, and politics. But this is a diversity united by a common commitment to fossil fuels. The fulfilment of its purpose is to find, produce, and sell oil and natural gas, bringing it into direct conflict with the need to slow global warming.

B. The Petrolization of Democracy in Alberta

With its lopsided economy, Alberta is deep into the risk territory of becoming a petrostate, a risk that has been offset by its democratic institutions, among other things. To help her identify petrostates, Karl used the World Bank's threshold of mineral economies, in which mineral production accounted for at least 10% of GDP and 40% of total merchandise exports.[40] Alberta soars far beyond these markers.

35 US Energy Information Administration website: http://www.eia.gov

36 Canadian Association of Petroleum Producers website: www.capp.ca

37 Under Canada's Constitution Act, provincial governments own most natural resources; Alberta has had this right since 1930.

38 Government of Alberta "Alberta's Oilsands," April, 2014, at http://oilsands.alberta.ca/economicinvestment.html

39 In 2012, Calgary Economic Development listed 111 oil and gas companies headquartered in Calgary with annual revenues of $100 million or more, including dozens with revenues in excess of $1 billion. Calgary Herald, May 8, 2012, "Calgary a Head Office Hub."

40 Karl, p.17.

This economy puts a lot of pressure on democratic institutions in Alberta, a pressure that is intensifying as oilsands development swells.

Karl warns that the stresses, demands, and financial stakes of petroleum development can be so vast that they have a "direct impact on the decisional framework" of a state, meaning that the state can end up forming itself to the requirements and interests of petroleum development. "Indeed," says Karl, "the institutional molding brought about by dependence on petrodollars [can be] overwhelming in oil-exporting countries."[41] The notion of 'institutional molding' points to the treacherous territory that state institutions must navigate when confronted with developing immense petroleum wealth.

In Alberta, the influence of the petroleum industry has intensified since 2008, coinciding with the enormous surge in oilsands investment. The scale and nature of this influence can be seen in Alberta's political parties and the legislature; the major industry regulator; the civil service; the universities; and the courts. The changes in these institutions reveal that democracy itself is being bent in new and unhealthy directions, and arguably a different kind of state is taking shape in Alberta.

There is no reason to assume that the same fate isn't a strong possibility for other democracies in which fossil fuel production is economically crucial.

B.i. Political Parties and the Legislature

During Alberta's 2008 general election, all major parties called for royalty increases and stricter environmental controls, which had broad public support. For the first time in many years, petroleum industry leaders felt alienated from Alberta's politics. After the election a group in the industry formed an organization to build a political party in which the interests of the petroleum industry would be paramount. The group was called "Protect the Patch," referring to the 'oilpatch,' and the political party was called the Wildrose Party, named after Alberta's provincial flower. Until that time, this party had been on the political margins.

An early indicator of the direction Protect the Patch would take is found in a letter dated April, 2009, raising funds and support for the Wildrose Party. Seven names are listed at the bottom of the letter, including David Yager, a prominent industry figure who would eventually become President of the Wildrose. The letter, directed to "members of Alberta's oil and gas industry," is clear: "…the ultimate success of our industry is now political. Only when the government of Alberta supports and trusts its most important industry – oil and gas – will Alberta's future be truly secure." The letter sketches out a plan to help the Wildrose form a government, and concludes by saying, "Our oil and gas industry must continue to lead the way. Please help us to help Alberta to a new political future."

41 Karl, pp.15,16.

Members of Protect the Patch were among the biggest fundraisers for the Wildrose Party, shaped many of its policies, provided organizational capacity, sat on the party executive, and provided thirteen candidates for it in the following election, which was in 2012. In that election, Wildrose became the Official Opposition and a serious rival to form the next government of Alberta.

During this same period other industry groups maintained intense pressure on the Progressive Conservative (PC) party, which has governed Alberta continuously since 1971. Men and women with the PC party frequently move between industry positions and government positions, including premiers, deputy premiers, energy ministers, and treasurers. The petroleum industry has provided massive financial donations to the PCs since the PCs first came to office in 1971.[42]

This relationship was briefly strained under the tenure of Ed Stelmach as Premier, from 2006 to 2011. Under Stelmach, the PC government introduced a $15/tonne levy on CO2 emissions by major emitters and tried to raise royalties. The proposed royalty increases so enraged the industry that Stelmach was driven to resign in 2011 by a campaign of constant subversion, largely from within his own party. His successor as Premier ensured the PC party and government returned to being loyal champions of the industry.

The outcome of this period of political dynamics is that the petroleum industry has dominating influence with both the governing PCs and the opposition Wildrose. No matter which wins an election the resulting government will be a close ally of the industry.

B.ii. Regulators

One of the key roles of government in a modern democracy is to establish regulatory institutions that protect the public interest. The Alberta government established its first energy regulator in 1938 after years of vehement resistance from petroleum producers that included advertising and political campaigns and a legal challenge in the Supreme Court of Canada. [43] The fight helped bring down the government in 1935 – publicly derided as 'Bolshevist' by a leading oil and gas producer – and illustrated the first stages of "institutional molding" (using Karl's term) which pressure from petroleum producers can introduce. The regulator, then known as the Petroleum and Natural Gas Conservation Board, decade-by-decade built itself a highly respected reputation for its competence and its quasi-judicial independence.

In 2012, the Alberta government passed legislation drastically changing the regulatory processes for the petroleum industry, replacing the established regulator with a new agency called the Alberta Energy Regulator. Among the biggest changes, it removed from legislation references to protecting the public interest, and it weakened the quasi-judicial arms-length nature of the regulator, making it more vulnerable to direct influence by the Minister of Energy. In addition, the entire cost of running the new regulator was turned over to the industry, and the person named as its chairman was a former head of the industry's largest lobby group. [44] Then, in a move justified by government as improving efficiency, 150 environmental officers were transferred from the government to the new energy regulator.[45]

The end result is that the primary regulator of the petroleum industry in Alberta has less responsibility to protect the public interest; is completely funded by industry; is chaired by a strong industry ally; and has been handed a large number of the government's staff for environmental protection.

B.iii. The Public Service

In her analysis of petrostates, Karl finds that the role of the civil service is of utmost importance. Norway avoided becoming a petrostate in large part because it had a strong civil service that could stand apart from the power of the petroleum industry and protect the public interest. Corruption was non-existent and "…strong norms made arbitrary intervention by political leaders or organized interests illegitimate." There were "….strong mechanisms of accountability, including ombudspeople, special courts, and public access to documents." Norway's civil service "…was the complete antithesis of Venezuela and the other politicized states" that fell into petrostate status.[46]

Alberta, like all of Canada, has a tradition of an independent, professional civil service, but there are signs that its independence is compromised. Officials circulate among positions in the public service, the regulators, and the petroleum industry. Industry staff sometimes get seconded to key roles in the public service. The lines separating these agencies lose meaning.

42 Five petroleum companies alone contributed more than $500,000 *in toto* to the PC party from 2004-2010. See http://www.edmontonjournal.com/news/donations/top_donors.html.

43 For an excellent account of this see chapters two and three of David H. Breen's major book *Alberta's Petroleum Industry and the Conservation Board*, University of Alberta Press, Edmonton, 1993.

44 Prince, J.P. "Requiem for a Regulator," (2013) Unpublished paper.

45 Pratt, Sheila, "Staff flock to industry-paid watchdog." Edmonton Journal, p. A3, December 23, 2013.

46 Karl, p. 217.

Problems with the public service get exposed in unexpected ways. A court case in 2013 involved the Alberta Department of the Environment, which was responsible for administering and enforcing Alberta's Environmental Protection and Enhancement Act, and its Water Act. The department had denied two groups their right to intervene in an application by an oilsands company to increase its production. The groups took the department to court.

The court's decision was a sharp rebuke of the department. Quoting at length from internal government briefing notes that came up in the trial, the court found that the department had denied these groups their right to intervene not on the basis of law, but because the groups were known critics of oilsands development. The court concluded that the Department of Environment had violated the very legislation it was meant to uphold, and had "breached the principles of natural justice." Evidence presented in this case suggests that this was not the only time this sort of breach occurred. This clearly appears to be about officials in the Alberta public service ignoring the rule of law to benefit petroleum development.[47,48]

The internal Department of Environment briefing notes that were important evidence in the judge's ruling against the government had been written as information for the Department's senior official (the deputy minister) in 2009. In 2013, this same official went on to become the CEO of the new Alberta Energy Regulator described earlier, reporting to a chairman who is, as noted earlier, a former head of the industry's most powerful interest group.

B.iv. Universities

Another vital institution to modern democracy is the university. Universities provide education as well as scientific and intellectual capacity for societies, in a setting that is to be free and independent. As with other institutions in Alberta the question must be asked, Are the interests of Alberta's universities increasingly being aligned with the interests of the petroleum industry? This can happen in various ways. The University of Alberta in Edmonton, one of the largest in Canada, boasts that "More than 1,000 U of A researchers collaborate on the oilsands and it environmental impact…".[49] For the university this is a success story, and valuable research is being done for oilsands corporations on reducing water use, detoxifying tailings ponds, reclaiming land, and so on. But there is a risk that research and funding on this scale turns the university into a client of the petroleum industry. Universities are not immune to pressure. [50]

A number of controversies at the University of Calgary reinforce this concern. A faculty member was caught unethically channeling about two hundred thousand dollars from petroleum companies and global warming deniers through a series of secretive accounts, to set up a trust fund at the university intended for use to oppose action on global warming. The university was forced to take corrective action.[51,52] In another case, allegations were made that a researcher at a university institute was dismissed at the request of a pipeline company.[53] The allegations were denied.

A different example involves the School of Public Policy at the University of Calgary, set up after the 2008 election. It was given a $1 million founding donation from Imperial Oil, and the position of chair of the school was endowed by one of Alberta's senior oil executives.

The person who heads up the School of Public Policy is an economist and tax analyst who publishes papers under the University of Calgary banner, and frequently appears in the media. In addition to heading "Canada's Flagship School of Public Policy" (as it bills itself on its website), he is also on the board of Imperial Oil, which he discloses in his academic publications and on the Institute's website. Imperial Oil's 2012 Annual Report says he is paid almost $200,000 per year to serve on their board, and has accumulated $1 million worth of Imperial Oil shares. Like all their board members, he is obligated to advance the interests of Imperial Oil. Given the legal obligations on members of the board of Imperial Oil to serve its corporate interests, what does this indicate about the independence of the university and the work published under its name?

B.v. The Courts

An independent court system is a cornerstone of democracy. In Canada, great care is usually taken by the provincial committees that review applicants and recommend their appointments as judges to ministers of justice. In Alberta the system is unusual. Provincial judges are appointed after being approved by two different committees. The first committee, as is standard, is comprised of people who occupy top judicial and legal positions in the province, such as the heads of the two law schools, the Chief Justice, and the head of the Law Society.

47 "Pembina Institute v Alberta (Environment and Sustainable Resources Development), 2013 ABQB 567, October, 2013.

48 Thomson, Graham. "Environmental ruling likely to sour European trip defending oilsands," Edmonton Journal, October 3, 2013.

49 Source: http://why.ualberta.ca/ualbertafacts/Research

50 See, for example, Taft, Kevin, *Democracy Derailed*, Red Deer Press, Calgary. (2007) pp. 17-20.

51 http://www.sourcewatch.org/index.php?title=Friends_of_Science

52 http://www.canada.com/victoriatimescolonist/news/story.html?id=3c955256-f327-465a-8135-778088f6131a

53 http://www.cbc.ca/news/canada/calgary/scientist-calls-u-of-c-energy-centre-a-failure-1.1337139

The second committee, unusual to Alberta, has eight of its eleven members handpicked by the Justice Minister, and this committee makes the final recommendation to the Minister on who should be appointed as judges. Among its members who have overt political ties is its chairman, who was the official agent for the Premier in the 2012 election.[54] His fields of law are oil and gas transactions, regulatory matters, and royalty issues. Remember, the nominees approved by his committee become the judges who will eventually hear cases on land claims, environmental violations, labour cases, and so on. Where will those judges stand? Why does Alberta need this second committee?

C. Institutional Molding

The examples illustrate how Alberta's democratic institutions are being molded to privilege the interests of petroleum production over other interests. Such examples do not need to spring from a singular premeditated conspiracy. Rather, they are symptoms of an underlying condition that Karl describes as the thick network that coalesces between the state and petroleum producers in petrostates. [55]

When a dominant industry with singular interests feels threatened, or just wants more, it can organize a campaign and sustain a mindset that, once mobilized, sweeps up far more than anyone initially expected. In these situations actions, once launched, need not be consciously coordinated by a conspirator; they can happen in concert because the interest and mindset are widely accepted. The injury to democracy is collateral damage from the main campaign to exploit the fossil fuel.

This institutional molding narrows the democratic base of these institutions and aligns them in a manner that makes the logic of petroleum production pre-eminent. The petrolization of state and political institutions supplants their democratic purposes.

One result is an enormous transfer of public wealth into private hands. Despite its immense oil and gas wealth; despite rates of corporate profit that are double those elsewhere in North America; despite its booming economy, the Alberta government's spending on public services is similar to other Canadian provinces, it is taking on debt, and its relatively small Heritage Fund has stagnated since the early 1990s. Alberta's royalty system is designed by the government for the benefit of the petroleum industry, [56] and those benefits will not be impaired, even if the alternative is to cut public services and increase government debt.

A second result of petrolization is that greenhouse gas emissions are being allowed to rise rapidly. Serious efforts at reducing them are often ignored or resisted by state institutions, government, and industry.

54 Russell, Jennie. "Appointment of judges politically biased in Alberta, critics say." CBC News, July 25, 2013.

55 Karl, p. 240.

56 For illustrations of these points see Taft, Kevin, et al, *Follow the Money* (2012). Calgary: Detselig Enterprises.

The enormity of oilsands development means that petrostate tendencies are spreading from Alberta to Canada's federal scene. Crude and refined petroleum products are now Canada's largest exports.[57] Prime Minister Stephen Harper, whose riding is in Calgary, wants to expand this further. A top priority for his government is to dramatically expand Canada's pipeline capacity to carry oilsand products from landlocked Alberta to ports on the Pacific, Atlantic, and Gulf of Mexico. His government is well-known for resisting efforts to reduce carbon emissions, weakening environmental legislation, reducing budgets for environmental research, and stifling public-sector scientists.[58]

As the theory of petrostates would predict, a defining characteristic of the Harper government is its widespread efforts to mold – many would say weaken – the institutions that sustain Canada as a modern democracy. The list of institutions which he has confronted (with varying successes) is long, including these: the Parliament, by substantially altering its procedures for managing legislation; Elections Canada; public funding for political parties; Statistics Canada; the Parliamentary Budget Office; the Senate; and the Supreme Court.

In the tradition of mineral state governments throughout history, Canada's current government is striving to re-shape the country's institutions to give priority to mineral production, particularly petroleum, with little apparent concern for the health of democracy or the impending threat of global warming.

The Harper government is closely allied with the government of Australia under Prime Minister Tony Abbott. At a meeting in June, 2014, Harper praised Abbott for eliminating Australia's carbon tax, and Abbott called Harper "a beacon" and an "exemplar of a contemporary, centre-right prime minister."[59] The governments of both men are resisting efforts domestically and internationally to reduce carbon emissions.

D. Alberta: A New Kind of Petrostate

In the classic petrostate, the undemocratic state channels its mineral wealth toward favoured power holders and elites, ignoring broader needs of social and economic development and environmental protection. These states typically become politically oppressive, plagued by inequality, violence, imbalanced economies, and low levels of social development.

Alberta, like Norway and Australia, found an equilibrium in the relationship between the state as mineral owner and the interests that develop those minerals. It was an equilibrium that sustained a reasonable level of democracy and high levels of social and economic development.

57 http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/gblec04-eng.htm

58 See for example Lewis, Naomi K. "The Assault on Science." *Alberta Views Magazine*, Sept. 2013, pp. 35-39

59 Payton, Laura, "Tony Abbott, Stephen Harper take hard line against carbon tax," June 9, 2014, CBC News.

Global warming is stirring active threats to this equilibrium. Global warming requires political and state institutions to confront the interests of the fossil fuel industry to demand a reduction in emissions. This means curtailing the growth of the industry, and then reducing its size dramatically.

This poses a triple jeopardy for any government where an economy depends heavily on fossil fuel production, including governments of advanced democracies such as Alberta.

> First, the government must overcome its own dependence on royalties, which will force tough political decisions about raising taxes, cutting services, and going into debt.
>
> Second, the government must simultaneously challenge a dominant economic, political, and social power in its economy, the fossil fuel industry.
>
> Third, the government must face both of these challenges in a situation where political and state institutions (such as parties, civil services, regulators, courts, media) have molded to function in support of a mineral economy.

Governments are unlikely to take on this challenge and survive. A democracy in this situation is in danger of becoming a higher-functioning version of the classic petrostate, with less oppression and higher social outcomes but the same basic function: expanding fossil fuel production, regardless of the long-term consequences for global warming or democracy. In this new kind of petrostate, when democracy is caught between the need to respond to global warming and the demands of the fossil fuel industry, global warming is ignored and democracy is sacrificed. Alberta is becoming such a place.

V. Warning Signs for Australia

Karl's theory of petrostates, when combined with the perspective of Mitchell's work on carbon democracy, provides analytical focus and coherence to a situation that is puzzling, complicated, dispersed, and dangerous. It helps reveal how the fossil fuel industry is asserting its interests in a world struggling to respond effectively to global warming. In particular, it draws close attention to the crucial place of institutions in nurturing and sustaining democracy, and how, if those institutions are weakened, democracy can be jeopardized.

The warning here for Australians is clear. They are among the most prosperous people in the world. They depend for this prosperity more than the citizens of any other democracy upon mining, an important portion of which is for coal and natural gas. Sooner or later, governments in mining economies tend to place the interests of mineral production above priorities such as social development, economic diversity, and environmental protection. In Australia, the relationship between mineral production and other priorities is largely mediated by democratic institutions such as parliaments, political parties, regulators, civil services, courts, universities, and so on. These institutions have generally been up to that task, to the benefit of most Australians.

In recent years two factors have emerged that put much greater pressure on these institutions. The first is the rapid concentration of Australia's economy on mining, including coal and natural gas extraction. From 2006-07 to 2010-11, mining's share of the value of total exports leapt from 37% to 55%, while manufacturing's share plummeted from 51% to 34%.[60] Inevitably, this has implications for politics and democracy.

The second factor is global warming, the response to which requires major cuts to fossil fuel production. Australia is among the world's largest exporters of coal and liquid natural gas. It is flourishing by selling products that science clearly says are endangering the planet.

So in Australia, as in Alberta and Canada, immense fossil fuel production comes into collision with global warming, and the institutions of democracy are caught in the middle. The risk is that fossil fuel interests are overpowering these institutions in order to sustain fossil fuel production, regardless of global warming.

Is Australia at risk of succumbing to the fate of mining economies throughout history? Is it becoming a variant of mining states and petrostates, in which the democratic purposes of its institutions become supplanted by the requirement to support mineral production?

60 Australian Bureau of Statistics. (24/05/2012) "Mining Industry Economic Contribution," Year Book Australia 2012, Table 18.4 "Value of Exports," p. 3.

The answers will be found, at least in part, by closely watching its democratic institutions. Are political parties being captured by fossil fuel interests? Are regulatory agencies losing their independence? Is the civil service increasingly compelled by the logic of fossil fuel production? What about universities, scientific institutions, or the appointment processes for judges? The questions should go far beyond the scope of this paper to include labour groups, the media, civil society organizations, and more.

The impression I have as an outsider (though no one is really an outsider to global warming) is that Australians have much to be concerned with, and would be unwise to assume that their democratic institutions are immune. Many of these changes occur quietly, below public notice.

VI. In Conclusion

To close, I will return to the two questions that started this paper. First, what happens to democracy when the fossil fuel industry collides with global warming? The answer seems clear enough: the fossil fuel industry will defend its interests not just by engaging in democratic debate on the issues, but by working to get control of the democratic institutions that have the authority to require greenhouse gas emissions to be reduced. When it comes to democratic institutions the ambition of fossil fuel interests is comprehensive: it shapes political parties and through them legislatures and parliaments; it gains leadership of regulators; it compromises the independence of the civil service; it carries weight at universities; it may even reach into the courts. And the list could go far beyond these examples.

These institutions are the bulwarks of democracy, and as their integrity is yielded to the fossil fuel industry, democracy suffers. The referee, as it were, takes the side of one of the players, corrupting the entire competition.

Which leads to an answer for the second question, Can democracy as we know it survive global warming? Yes it can, but its survival is by no means certain, as history, theory, and practice all reveal.

The struggle to respond effectively to global warming is also the struggle to preserve democracy. Neither democracy nor a healthy environment will prevail without a tough, smart, and prolonged effort. In both Canada and Australia that effort will need to be driven not by elites, but by the mass of citizens who demand a better future than the bleak and smouldering one that science currently says is on offer.

References

Australian Bureau of Statistics. (2010) Canberra. "Measures of Australia's Progress – Atmosphere." Accessed June 2014 at: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1370.0~2010~Chapter~International%20comparisons%20(6.5.6)

Australian Bureau of Statistics. (May, 2013) Canberra. "Merchandise Exports," Cat. No. 5368.0.

Australian Bureau of Statistics. (24/05/2012) "Mining Industry Economic Contribution," Year Book Australia 2012.

Breen, David. (1993) Alberta's Petroleum Industry and the Conservation Board. Edmonton: University of Alberta Press.

Bunce, Valerie. "Comparative Democratization: Big and Bounded Generalizations." *Comparative Political Studies*. August/Sept 2000, Vol. 33.

Calgary Herald (May 8, 2012) "Calgary a Head Office Hub." No author indicated.

Canadian Association of Petroleum Producers. (2014) "Canada's Petroleum Resources." Accessed May 2014 at: www.capp.ca

Carbon Tracker Initiative. (2011) London. "Unburnable Carbon: Are the world's financial markets carrying a carbon bubble?" Accessed May 2014 at: http://www.carbontracker.org/wp-content/uploads/downloads/2011/07/Unburnable-Carbon-Full-rev2.pdf

Canadian Broadcasting Corporation (Jan. 28, 2013) "Scientist calls U of C energy centre a failure." Accessed June 2014 at: http://www.cbc.ca/news/canada/calgary/scientist-calls-u-of-c-energy-centre-a-failure-1.1337139

Conference Board of Canada. (2014) Ottawa. "How Canada Performs: Greenhouse Gas Emissions." Accessed June 2014 at: http://www.conferenceboard.ca/hcp/details/environment/greenhouse-gas-emissions.aspx

Court of Queen's Bench of Alberta (2013) "Pembina Institute vs Alberta (Environmental Sustainable Resources Development), ABQB 567." Edmonton, Canada.

Edmonton Journal. "Political Donations in Alberta – 2004 to 2010." Undated. No author indicated. Accessed June 2014 at: http://www.edmontonjournal.com/news/donations/top_donors.html

Government of Alberta. (April 2014) "Alberta's Oilsands," Accessed in May, 2014, at: http://oilsands.alberta.ca/economicinvestment.html

Government of Western Australia Department of Mines and Petroleum. East Perth, Australia. "Western Australia's Resource Industry Fact Sheet." Accessed June 2014 at: www.dmp.wa.gov.au

Intergovernmental Panel on Climate Change. (2014) Geneva: World Meteorological Organization. "Climate Change 2014: Impacts, Adaptations, and Vulnerability: Summary for Policymakers."

International Gas Union. (2013) "World LNG Report." Accessed May 2014 at: http://www.igu.org/gas-knowhow/publications/igu-publications/IGU_world_LNG_report_2013.pdf

Karl, Terry Lynn. (1997) *The Paradox of Plenty.* Berkeley: University of California Press.

Kolbert, Elizabeth. (2014) *The Sixth Extinction.* New York: Henry Holt and Company.

Landon, Stuart, and Constance Smith, (2013) "Government Revenue Volatility in Alberta" in Ryan, David, ed. (2013). *Boom and Bust Again.* University of Alberta Press, Edmonton, Canada.

Lewis, Naomi K. (Sept. 2013) "The Assault on Science." Calgary: Alberta Views Magazine.

Mitchell, Timothy. (2011) *Carbon Democracy.* London: Verso.

Moeller, Dylan. (August 1, 2012) "Canada's Trade Performance." CRD Working Paper, Export Development Canada. Ottawa.

Murray, J.D. "Is There a Commodity Curse?", in Ryan, David, ed. (2013). *Boom and Bust Again.* Edmonton, Canada: University of Alberta Press.

Nankani, Gobind. (August, 1979) "Development Problems of Mineral Countries." World Bank Staff Working Paper #354. Washington, DC: World Bank.

Payton, Laura. (June 9, 2014) "Tony Abbott, Stephen Harper take hard line against carbon tax." CBC News. Accessed June 2014 at: www.cbc.ca.

Pratt, Sheila. (2013) "Staff flock to industry-paid watchdog." Edmonton: Edmonton Journal, p. A3, Dec.23, 2013.

Prince, J.P. (2013) "Requiem for a Regulator." Unpublished paper.

Russell, Jennie. (July 25, 2013) "Appointment of judges politically biased in Alberta, critics say." CBC News Edmonton, July 25, 2013.

Sourcewatch. (2011) "Friends of Science." Accessed June, 2014 at: http://www.sourcewatch.org/index.php?title=Friends_of_Science

Statistics Canada. (2014/06/04) "Exports of goods on a balance-of-payments basis, by product." Ottawa: Statistics Canada. Accessed June 2014 at: http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/gblec04-eng.htm

Taft, Kevin. (2007) *Democracy Derailed*. Calgary: Red Deer Press.

Taft, Kevin. (2012) *Follow the Money*. Edmonton: Detselig.

Thomson, Graham. (2013) "Environmental ruling likely to sour European trip defending oilsands." Edmonton: Edmonton Journal, October 3, 2013.

Tremblay, Pascal. (2013) "Alberta's Merchandise Trade with the World." Library of Parliament Research Publications, Ottawa. Accessed on May 6, 2014, at http://www.parl.gc.ca/Content/LOP/ResearchPublications/2013-32-e.htm.

University of Alberta. (2014) "UAlberta Facts: Research." Edmonton, Canada. Accessed June 2014 at: http://why.ualberta.ca/ualbertafacts/Research

U.S. Energy Information Administration. (2012) "Countries: Canada." Accessed June 2014 at: http://www.eia.gov/countries/cab.cfm?fips=CA

Victoria Times Colonist. (2008) "Elections Canada to probe anti-Kyoto Protocal group." Victoria B.C. February 18, 2008. Accessed June 2014 at: http://www.canada.com/victoriatimescolonist/news/story.html?id=3c955256-f327-465a-8135-778088f6131a

World Coal Association. (2013) London. "Coal Facts 2013." Accessed June 2014 at www.worldcoal.org.

World Meteorological Organization. Geneva. "Causes of Climate Change." Accessed June 2014 at: http://www.wmo.int/pages/themes/climate/causes_of_climate_change.php

Whitlam Institute
WITHIN THE UNIVERSITY OF WESTERN SYDNEY

UWS Parramatta Campus, Cnr James Ruse Drive & Victoria Rd Rydalmere NSW Australia 2116
Locked Bag 1797 Penrith NSW Australia 2751
T + 61 2 9685 9187 F + 61 2 9685 9110 E info@whitlam.org W www.whitlam.org

University of Western Sydney