

Article

CROSSROADS IN ALBERTA: CLIMATE CAPITALISM OR ECOLOGICAL DEMOCRACY?

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Abstract

In this article I outline two divergent visions of a post-carbon future which I label 'climate capitalism' and 'ecological democracy.' These models are necessarily simplified and incomplete, serving as rough ideal types that can help us make sense of policy choices with regard to climate change as decisions laying the foundations of our future societal development. Decisions taken now direct us along one path, often making other directions more obscure, inaccessible, or unthinkable. The outcome of each junction in the interplay of social forces opens and forecloses future possibilities for action within a given time frame. Some outcomes are easily overturned, others are 'definitive' for a generation or more. In the context of global warming and related ecological crises, what we humans choose to do within the next ten years can be expected to have irreversible consequences for many future generations.

Notwithstanding the potential for capitalists to invent and commodify new 'post-carbon' technologies or to invent eco-system service-based commodities, questions are posed about the ecological sustainability of a mode of production that relies upon ever-expanding growth in material and energy through-puts. Is capitalism, ultimately, unthinkable in a steady-state system of production and consumption? Can capitalism dematerialize while wage-labour continues to define the mode of production? Or, as many in the global climate justice movement believe, will a just solution to global warming require far-reaching transformations of the global capitalist economic and social order? Will the properties of the renewable energy technologies that we are currently able to envisage (solar, wind, geothermal, tidal, hydro-electric, conservation, etc.) resist monopoly ownership and control and underpin more decentralized and democratic communities? These are questions with which the left is grappling in every context, including in Alberta, where an unprecedented opportunity for change opened up with the election of the New Democratic Party in May 2015 following many decades of government by conservative parties. In the first part of this article I outline, in general terms, emerging post-carbon visions or models of development. In the second part, I shift the focus of analysis to the observable sign-posts and possibilities for post-carbon transition in the Alberta context.

Keywords

Fossil capitalism; neoliberal globalization; Alberta; ecological democracy; climate change; climate capitalism; decarbonization

Global contestation for humanity's future in the context of global warming

Over the last twenty years there has been a convergence of anti-globalization movements with environmental struggles, as reflected in the framing of climate change as a global ecological crisis linked to neo-colonialism and neoliberalism, and in the new political ontology of 'fossil capitalism,' 'petro-capitalism,' 'carbon colonialism,' 'carbon capitalism,' 'carboniferous capitalism,'¹ 'climate justice,' 'ecological debt,' 'peak oil,' 'decarbonisation,' and 'post-carbon development.' This crisis, as never before, demonstrates the limits to capitalist accumulation in the forms it has taken since the 18th century.

While much attention has been paid to this junction as one of technological transformation, much less thinking has been done about the kinds of social relations that may be realizable in the 'post-carbon' era. As Timothy Mitchell observes in *Carbon Democracy* (2011), the transition from wood to coal in the industrial revolution resulted in the creation of large aggregations of wage-labourers and their communities and the development of powerful union movements and a unifying class culture in the early industrializing countries. Workers in the mining and transportation sectors were able to exercise substantial economic power to secure better terms for wage-labour as well as democratic reforms. Oil production, in contrast, required fewer workers for extraction and transportation, although pipelines were vulnerable to sabotage. Oil, transported with relative ease across great distances, fuelled the Fordist era's rapid industrialization and rates of growth. The declining cost of oil (until the 1970s oil price shocks) generated the perception that economic growth faced no resource limits (Mitchell 2011, 139-40). The Keynesian framework of national economic management and indicators—importantly, the concept of gross national product (GNP) introduced in the USA in 1944—measured the input of capital and labour but did not account for resource depletion or environmental costs. Indeed, Mitchell argues that the ontological concept 'the economy' arose in the 1930s-1940s in association with 'innovations in methods of calculation, the use of money, the measurement of transactions and the compiling of national statistics [that] made it possible to imagine the central object of politics as an object that could increase in size without any form of ultimate material constraint' (2011, 143).

Growing global acceptance, since the 1980s, of the science of climate change has, however, given new meaning and renewed urgency to the 1970s predictions of limits to

¹ This term is thought to have been introduced by Lewis Mumford (1932), but has re-entered our political lexicon in the 21st century.

economic growth. Even investment consultants are now calculating the date of arrival of ‘peak fossil fuels’ (Bloomberg New Energy Finance 2016; CDP 2013; Carbon Tracker Initiative and Energy Transition Advisors 2016). This term no longer refers—like ‘peak oil’—to the inevitability of resource depletion (US Department of Energy 2005) or recession-inducing oil prices (Rubin 2009), but rather to the rapid improvements in the efficiency and cost of renewable energy alternatives and to the increased penalization of greenhouse gas emissions that are expected to make fossil fuels *unprofitable* within 25 years (Bloomberg NEF 2016). Solar power, in particular, is expected to meet a large share of global electricity demand. The global energy corporations are already factoring carbon price estimates and growing market shares for renewable energies into their investment decisions (Darby 2016; Pashley 2015; Shell 2016; Total 2016).

The critical questions facing us are what the future mix of energy sources means in terms of social relations of production, and whether the gradual transition envisaged by some leading oil and gas producers will be sufficient to prevent a rise in global temperature of more than 1.5 °C above the pre-industrial level (1750).² The so-called ‘market-based’ approaches to the reduction of greenhouse gas emissions (GHGs) (mainly carbon pricing) that are preferred by neoclassical economists, business leaders, and governments have so far failed to bring about reductions on the scale that scientists tell us are necessary. Atmospheric CO₂ levels were measured at just above 400 ppm in May 2016 (Thompson 2016). According to a report prepared by the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat (2016), global CO₂eq emissions were estimated at 52.4 gigatonnes (gt) in 2015, and they will have to be reduced to no more than 34 gt by 2030 and 14.2 gt by 2050 if Earth is to have a greater than 50 per cent chance of staying below a 1.5 C temperature increase (53). The ‘intended nationally determined contributions’ submitted to the UNFCCC prior to the Paris Conference of the Parties to the convention (CoP) in December 2015 will not, however, produce the necessary reductions.

As for the social relations of production associated with future ‘technological frameworks’ (Buck 2007),³ multiple paths appear to be open, although we can expect the pressures for commodification to be powerful. Fossil fuels made possible rates of growth and production of surplus-value that had not been seen before the late eighteenth century. By the mid-twentieth century, oil was replacing coal due to its properties of storability, transportability, and high energy return on energy invested (at least for conventionally extracted oil), and its use as a transportation fuel. The German ecological economist, Elmar Altvater, believes that it is ‘impossible to power the machine of capitalist accumulation and growth with “thin” solar radiation-energy. It simply lacks the

² A ceiling of 1.5 °C is the Paris CoP target, considered less risky than the 2C ceiling.

³ Buck argues that capitalism has driven radical transformations in ‘base technologies’ and their associated leading industries since the early industrial revolution.

potential of time and space compression, which 'thick' fossil energy offers' (2007, 45). Moreover, in Altvater's view, a solar revolution will require not only new technologies, but also new 'social forms beyond capitalism' -- 'a radical transformation of the patterns of production and consumption, life and work, gender relations and the spatial and temporal organization of social life' (54). This view is shared by many on the green-left, such as the signatories to Canada's LEAP manifesto (April 2015), a set of high-level principles to guide social movement and political programs. The manifesto states that 'the time for energy democracy has come; we believe not just in changes to our energy sources, but that wherever possible communities should collectively control these new energy systems.'⁴

Many green radicals envisage a solar age in which more goods and services are produced on a local or regional basis, while reliance on global supply chains (fuelled largely by oil) is substantially reduced. Renewable energies as well as climate change adaptation work are expected to generate more jobs than capital-intensive oil extraction, even if these jobs are less richly paid than those of oil-field workers. Likewise, increased local production of value-added goods and of food are expected to generate sustainable livelihoods. Smaller scale, diverse production for regional markets may lend itself to co-operative and petty-commodity forms of ownership. This vision does not negate an important role for the state (albeit a democratized state) in creating the regulatory framework and in directing investment in ways that support ecological restructuring and social justice imperatives.

Another, more dystopian vision is presented by Daniel Buck, for whom it is not unthinkable that capitalists will assert control over new technologies. Even renewable energies may be subject to centralized production by large corporations, depending on the scale of the technologies and infrastructures that are developed to produce and distribute electricity. Large oil and gas corporations are already diversifying their investments by purchasing capacity in the wind and solar energy sectors. Moreover, a shift to a post-carbon regime of accumulation may happen in a highly uneven fashion around the globe, with a greening of capitalist production taking place earliest in parts of the global north, while ecological catastrophes have the worst impacts, at least initially, in regions of the global south. Altvater also recognized such a possibility in a 1998 essay in which he spoke of a trend toward 'global apartheid.' Buck reminds us that future technologies and modes of regulation could be both ecologically harmful and authoritarian. Indeed, some capitalist solutions to the depletion of conventional oil reserves have already pointed in that direction (hydraulic fracturing, deep-water drilling for oil and gas, exploration of indigenous territories in remaining rainforest zones, projects to drill in the Arctic, carbon offset schemes that dispossess indigenous communities of traditional land use). Technologies like carbon capture and sequestration,

⁴ <https://leapmanifesto.org/en/the-leap-manifesto/#manifesto-content>.

or geo-engineering schemes to suck carbon from the atmosphere or alter the chemical composition of the atmosphere or the oceans are being developed by corporations with massive state subsidies.

Post-carbon capitalism

Some political economists (Newell and Paterson 2010; Sapinski 2015) have begun to identify the outlines of an emerging ‘climate capitalism.’ Jean-Philippe Sapinski (2016, 89-90) defines climate capitalism as:

a regime of capital accumulation founded on climatically benign production technologies and increased energy efficiency. Developed within the bounds of neoliberal environmentalism (see Castree 2010), climate capitalism is founded on market mechanisms, mainly carbon trading and carbon taxes. The hope is that pricing access to the atmosphere’s sink capacity will foster the technical innovations needed to make ‘low emissions’ production technologies and energy generation cost competitive, so thus move investments away from fossil fuel dependent commodity production (Böhm and Dabhi 2009; Newell and Paterson 2010).

Key players in the articulation of such a regime include the World Business Council for Sustainable Development, the European Business Council for a Sustainable Energy Future, Center for Climate and Energy Solutions (USA), Global Climate Forum (Germany), Copenhagen Climate Council, and The Climate Group (UK), among others. There is, of course, a range of responses to the climate crisis from the large corporate emitters —from the attempts on the part of Exxon-Mobil or coal company executives to discredit climate science, to the public proclamations of the executives of Royal Dutch Shell, British Petroleum, and Total of their support for action on climate change (Saeverud and Skjaereth 2007; Skjaereth and Eikeland 2013; Skjaereth and Scheurs 2013; Skjaereth and Skodvin 2009).

Let us accept that a growing number of members of the global corporate elite view climate change as a serious threat to the well-being of future generations, or, at the very least, that they recognize that this is now the political consensus among governments and publics and that they must respond in some fashion to citizens’ demands for the decarbonisation of capitalist economies. While environmentalists are provoked to clash swords with the climate change deniers and to expose their ‘petro-turf’ networks, another --more subtle and complex -- game is being played out among corporate elites, government decision-makers, financial institutions, and policy consultants located in

think-tanks, ENGOs, and academic venues. In this game, there is a large degree of consensus about the privileging of 'market-based' and technological approaches to the reduction of global greenhouse gas emissions. Although the language used to characterize these approaches reproduces neoliberalism's uncritical deference to markets and market actors, the policies in fact rely substantially on regulatory frameworks legislated by governments as well as public subsidies. The central message, however, is that the global climate crisis will be managed by government-corporate partnerships in which governments rely heavily upon corporations' investment decisions and technological innovation.

A more expansive characterization of the emerging climate capitalism includes these elements:

- Carbon needs to be priced (by means of government-legislated taxes or emissions trading systems) in order to incentivize GHG emitters to reduce their emissions. However, in the absence of a global carbon price, governments must set carbon prices at levels that do not trigger capital flight on the part of large emitters who can relocate investment to lower (carbon) cost jurisdictions. Thus, as in all market-based approaches, environmental targets are a function of acceptable rates of profit (given the opportunities available to mobile capital), rather than a function of the ecological imperatives identified by best available science.
- The financialization of carbon and the invention of other commodities (ecosystem services, biodiversity offsets) open up new opportunities for capital accumulation.
- GHG reductions will be achieved not by reduced consumption in the rich countries (shrinking markets and global trade, smaller economies, reduced energy and material throughputs in absolute terms), expansion of free time, and redistribution of wealth, but by greater energy efficiency, the use of new technologies (including technologies to capture or reuse greenhouse gasses) and expanded production of non-fossil fuel sources of energy. On the contrary, demand for energy is projected to grow due to human population growth and economic 'development' in the global south. Increased demand for electricity is also predicted as a result of transition to electric vehicles.
- Corporations, as well as international financial institutions, are the lead actors, supported by governments, in investing in R&D and 'innovation' (that will be commercialized and deployed mainly by corporations). There is no conflict between continued economic growth and ecological limits; all that is needed is a number of shifts in investment (e.g., carbon bonds, renewable energy markets) and technologies. Rich countries have a moral obligation to help transfer some of these technologies to poorer countries (but only limited obligations to transfer wealth, as we see in climate change negotiations at the international level).

- While a transition to renewable energies for electricity supply and other needs must be a medium-to-long-term goal, humankind will continue to rely upon fossil fuels (particularly, oil and gas) for many decades to come, since there are, as yet, no substitutes for certain uses of oil (especially in transportation), and because poor countries with large coal reserves (like India) have no more affordable means to fuel their economic development. Thus, it is only responsible on the part of large ‘energy’ corporations to continue to search for and develop oil and gas reserves (gas being a ‘bridge’ fuel), while improving the carbon footprint of such production and investing in renewables. Governments, meanwhile, should subsidize development of ‘clean energy’ technologies (such as CCS) to reduce emissions from fossil fuels as well as new fuel sources for transportation (biofuels).
- Coal-fired electricity production should be cut back first, with natural gas being its primary medium-term substitute.
- A large portion of the world’s population lacks the necessary energy to meet its basic needs and its development goals. Global energy corporations seek to supply these needs by extracting and exporting fossil fuels as well as renewable energy components.
- Corporations have been successful in securing compensation for ‘stranded assets,’ evading the deferred costs of resource extraction, and lobbying for downstream carbon taxes on the grounds that ‘we are all responsible, as consumers of energy, for climate change.’

This capitalist vision of the post-carbon future diverges radically from the green-left vision of community-based production no longer dominated by global corporations and supply chains, oriented to meeting democratically-determined social needs, fuelled almost entirely by renewable sources of energy, and animated by values of eco-centrism, egalitarianism, and solidarity (including global citizenship).⁵ In green-left thinking, agency resides primarily in communities and governments, not large corporations, and the global crisis of justice (a term not found in climate capitalist discourse) requires an egalitarian rationing of the global carbon budget, along with a substantial transfer of resources to the poorest countries to finance low-carbon economic development and adaptation to the effects of climate change. While many grassroots organizations are

⁵ I recognize that ‘green-left’ is a wide umbrella and that there will be disagreements about which academic works, political parties, organizations, manifestos, and so on, fit under it. I would include the works of ecological economists such as Alain Lipietz and Elmar Altvater, along with many other Marxist and post-Marxist ecological thinkers, both inside and outside of Green parties around the world. In the Canadian context, green-left programmatic positions are being advanced today by the leader of the Green Party, Elizabeth May, some of the base of the NDP, Greenpeace and other ENGOs, and the authors of the LEAP manifesto (<https://leapmanifesto.org/en/the-leap-manifesto/#manifesto-content>).

calling for solutions that seem to imply a new order of global governance and regulation, global forums such as the CoPs are privileging the climate capitalist approaches.⁶

In the lead-up to the Paris CoP (held in December 2015), the President and CEO of TOTAL E&P Canada, Laurent Maurel, was invited to speak at an event at the University of Alberta organized by the French embassy in Canada.⁷ Mr. Maurel, whose company participates in the Oil and Gas Climate Initiative (OGCI) (discussed further, below), made many of the points that have become part of post-carbon capitalist discourse. He began by acknowledging to a large audience of the environmentally-minded that the energy corporations are ‘part of the problem and . . . also part of the solution.’ In a context in which the world economy will continue to grow, he said, there will be concomitant demand for energy—especially in the global south. ‘Energy needs to be available to all the people on the planet, especially the 1.3 billion people who do not have basic access to electricity.’ He specifically mentioned the great need for more energy in Africa.⁸ Energy corporations are to industrialization of the global south, therefore, what the agribusiness corporations are to food production in the global south, that is, vectors of ‘development.’ Members of the OGCI, he said, are committed to reducing the GHG intensity of energy production, mainly by taking a ‘collective approach’ to the development of carbon capture and sequestration technology and other technologies (e.g., to stop methane leakage). They see increased production of natural gas as a replacement for a share of the world’s consumption of oil, and are ready to divest from coal. They are diversifying their investments into solar energy production, biofuels, and biomass conversion. An example offered by Mr. Maurel was the 2011 acquisition by Total SA, Europe’s third-biggest oil producer, of 60 per cent of SunPower Corp. (the second-largest U.S. solar panel maker).

The Oil and Gas Climate Initiative to which Mr. Maurel referred was formed in 2014 during discussions at the World Economic Forum in Davos, initially bringing together six (notably, none US-based) oil and gas giants: Saudi Aramco, BG Group, Eni, PEMEX, Sinopec, and Total (Oil & Gas Climate Initiative 2014). As of 2016, BP, CNPC, Reliance Industries, Repsol, Shell, and Statoil had also joined the group.⁹

⁶ The Carbon Pricing Leadership Coalition, for example, was launched at the Paris CoP. See: <http://www.carbonpricingleadership.org/>.

⁷ The session, which was organized by the Science and Technology Secretary of the French Embassy in Canada and the European Union Centre of Excellence at the University of Alberta, may be viewed here: <http://livestream.com/accounts/3923053/events/4407075/player?width=640&height=360&autoPlay=true&mute=false>. The panel presentations described in this article took place on 29 October 2015. The event was one of a number of ‘French Ameri-Can Climate Talks,’ organized by the French embassies in the United States and Canada.

⁸ TOTAL, Maurel said, had initiated ‘a crowdfunding platform dedicated to access to clean energy . . . for the people who need it most.’

⁹ See <http://www.oilandgasclimateinitiative.com/>. BG Group has been acquired by Royal Dutch Shell since 2014.

OGCI's 'Action Statement' (2014) refers to its members' 'pivotal role in providing the adequate and affordable energy that has powered global prosperity,' and their considerable investments in 'finding effective solutions to environmental challenges.' The statement highlights technological solutions to climate change, specifically: energy efficiency, reduction of gas flaring and methane emissions, carbon capture and storage, the expanded role of natural gas and renewable energy.'

Elements of the capitalist post-carbon vision are found in corporate reports and statements by CEOs. Ben van Beurden, CEO of Royal Dutch Shell, for example, was quoted as saying that although solar energy will someday be 'the backbone' of world energy systems, this will not happen for decades, and that in the meantime there will be a need for oil to meet a doubling of world energy demand (Pashley 2015). Another Shell executive, quoted in the same article, suggested that switching production from 'dirty coal to lesser-emitting gas or oil' was the way to avoid surpassing the 2C temperature increase. In Total's 2016 strategy paper, its CEO, Patrick Pouyanné, is quoted as saying:

Steering investment in the private sector is vital if we want to keep global warming under 2°C. Putting a price on CO₂ is the most efficient financial mechanism to change the rules of the game quickly. It's a must in the energy sector. The main priority is to reduce the use of coal, which generates more emissions than any other type of energy, and to switch to gas and renewables for power generation. A carbon price of USD 30 to USD 40 per ton would make this possible.

In May 2015 the CEOs of BP, Shell, BG Group, Statoil, Eni, and Total wrote to the Executive Secretary of the UNFCCC, Christiana Figueres, reiterating points made in the OGCI statement, and calling on national governments to 'introduce carbon pricing even-handedly and eventually enable global linkage between national systems' (Lund et al. 2015). Shell's 2016 global scenarios report frames the problem as the need to 'decarbonise the global economy in a way that might address both the challenge of climate change and the need for broader economic growth.'¹⁰

The evidence so far suggests that it is the corporations based in the European Union that are leading the formulation of a long-term, carbon-constrained investment strategy with a view to making a sufficiently gradual transition to renewables so as to extract maximum revenue from their existing investments in oil, gas, and LNG production. Unlike US-based Exxon, they accept the writing on the wall with regard to the intensifying pressures from publics (particularly in Europe) for deeper and faster reductions of global GHG emissions. Their strategy may also be responsive to divestment

¹⁰ This statement is found in the summary of the report, at <http://www.shell.com/energy-and-innovation/the-energy-future/scenarios/a-better-life-with-a-healthy-planet.html>.

campaigns. The OGI group does not have much to lose in the phasing out of coal production, and some of its members are already integrated into emissions-trading schemes or operating in jurisdictions with carbon taxes or levies. These corporations, unlike some of the smaller producers of oil and gas, seem well able to absorb the additional costs of carbon pricing without significant effects on their bottom lines. Indeed, there are important benefits, such as social license to operate. In addition, the financialization of carbon in the form of offsets and tradeable permits has created lucrative new markets.¹¹

In the jurisdictions where large multinational oil and gas corporations operate, and where states are particularly reliant upon oil revenues, carbon price ceilings are being set in relation to so-called ‘carbon leakage’ thresholds. According to this economic hypothesis, if the price set for CO₂eq emissions is ‘too high,’ large emitters will relocate production to jurisdictions where the price is lower (or non-existent). As a result, the GHGs will continue to be emitted, doing the planet no good, while the jurisdiction with the highest price on carbon will lose revenue it otherwise would have earned in royalties and taxes, along with jobs and income for its citizens.¹² How carbon prices are set, and what constitutes a ‘too high’ price are mysterious matters, since carbon pricing regimes are created by governments, which are in turn responsive to lobbyists with structural power.

As we have seen in the cases of Shell and Total, the global energy corporations commonly cite the figure of USD 30 to 40 per tonne as an operative or predictable carbon price in the jurisdictions that have – or may soon have – some form of market-based policies to regulate GHGs. The calculations by corporate emitters of the ‘risk’ of carbon pricing vary depending on where they operate and the sectors they are in. A 2013 survey by Climate Disclosure Project (CDP) of 29 companies based or operating in the United States found a range of USD 6 to 60. Jurisdictions arrive at different carbon prices depending on the nature of their local economy and its leading industries, their motivation to reduce GHGs, and their negotiations with large emitters. Corporations have every incentive to exaggerate the burdens of policies that seek to internalize environmental costs and to threaten capital strikes or flight to bargain down these costs.

¹¹ There is a mushrooming literature on the commodification of nature (including carbon markets) that I cannot review here. It is, however, a major element of climate capitalism, offering new opportunities for accumulation. See, e.g., Lohmann 2012.

¹² Given this logic, it is not surprising that the next step is to conclude that what is needed is a ‘global price’ on carbon. Christian de Perthuis (Climate Economics Chair at Paris-Dauphine University) and Jean Tirole (Toulouse School of Economics and Nobel Laureate 2014) called for the inclusion of the principle of a single world carbon price in the Paris CoP Agreement. This is also being talked about in terms of ‘linking’ regional carbon markets. Rachel Tansey (2015), in a critical overview of the Sustainable Innovation Forum at the Paris CoP, raises the likelihood that this may well have the effect of driving down the global average price of carbon.

Corporations, governments, and economists involved in price-setting (through the design of a new policy) attempt to calculate the average carbon price for the market in which the emitters operate and compete for market share. That average price generally becomes the ceiling for a new initiative, due to the carbon leakage hypothesis. Thus, what is often represented as a ‘market determined’ carbon leakage threshold is in reality the outcome of prior political decisions by governments. The fact that carbon prices are, in most cases, far too low to achieve the emissions reductions that are necessary according to climate *science*, supports the conclusion that the predominant criterion for carbon pricing is the price ceiling acceptable to the regulated emitters.¹³ That price, in turn, is based on some calculation of the effects of carbon pricing on their rates of profit.

There is little evidence, to date, that environmental regulation has triggered significant capital flight or carbon leakage. Economic modelling has been used to try to *predict* the effects of different carbon prices on investment decisions either on a sectoral or economy-wide basis, and is subject to a wide range of assumptions. A recent report looking into claims of carbon leakage as a result of the EU’s ETS found no evidence of carbon leakage, although the reason for this may be the generous emissions permits handed out to EU emitters (ECORYS 2013). A study commissioned by the World Bank Group found that ‘empirical examinations tend to find limited evidence of carbon leakage’ (PMR 2015, 24). An OECD study, likewise, found that carbon pricing ‘promotes abatement,’ but has no measurable negative effect on the ‘competitiveness’ of regulated corporations (Arlinghaus 2015). The World Bank report observes that similar claims about environmental regulation causing firms to relocate investment to ‘pollution havens’ have been made ever since the 1970s, but that there has been little evidence to show that environmental costs have played a significant role in investment decisions (PMR 2015, 25-26). On the contrary, the report highlights a study (Leiter et al. 2011) of the effects of environmental policy in 21 European countries on investment levels which found that ‘higher environmental stringency is associated with increased, rather than decreased, investment levels’ (26). In a review of studies relevant to the carbon leakage question, economist Larry Karp concluded that modelling results are contradictory and that empirical data are insufficient to establish a predictable magnitude of leakage (Karp 2010, 33-34). His best guess was that ‘leakage will be small or moderate’ (34). The World Bank report authors suggest that this uncertainty, combined with ‘the political economy of

¹³ Even in Sweden, where the general carbon tax implemented in 1991 rose from 29€ to 125€ in 2014, and is considered to be the highest carbon tax in any country, industry was taxed at only 50 per cent of this rate, and electricity used in the industrial sector was not taxed. Emitters covered by the EU’s ETS were not subject to the carbon tax. Fossil fuels were heavily taxed in the 1980s—especially petrol. Almost all of Sweden’s electricity by 1999 came from nuclear, hydro, or biomass sources. With a combination of multiple taxes on CO₂, fuels, and pollutants along with energy efficiency programs, Sweden reduced its GHG emissions by 23 per cent from 1990 to 2013. See: Johannson 2001; Andersson and Lövin 2015.

lobbying,’ make it likely that the threat of carbon leakage ‘will remain an important part of carbon pricing policy despite the generally weak evidence’ (PMR 2015, 27).

In other words, ‘carbon leakage’ is a new variant of earlier corporate threats of disinvestment in response to environmental regulation. It is essentially synonymous with the use of the more euphemistic term ‘competitiveness’ by large corporations and their lobbying associations.¹⁴ The ‘concerns’ expressed by industry spokespersons, whether publicly or behind closed doors (lobbying), have an effective disciplining role on governments.

What governments, corporations, and economists do not want to say is that the full internalisation of the environmental costs of production would make many firms *unprofitable*, as this would be equivalent to acknowledging the conflict between capitalism and ecological sustainability that sustainable development discourse tries so insistently to erase. An adequate response to global warming requires political action and structural change of the kind that few governments are prepared to engage. Such action could range from the use of fiscal and regulatory policies to effect rapid transition to ‘mixed ownership’ post-carbon economies to the extensive use of public ownership of productive and financial capital. There are costs and obstacles to account for with regard to such strategies, not least of which is the WTO regime. Nor does a sub-national jurisdiction like Alberta have at its disposal all of the levers of change that are available to a national government. It is to the Alberta context that I now turn.

Climate Capitalism and Climate Change Policy in Alberta

‘Climate capitalism,’ as mentioned above, gives a central place to technological innovation as the magic formula for reconciling growth in fossil fuels extraction and exports with reduction of greenhouse gas emissions (the ‘greening of energy production,’ or ‘reducing the GHG intensity of the global energy mix’), with such innovation being substantially subsidized by governments. This element of climate capitalism has certainly been a pillar of the Progressive Conservative (PC) governments’ climate change policy in Alberta since the 1990s (Adkin 2014; Adkin and Stares 2016). The ‘innovation’ corporations established by the PC government in 2010 have pursued this agenda in their funding of corporate-university research partnerships. The CEO of Alberta Innovates – Energy and Environment Solutions (AI—EES), argued at a forum in October 2015 that the ‘key’ to making Alberta’s oil sands production environmentally sustainable was

¹⁴ ‘Competitiveness’ appears 17 times in the Canadian Association of Petroleum Producers’ submission to the Alberta Climate Change Advisory Panel: CAPP, October 1, 2015, <file:///I:/publications/climate%20policy%20Alberta%20paper/CAPP%20submission%20to%20AB%20Climate%20Panel%202015.pdf>. On ‘competitiveness’ discourse in relation to Canadian climate change policy, see Blair 2012.

‘disruptive technology and innovation.’¹⁵ He highlighted the potential of CCS, small modular nuclear reactors (to supply energy to the oil sands upgraders), and CO₂ ‘utilisation,’ as well as technologies that promise to reduce water use in the oil sands. The Alberta government has been a strong proponent of CCS, in particular, as the solution to GHG emission concerns (Adkin and Stares 2016). In response to a statement by an audience member associated with EcoJustice that we need ‘democratic’ solutions that empower local communities rather than relying upon business, Isaac insisted ‘we can make business our friend . . . because they have the capacity to make the transformations that are needed. They are the ones that can invest.’

In its brief to Alberta’s Climate Change Advisory Panel, the Canadian Association of Petroleum Producers (CAPP) argued that a much better alternative to increasing ‘climate-related cost burdens’ on the oil and gas industry would be to ‘focus on technology and innovation enhancement.’ CAPP clearly assumes that such investment will take the form of ‘partnerships’ between ‘industry and government.’ Large emitters have benefited from grants from the Climate Change Emissions Management Fund (CCEMF). CAPP also proposes a ‘clean infrastructure’ royalty credit program as an incentive for the further ‘uptake of clean technologies’ (CAPP 2015, 21). It asks for the loosening up and expansion of the Scientific Research and Experimental Development Tax Credit (21-22) and the doubling of the funding to another royalty credit program, the Innovative Energy Technologies Program (22). In addition, CAPP proposes yet another government-funded research institution that would focus on ‘R&D into conventional oil and natural gas production and environmental performance,’ thereby complementing the R&D already funded by Alberta Innovates (23).

The PCs’ framework for GHG reduction, put in place by the Klein and Stelmach governments, consisted (in addition to the ‘technology and innovation’ pillar described above), of a requirement that the emitters of more than 100,000 tons of CO₂eq per year reduce their emissions *intensity* (i.e., the CO₂eq emitted per unit of production, such as a barrel of oil) by 12 per cent per year, beginning in 2007. The *Climate Change and Emissions Management Act* created a CCEM Fund into which large emitters have, since 2009, paid a fee per tonne of GHG emissions exceeding their annual emissions intensity reduction requirement. The Specified Gas Emitters Regulation (SGER) set out three options for companies to comply with their emissions intensity reduction requirements (in addition to actually reducing their on-site emissions): purchase of an offset within Alberta; payment into the CCEM Fund (at \$15 per tonne of CO₂) for a credit; or the procurement of an emissions performance credit from another facility that has reduced its emissions by more than the required amount.¹⁶ Under this system, Alberta’s GHGs

¹⁵ This was the forum described in note 7.

¹⁶ Specified Gas Emitters Regulation, Alta Reg 139/2007, <http://www.canlii.org/en/ab/laws/regu/alta-reg-139-2007/latest/alta-reg-139-2007.html>.

have *grown* from an estimated 234 megatonnes (mt) in 2005 to 274 mt in 2015, with most of the emissions growth coming from the oil sands. If the Alberta government's claims about its climate change plan in 2002 had been realized, the province's total emissions in 2020 would be 218 mt. They are instead expected to be closer to 290 mt.¹⁷

In the summer of 2015 the NDP Minister of Environment and Parks appointed the Alberta Climate Leadership Panel, chaired by an energy economist from the University of Alberta's School of Business. After a highly compressed public and stakeholder consultation period, the Panel issued its report in November. The government immediately accepted most of its recommendations, without further public consultation. Among the measures that the Alberta government delegation carried to Paris in December were:

- a \$30 per tonne price for regulated CO₂e emissions, justified as the upper limit before carbon leakage (disinvestment) will occur (Climate Panel 2015, 11)
- coal-powered electricity production will be phased out by 2030 (with compensation for the plant owners)
- emissions from expanding oil sands production will be permitted to rise to a ceiling of 100 mt from their current level of 70 mt (Government of Alberta 2015)
- a 45 per cent reduction in methane gas emissions from Alberta's oil and gas operations by 2025
- a target for renewables as a share of provincial energy supply of 30 per cent by 2030

A year into its mandate, the NDP government also passed *The Climate Leadership Implementation Act*, which set a \$20 per tonne carbon "levy" (the term "tax" was avoided) effective January 1, 2017; this rate will be raised to \$30 per tonne January 1, 2018 (Alberta 2016a). The carbon levy will be included in the price of all fuels that emit greenhouse gases when combusted (including transportation and heating fuels such as diesel, gasoline, natural gas and propane). It will not apply directly to consumer purchases of electricity, to the "specified gas emitters" (large emitters that are covered by the SGER), to fuel used by farmers for farm operations, or to other exempted groups/uses. The large industrial emitters will continue to be subject to the SGER framework until the end of 2017, when product and sector-based performance standards will be introduced (as recommended by the Alberta Climate Leadership Panel). In the meantime, the emissions intensity requirement has been increased to 15 per cent per year (from 12 per cent), and the price per tonne for emissions exceeding this target was increased to \$20 (from \$15) in 2016 and to \$30 as of January 2017.

¹⁷These figures from Environment and Climate Change Canada, <http://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=en&n=18F3BB9C-1> (accessed June 2016).

The government has also mandated, through *The Climate Leadership Implementation Act*, that all revenue collected through the carbon levy will be used only for ‘initiatives related to reducing emissions of greenhouse gases or supporting Alberta’s ability to adapt to climate change, or to provide rebates or adjustments related to the carbon levy to consumers, businesses and communities, including adjustments in the form of tax credits or tax rate reductions’ (‘Purpose’ 3.2). With the aim of mitigating social inequality effects, the government has chosen to rebate the carbon levy to taxpayers according to income, and estimates that 60 per cent of households will receive some annual rebate.

Schedule 2 of the Act established the Energy Efficiency Alberta (EEA) crown corporation with a mandate ‘(a) to raise awareness among energy consumers of energy use and the associated economic and environmental consequences, (b) to promote, design and deliver programs and carry out other activities related to energy efficiency, energy conservation and the development of micro-generation and small scale energy systems in Alberta, and (c) to promote the development of an energy efficiency services industry’ (Bill 20, Schedule 2, Art. 2 (2)(a)). The EEA will be funded by a portion of the new carbon levy, with a budget for 2017-2022 estimated at \$645 million (Government of Alberta 2016a).

This is an impressive body of actions for a new government inheriting a long-entrenched conservative-appointed senior civil service and an understaffed Ministry of Environment (Adkin 2016). The government’s measures have faced vocal opposition from the Wildrose Party which constructs the carbon levy as a cruel tax on Albertan families during a period of economic recession (which is also blamed on the NDP government). A number of the large oil and gas corporations operating in the province have, on the contrary, supported the NDP’s climate policies. How should we assess the policy, as it has been rolled out to date, in relation to the climate capitalist and green-left, or deep decarbonisation paths that I have outlined above?

From the perspective of the global climate crisis and the inadequacy of the commitments made at the Paris CoP, it is questionable whether Alberta’s current suite of policies will amount to a ‘fair share’ of the burden of GHG reductions. According to the Alberta Climate Leadership Panel’s report, the implementation of its recommendations will result in the continuing rise of the province’s total emissions (as a result, mainly, of rising emissions from the oil sands) until 2020. Thereafter, a gradual decline is expected, with emissions returning to their 2015 level (or 270 mt) by 2030. Beyond 2030, no predictions have been made nor targets set. Compare this commitment to Canada’s 2002 commitment under the UNFCCC Kyoto Protocol to reduce GHG emissions by 6 per cent of 1990 level by 2012. Had Alberta adopted and implemented this target, its 1990 GHGs of 175 mt would have fallen to 164.5 mt by 2012. If Alberta were held to the IPCC target of a 25-40 per cent reduction below 1990 by 2030, and were it to aim, moderately, to reduce its emissions by 30 per cent, its emissions in 2030 would be 122 mt. Looking

ahead to 2050, the EU has adopted a target of an 80 per cent reduction below 1990, and the Deep Decarbonisation Pathways Project (DDPP), 'taking seriously what is needed to limit global warming to 2 °C or less,' has recommended a target of an 87 per cent reduction over 2010 by 2050. In the first scenario, Alberta's emissions would plummet to 35 mt, and in the second, to 31 mt. At present, neither Canada nor Alberta has any plan to achieve such a massive reduction of its GHG emissions.

It is frequently argued by economists and politicians that Alberta should not be held to such targets because of the heavy reliance of its economy on fossil fuel extraction, which is carbon-intensive. Moreover, adopting a carbon price that would bring emissions down faster (which most economists estimate to be \$100 per tonne or more) is ruled out on the grounds that it would result only in carbon leakage. Among the many possible responses to the first argument is the ethical argument that the burden of stopping the global temperature rise must be shared equally. The UN's Sustainable Development Solutions Network (SDSN), in conjunction with the Institute for Sustainable Development and International Relations (IDDRI) have calculated that, taking the global carbon budget (measured in tonnes of CO₂eq) required to limit temperature changes to 2 °C in 2050 and dividing this by a forecast of the world's population, global *per capita* emissions of GHGs must be no greater than 1.7 tonnes by 2050. Even if the planet achieves this, there is still only a 66 per cent chance of staying below the 2 °C threshold (Bataille et al. 2015, 12-13). As the DDPP's 2015 Canada report concludes: 'This DDPC implies dramatic reductions in GHG emissions in Canada, where per capita emissions are presently 21 tonnes, with our analysis and modelling indicating that this is truly a stretch scenario relative to current and forecast policy stringency' (Bataille et al. 2015, 13, italics added).

The authors of the Canada report do not, however, consider the task to be impossible. Their package of policies includes: 'best-in-class regulations that strengthen existing policies for the electricity, buildings and transport sectors,' a cap and trade system to drive abatement in heavy industry and oil and gas, and a 'complementary carbon price on the rest of the economy that essentially mops up reductions to reach areas where the regulations do not go, and returns the revenues to reduced income and corporate taxes' (Ibid. 13). If Albertans do not reduce their per capita emissions of GHGs to their equal global share, it means that people elsewhere will have to reduce theirs by more than their equal global share. Canadians are, overall, much better positioned in terms of human capital, scientific capital, and natural resources to achieve such targets than are populations in many other parts of the world. These are the kinds of arguments made in the green-left LEAP manifesto.

Regarding the carbon leakage argument, which the NDP government appears to have accepted, the \$30 CAD ceiling price on carbon recommended by the Climate Panel was not explained, leaving us to assume that it was based on a survey of prices in other jurisdictions where heavy oil is produced (and might attract investment away from

Alberta).¹⁸ No doubt the Panel also heard from corporate ‘stakeholders’ during its ‘technical’ meetings with industry representatives in 2015 regarding the carbon price range that would be acceptable to them. In its brief to the Climate Change Advisory Panel the CAPP stated: ‘The sector is highly competitive, and there are many producers operating in a variety of basins around the world producing comparable products. Alberta (and Canada) needs to offer fiscal terms that are competitive with other jurisdictions to ensure industry activity in Canada remains viable’ (CAPP 2015, 25). CAPP uses the carbon leakage argument in its brief (Ibid., 26-27). Yet whether the corporations that have invested heavily in capital-intensive bitumen extraction are in any position to cut their losses and transfer investment to other sites of heavy oil production (e.g., in Mexico, Venezuela, or Saskatchewan) is a question that calls for serious examination. Companies that have already sunk capital in the oil sands are likely less ‘mobile’ than corporate rhetoric suggests. A bigger obstacle to investment in Alberta’s oil sands is the opposition to new pipeline capacity to the west and the east. Citing frustration with the delayed approval of the pipeline, CNPC International (a subsidiary of the China National Petroleum Corp.) withdrew from the Northern Gateway pipeline project in 2007 and turned to Venezuela, instead, as a source of crude oil (Lorenz 2007). More generally, low oil prices make investment in high-cost non-conventional oil extraction unattractive to investors. In October 2015, with no sign of a price recovery, a *New York Times* story reported:

Since the price collapse, Teck Resources has delayed the start of its oilsands project by five years to 2026. Cenovus Energy substantially reduced budgets for its long-term developments. And Osum Oil Sands has set aside some of the expansion planned for a project it purchased from Shell last year. The Chinese-owned company Nexen, which had its oilsands production curtailed by regulators for about a month in August because of a pipeline leak, has deferred plans to build another upgrader facility, where tar-like bitumen of the oilsands is converted into synthetic crude oil, until the end of 2020 (Austen 2015).

Following the Paris CoP, Shell and Total released strategic investment reports that reassured shareholders that their investment portfolios are ‘resilient’ vis-à-vis the predicted environmental costs (and low prices) of extracting non-conventional oil. Total, which has four facilities in the Athabasca oil sands (Surmont, Fort Hills, Joslyn, and Northern Lights), as well as several exploration leases, announced in its May 2016 strategy paper, *Integrating Climate into our Strategy*, that it would be reducing its exposure in the oil sands and that it would not be pursuing exploration in the Arctic.

¹⁸ The term carbon leakage is used only once in the Panel’s report, on p. 11.

In today's challenging production environment, we are prioritizing our projects and *focusing on moderately priced production and processing assets that meet the highest environmental and safety standards*. On that basis, in 2015 we decided to reduce our exposure in Canada's oil sands, which are particularly expensive to develop and operate (26, italics added).

At the same time, Total—along with other oil sands producers like Shell and Suncor—affirmed its support for carbon pricing. Total's 2016 strategy paper stated that it applies 'an internal CO₂ price of USD 30 to USD 40, depending on the oil price scenario or the actual price if it is higher in a given country, when evaluating our investments. This is consistent with our support for mechanisms to replace coal with gas in power generation and our investment in R&D on low-carbon technologies' (Ibid., 26).

Alberta's foreign-owned oil and gas giants have not (at least publicly) protested the moderate proposals for pricing carbon that were made by the Climate Panel in November 2015. Indeed, the NDP's measures to date, insofar as they affect profit levels in the oil and gas sector, may be less costly to the industry than those that were being considered by the Redford government in 2013 (Dyer 2013; McCarthy et al. 2013; Mitchelmore 2015; Mandel 2016). The crisis of profitability the oil sands producers face at present is due to factors that are not unique to Alberta, but are common to all producers of high-cost non-conventional fossil fuels in a low-price era brought on by over-production. Given the global prognosis for 'peak fossil fuels' set out in the first section of this article, the primary question for the Alberta government is not whether a higher carbon levy for large emitters will result in carbon leakage, but what will take the place of the oil sands in the province's economy within the next 20 years.

A crossroads for the climate and for the left in Alberta

Humankind has reached a critical crossroads: One road leads in the direction of shallow decarbonisation, intensifying climate change feedback effects, and worsening global economic insecurity and political instability. This road will be one of market-driven politics that privilege capital accumulation, but its sign-posts will read 'providing energy to the world,' 'clean energy,' and 'sustainable growth and prosperity.' This is the path of climate capitalism.

Another road leads in the direction of deep decarbonisation and shrinking opportunities for capital accumulation, underpinned by new forms of democratic governance. We could call this ecological democracy. Achieving deep decarbonisation in the next 20 to 30 years will not be possible using the carbon pricing that has been implemented or proposed to date. A transition on this scale using 'market based'

approaches would require such approaches to be driven by ecological imperatives rather than constrained by corporate threats to relocate investment to under-regulated jurisdictions. Governments have a number of ways to counter such corporate power, including the renegotiation of trade and investment agreements (or their abrogation), efforts to secure stronger international environmental agreements, investment in a parallel, publicly-owned, renewables-based economy, and expropriation of corporate assets. A state like Norway's has given itself considerable leverage to determine the rate of resource exploitation and to appropriate the wealth produced, by maintaining a dominant role for public exploitation of its off-shore oil reserves. Thanks to the decisions made by its Social Credit and Conservative governments from the 1940s onward (Pratt 1976; Richards and Pratt 1981) Alberta has never asserted majority public ownership of productive capacity in the oil and gas sector. Its rentierism has been based on an increasingly shrinking share of resource rents paid by large private corporations dominated by US capital (Campanella 2012; Roy 2015). In January 2016, following a review of the province's royalties regime, and in the context of the collapse of oil prices and strong industry pressure, the Notley government decided not to increase royalty rates for oil and gas producers.¹⁹

By virtue of being a Canadian province and subject to the international trade and investment treaties to which neoliberal Canadian governments have signed on, the expropriation of energy corporation assets now would incur massive market and 'constitutional' retaliation (e.g., lawsuits under NAFTA) on the part of bond holders and investors.²⁰ In any case, assets in the oil sands are beginning to look less and less attractive. In this context, what levers are available to the NDP government of Alberta to raise revenue and use it to rapidly shift investment away from the fossil fuels industries toward sustainable agriculture and urban design, renewable energy substitution, and other leading sectors of an alternative development model? What other resources can be mobilized by the state and civil society to effect a green transition? These are hard questions that call for 'practical' answers (Williams 1989). However, the answers cannot wait. To secure this opening for change and extend it into the future the immediate political-economic crisis of sustainable livelihoods and income security must be met head on with rapid new job creation and income redistribution.²¹

¹⁹ Video press conference with the Premier, 29 January 2016.

<https://www.youtube.com/watch?v=FtpjaqGay5o>. Accessed 18 February 2016.

²⁰ During the recent US Presidential election campaign, Donald Trump claimed that he would tear up or renegotiate NAFTA but it is impossible to know at this time what this may mean for Canada.

²¹ The unemployment rate in Alberta has risen from 4.7% in December 2014 to 8.5% in October 2016. The last time the unemployment rate in Alberta was above 7.0% was in April 2010. The unemployment rate in Canada as a whole in October 2016 was 7.0%. Sources: Statistics Canada Labour Force Survey, December 2015, <http://www.statcan.gc.ca/daily-quotidien/160108/dq160108a-eng.htm>; Statistics Canada, CANSIM,

How Government Can Lead

Government does have the authority to take the lead in comprehensive planning for green transition. Ecological and equity criteria, along with food self-sufficiency, employment-generation, and respect for aboriginal rights must guide every area of government policy. For this to happen *democratically*, the government must invest in public education (about the stakes, the options, the benefits of energy transition), and in the meaningful involvement of citizens and communities in decision-making. A mobilizing, inspirational politics of principles is called for that speaks to global and intergenerational equity. Beyond this, we need a vision of the better world we will win. The transition we are facing should be presented as an opportunity to create a society that brings us greater security, well-being, and happiness.

The NDP's key resources lie in the civil service and in civil society. The capacity of the civil service, combined with the knowledge and research resources in civil society (think tanks, unions, universities, NGOs, indigenous peoples) should be supported and mobilized to undertake comprehensive planning for a green transition. The government has been gradually rebuilding the policy capacity of ministries, including by hiring leaders from civil society organizations who have been engaged in these issues for many years. It is, however, constrained by the current fiscal environment in regard to expansion of the public service. One recent move has created a possible revenue stream that the government could use to multiply its policy and planning, as well as its public involvement resources. Its *Climate Leadership Implementation Act*, passed in May 2016, amended the *Climate Change Emissions Management Act* to permit the CCEM Fund to be used for:

(g.1) education initiatives, including education programs, research programs and scholarships; (g.2) outreach initiatives, including initiatives to provide information to stakeholders and the public; (g.3) reimbursing salaries, fees, expenses, liabilities or other costs incurred by the Government in respect of activities or functions related to reducing emissions of specified gases or supporting Alberta's ability to adapt to climate change; (g.4) funding salaries, fees, expenses, liabilities or other costs incurred by a Provincial corporation or the Independent System Operator in respect of activities or functions related to reducing emissions of specified gases or supporting Alberta's ability to adapt to climate change (Government of Alberta 2016b, 94).

table [282-0087](#) (accessed 25 November 2016); Government of Alberta, <http://economicdashboard.alberta.ca/Unemployment#alberta> (accessed 25 November 2016).

While the new carbon levy has attracted most of the attention of the opposition parties, these changes may be subversive of the hegemony of oil and gas industry interests in ways that are more important. The CCEM fund may provide a source of revenue to carry out the kind of public education and consultation initiatives that will be critical to garnering support for reforms in the direction of deep decarbonisation – should the government choose to undertake these. Funding for research programs and scholarships may be directed to post-secondary institutions where research capacity already exists, and may be mobilized to advance green transition priorities. Because previous government funding priorities (both federal and provincial) heavily favoured R & D related to fossil fuels (Adkin 2016b), Alberta’s post-secondary institutions structured their hiring and grant-seeking accordingly to maximize their funding and endowments. If governments establish new “green transition” priorities for their funding agencies, university hiring and research priorities will shift accordingly, and research capacity that was under-resourced will be tapped. The CCEM Corporation could also be redirected by the government to prioritize investment in R & D in energy efficiency and renewable energy systems, rather than the fossil-fuel-related or biofuels projects that it has prioritized since 2009 (Adkin and Stares 2016).

In addition, the government is in the process of amalgamating the Alberta Innovates corporations created by the PC government in 2009-2010, and this could be an important opportunity to redefine funding priorities and to shift funding from industry-university partnerships to community-university partnerships. Communities could include municipal governments, community leagues, First Nations and Metis settlements, and organizations working on everything from local food production to co-operative investment in passive housing developments.

These developments, if well co-ordinated and focused, could go a long way toward building a robust research and planning capacity to feed into and accelerate government policy development and the implementation of green transition strategies. However, the governmental and corporate understanding of “innovation,” with its focus on commercializable technology, must be changed to encompass innovation with regard to institutional design, political decision-making processes, participatory citizenship, public policy, and cultural transformation. This is the kind of knowledge produced by the comparatively underfunded social sciences and humanities, in conjunction with social movements and communities, and researchers in these fields are also eager to participate in interdisciplinary work that will move our societies and economies in the direction of ecological democracy.

Every opportunity should be taken to prioritize public investment in new job-creating areas such as ecologically sustainable agriculture, value-added manufacturing, renewable energy production, energy conservation, as well as education and human services. Alternative employment needs to be created before growing unemployment can

be exploited further by the right and become a drain on revenue. Government should seriously consider *public ownership* of new growth sectors (in lieu of subsidies to the private sector) as well as support for *community-based* planning and management of resources and services.

It bears repeating that the messaging from the government to the public about the public interest and the future of Alberta must change. NDP leaders continue to repeat the assertions of their PC predecessors that growth of oil and gas extraction is both critical to Albertans' future prosperity and can be made environmentally sustainable. Action on climate change is presented as a condition for securing social license for the oil and gas companies. Such messages are found in this speech by Premier Notley to the Edmonton Chamber of Commerce, April 15, 2016:²²

Our Climate Leadership Strategy is about responsible energy production. It is showing the world that we are committed to being one of the most environmentally responsible energy producers in the world. It will help open new markets for our products, and ensure Albertans get full value from the energy we sell. But first, we need the infrastructure to get our energy to new customers. Market access is so important to the future of Alberta and of our country. And pipelines are the safest and most environmentally responsible way to transport oil. As I said last weekend, and as I have been saying for months: I will continue to advocate for pipelines until we get to "yes" so that Albertans – and all Canadians – get full value from our resources.

The 'last weekend' to which the Premier referred was the federal NDP convention, held in Edmonton in April 2016, which was the occasion of a visceral split in the party between so-called 'pragmatic' and 'radical' factions. The provocation for this split was a debate about whether or not the party should adopt the left-green LEAP manifesto. The Alberta Premier and her cabinet were firmly opposed to the manifesto's rejection of new fossil fuel infrastructure, instead reiterating Alberta's demands for new pipeline capacity to carry bitumen and other products to 'tidewater' for export. Although there is not space here to examine the manifesto or the debate in detail, the fracture lines closely followed the opposition between climate capitalist and green-left visions that I have mapped in this article.

A government seeking rapid and deep decarbonisation with a just transition for directly affected workers needs a new discourse about the public interest and a new construction of Albertans' identity. Rather than presenting action on climate change as a condition for securing national and international social license for the export of bitumen

²² <http://www.alberta.ca/release.cfm?xID=41590B28C3B56-E600-600A-D5B848FB7DFCCD90>.

and crude oil, political leaders need to represent decarbonisation as the building of a new future for ourselves, and a form of solidarity with others. Central Canadians and environmentalists are not Albertans' enemies when they decline to help us prolong our fossil-fuel-extraction-based economy. We need a new collective identity—one that speaks to our role as global citizens and creators of a better world. How can Alberta be a model for the world? If Alberta can build a post-carbon economy with greater self-sufficiency and resilience for its communities, so can the rest of the world. Building support for this complex, collective transformation of our economy and our society requires government to *lead as an educator and as a mobilizer of public involvement*. The government can move in these ways to democratize our political institutions.

What civil society actors can do

The high-level principles of the Leap Manifesto, linking social justice demands to rapid green transition, need to be concretized for regions and communities. Civil society organizations can engage their members and networks to participate in decision-making, research, and planning processes. They can continue to build programmatic convergence and consensus within civil society, using conferences, media, and cross-sectoral working groups like the Alberta Green Economy Network (<http://www.albertagen.ca/>). The unions, along with progressive think-tanks, First Nations, Metis Settlements, academics, environmental, sustainable food, and anti-poverty organizations, and groups like Iron and Earth (<http://www.ironandearth.org/>) all have important roles to play in identifying a future path of development for Alberta.²³ None of us, alone, has all of the expertise needed to produce adequate answers to these complex problems; that is why we need to collaborate and build coalitions.

At the same time, civil society actors must preserve their autonomy from the NDP/government while partnering with it wherever their goals converge. Their vision of ecological democracy must not be muted by, or subordinated to, electoral politics or party loyalty. The government could help to deepen and broaden a green public by removing obstacles to organizing and contributing resources; but regardless of what the government chooses to do, civil society actors must try in whatever ways possible to shift the political consensus. Without a mobilized green public, no progressive government can hope to stand up to the attacks that will surely come from corporate interests and the populist right.

We have no time to lose following a climate capitalist path that seeks to keep the old model running with some repairs and new paint. As Naomi Klein puts it, 'there are no non-radical options left' for acting effectively to stop climate change and to create a

²³ There is unfortunately no space here to provide a detailed picture of the terrain in this regard, and much of this research remains to be done. For one recent study, see Haluza-DeLay and Carter 2016.

livable world.²⁴ The current junction is one of enormous potential for change in Alberta, and the decisions taken now will determine whether climate change policy becomes the driver of a new model of development or a prop to the old one.

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²⁴ From the transcript of Michael Winship's interview with Naomi Klein in *Salon*, February 4, 2016, http://www.salon.com/2016/02/04/naomi_klein_there_are_no_non_radical_options_left_before_us_partner/.

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