Debra J. Davidson · Mike Gismondi

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(T)hey saw in each other's eyes the dread, the abrupt tearing sensation of doubt … the superintendent had a vision. He saw like an opened book the immense curves of the Athabasca River swinging through wilderness down from the glacial pinnacles of the Rocky Mountains and across Alberta and joined by the Berland and the McLeod and the Pembina and the Pelican and the Christina and the Clearwater and the Firebag rivers, and all the surface of the earth was gone, the Tertiary and the lower Cretaceous layers of strata had been ripped away and the thousands of square miles of black bituminous sand exposed, laid open, slanting down into the molten centre of the earth, O Miserere, miserere…

"The Angel of the Tar Sands" by Rudy Weibe in Rudy Weibe, *The Angel of the Tar Sands and Other Stories,* Toronto: McLelland and Stewart, 1982. Originally published in Rudy Weibe 1979 Alberta/A Celebration, Edmonton: Hurtig Publishers.

Dedicated to William R. Freudenburg and William Fuller, who left us before they were done.

Preface

Popular discourses on looming catastrophes of all sorts tend to fall into two patterns: either we are doomed and there is nothing we can do about it or "the system" will fix itself and there is nothing we need to do about it. Both are, in a sense, excuses for ignoring alarm signals, and avoiding pro-active planning for change, in effect shielding complex problems from critical examination and reflection. Regardless of one's interpretation of history, however, one would be hard-pressed to identify instances in which avoidance ever amounted to positive outcomes. This book is an attempt to dig deeper into just how avoidance becomes legitimated, even in those cases when doing something urgently would seem quite prudent. The case we focus on is the development of bitumen in northeast Alberta, Canada, known as the Athabasca tar sands, or more colourfully "Dirty Oil" to critics, and oilsands, or most recently "Ethical Oil" to proponents. The Athabasca tar sands has attracted the attention of concerned citizens across the globe. In response, state and industrial interests have made significant investments in research and technological innovations intended to "green" the bitumen extraction process, and even larger investments in discursive framing to assure observers that such technological innovation and new scientific knowledge will avert ecological catastrophe, among several other conceptual frames intended to divert or otherwise marginalise critical attention. Such efforts at reframing have met with mixed success. Many critics view such manoeuvers as efforts to justify the massive and destructive expansion of the tar sands for the purposes of generating wealth for the few, leading to a political dance played out on the media floor, in hearing rooms, and on the internet. Still other ramifications of non-conventional fuel development are entirely absent from political discourse, despite very good reasons for attention to them. The outcomes of such discursive theatre have at least as much to do with our present and future relationship to energy as do the activities of world leaders and petrochemical geologists, and are worth watching closely.

The Athabasca tar sands has received a significant amount of attention by journalists, politicians, and social movement activists, but relatively little from the social sciences. We consider this gap in urgent need of rectification, and hope that our contribution encourages further critical inquiry from the academy. While the Alberta

tar sands could be seen as just one of many industrial developments with harsh environmental consequences taking place across the globe today, and one that is in a rather remote geographic area that has not been subject to extensive global political attention previously, we consider this enterprise to have much deeper implications. Non-conventional fuels are those which require significantly larger amounts of inputs – in terms of raw materials, energy, labour, technology, processing, and so on – in order to transform them into a form that can be used. They are also, as one might anticipate, associated with much higher levels of waste and environmental degradation. To date, non-conventional fuels have not been developed extensively due to the relatively large input costs. More recently, however, increasing oil prices, combined with technological developments, and the precipitous decline in discovery rates of new conventional sources have drawn attention to the globes' several deposits of heavy oil, shale, bitumen, and deepwater reserves. Due in no small part to the perseverant advocacy of the Provincial state of Alberta, the Athabasca tar sands is the first large-scale non-conventional fossil fuel development that has become a significant producer of oil for the global marketplace. What happens here in the Athabasca tar sands could determine whether it is the first of many more such developments to come, or the last.

This book will contribute to the study of environmental and natural resource politics, and to the sociology of language and power, but on a much broader level, this book is about social change, a topic of urgent contemporary interest both within the academy and beyond. How modern social systems respond to our rapidly disintegrating relationship with easy energy can tell us much about the potential for collective agency on a macro-scale. As dictated by the context in which energy development occurs, we embrace contemporary conceptualizations of society as a complex system of flows and mobilities, rather than static entities, and yet simultaneously highlight the extent to which modernity is indelibly rooted in place, with both material and ideological implication. Within this turbulent system – as is the case in any dynamic, complex system defined by unpredictability and interconnected networks – lay sources of crisis, but also hope for positive societal transformation.

Edmonton, AB — Debra J. Davidson
Athabasca, AB — Mike Gismondi

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Chapter 1
Look Who's Talking

Human history has often been described as a progressive relinquishment from environmental constraints. Now, it seems, we have come full circle. The ecological irrationalities associated with industrial societies have a lengthy history, and our purpose is not to catalogue this litany of horrors. Collectively, however, we have crossed certain literal and figurative thresholds. Our ability to commit such acts of irrationality unconsciously, obliviously, or simply nonchalantly, is no longer a luxury we enjoy. Two intersecting moments define this historic nexus. The mounting evidence for global climate change, now unequivocally attributed to socio-economic activities, has accumulated to the extent that today even insistent deniers must concede defeat in any but the most closeted of social circles. Simultaneously, as fossil fuel seekers come home with ever-shrinking finds, the end of easy oil and the easy wealth it has generated is upon us, rendering non-conventional fossil fuels the next most attractive option to those states and corporations that control the extraction and delivery of energy resources. The development of such non-conventional fuels does nothing to alleviate either climate change or peak oil, however. On the contrary, the tremendous energy requirements for extraction and processing of these low quality fuels translates into an abysmal and ever-decreasing return on energy investments, escalating greenhouse gas emissions, and other environmental disruptions. These two facts—growing reliance on non-conventional fuels and increasing scale of environmental disruption—are not merely co-incidental: as "easy" global reserves of fossil fuels in general, and oil in particular, become depleted, the remaining fossil fuels are far more difficult to source, and hence environmentally, socially and economically more costly to extract (Klare 2008).

The Future Is Here

The largest of these endeavours – indeed the largest industrial project in history – is taking place today in a remote land that until recently was home to a greater number of caribou than humans. Various geological processes several millennia in the making

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Fig. 1.1 Open Pit. Syncrude Aurora North Mine with permission of Louis Helbig. B2402051. See http://www.beautifuldestruction.com and http://www.louishelbig.com/

have deposited a gargantuan volume of bitumen, more descriptively known as tar or oil sands, into the sandy terrain lying below the boreal forest floor of north-eastern Alberta. While the region's original peoples viewed this substance in the most utilitarian of manners – as an effective sealant for canoes – the few European travellers and their descendants who first ventured into the area expressed a level of veneration for the black sand often reserved for religious figures. Throughout much of the history of European occupation, the emancipatory dreams imbued in Alberta's tar remained just that, but the scale of tar sands development in recent years has surpassed the wildest imaginations of early explorers. Today, euphoria about the Alberta tar sands is shared by dozens of the largest, most profitable corporations in the world and tens of thousands of migrant workers who have descended upon Alberta's backwaters to strike it rich or enjoy the ready pleasures that only hard cash can buy. The Alberta Energy and Utilities Board (EUB) estimates that northern Alberta holds approximately 1.7 trillion barrels of crude bitumen, although only 174 billion barrels are considered recoverable using today's technology under current economic conditions. Existing production averages around 1.5 million barrels per day (mbd), but anticipated output is expected to reach anywhere from 5 to 10 mbd by the 2030s, involving some 33 mines (Fig 1.1), 83 deep-well drilling projects, and 40 upgraders that have been announced, applied for, or are currently operating (Dunbar 2009). What do we get from one barrel of synthetic crude oil? About enough gasoline to fill the tank of an American car.

Other observers have been captivated by a different symbolic representation of the industrial-scale development of the Alberta tar sands, as a significant *threshold*

beyond which the ecological and social costs of development outpace the benefits received by humanity. International attention has been focused on the approximately 30 megatons (MTs) of greenhouse gases that are currently emitted from the Athabasca tar sands operations, projected to increase more than tenfold to 400 MTs by 2050 – in part a result of the high energy requirements for tar sands extraction, which are currently supplied by another fossil fuel, natural gas (CAPP 2009; Alberta Environment 2009d).[1] The contribution to global warming is by no means the only form of environmental disruption, however. Approximately half of the bitumen is extracted by mining, which to date has created open pits covering 530 km^2 (Alberta Environment 2009c). The other half is derived through deep-well drilling processes that consist of injecting steam underground to make the deeper tar deposits viscous enough to be pumped to the surface, entailing considerable habitat fragmentation that differs from mining, but is no less significant, and with much larger energy input requirements. Moreover, the extraction process is water intensive, consuming between two and five barrels of water per mined barrel, and around half a barrel of water per deep-well barrel produced (Alberta Environment 2009a). All contaminated water not fit for re-use is deposited in tailings ponds, which currently cover 130 km^2 of land (Alberta Environment 2009b).

These disruptions describe certain central, and yet often unheeded material flows in our contemporary *Liquid Modernity* (Bauman 2000), material flows that belie and yet intersect the far more rapid movements of people, ideas, and capital. As few of these flows are subject to the control of states, the power of states to draw together their citizens as a unified body is weakening, as is their coercive power (Urry 2000). Sources of credibility, culpability, responsibility, and legitimacy have all been de-stabilized, becoming ambiguous, manipulable, and ephemeral. This is not to downplay the persistence of certain forms of power, but rather to suggest that avenues of power's expression are evolving: as with other features of social systems, power itself becomes better understood as *flow* than structure. At the heart of this liquid modernity are global communications, bringing the formerly distant into close range, enhancing its tangibility. The fluidity of communications has escalated through digitization, compromising the ability of states and other interested parties to control flows of ideas and information, which have become formless, chaotic, and unpredictable. Digital media pitches the public world into the private, and the non-local into the local, abolishing the perceptual and sensory distance between oneself and faraway places, events, and people (Urry 2000). Optimistic researchers associate global communications networks with the prospect of a global civil society (Rheingold 1994), in part by introducing opportunities for an ever-growing cadre of others to question and intervene in previously exclusive political discourses. Emergent information and communication technologies have unquestionably contributed to the

[1] To recover one barrel of bitumen by in situ extraction, 1,000 cubic feet of natural gas is required, and 250 cubic feet of natural gas is needed for extraction by open-pit mining (Alberta Chamber of Resources 2004). These figures do not include the energy consumed in the upgrading, refining and transport of fuels.

proliferation of information sources, provided new forms of participation, and created new opportunities for re-establishing relationships between citizens and politicians (Bentivegna 2006). One should not wax too optimistic about the transformative power of global communications, however, as multiple peoples have no participatory access to this discourse at all, and certain forms of political power remain quite entrenched.

One of the primary reasons certain forms of power are difficult to unseat is the close relationship between political power and control over another set of global flows that are exceedingly material, namely earth's resources. While Urry and others chide sociology colleagues for failing to grasp a "sociology of flows", social scientists working in certain sub-disciplines have been employing a sociology of flows of raw materials for decades, beginning with Innis (1956, 1940). Innis' staples theory described how flows of natural resources from hinterland to core shaped the social structures of both – flows directly defined by transportation and communication channels that underwent continual change. Several geographers have donned a similar lens, following Massey's (2005, 1995, 1994) lead in tracing the spatial flow and distribution of capital and labour. More recently, this tradition has emerged in the form of global commodity chain analysis (e.g. Gereffi and Korzeniewicz 1994). The late Stephen Bunker, both in his earlier work (Bunker 1985) on global raw materials and ecosystems and recent collaborations with Paul Ciccantell (2005), has provided one of the most insightful frameworks for analyses of material flows since Innis. Bunker argues that the very impetus towards globalization of our social systems is driven by capital's imperative to reduce production costs by minimizing raw materials inputs. But historic instances of success at doing so have only provided incentives for expansion of production – another inherent capitalist imperative – leading to a net increase in raw material use and ecological impact, and the search for new reserves that are frustratingly contained in ever more distant locations. In contrast to many contemporary portrayals of global capital processes as spatially and materially unbounded, "it is impossible to pretend that raw materials deposits, mines, railroads, and steel mills are footloose" (Ciccantell and Smith 2009:362). This body of work, in a nutshell, emphasizes the historic and very material precedents to our contemporary fluid modernity, and put to rest any sentiments regarding the "de-materialization" of contemporary societies. These critiques of the de-materialization thesis provide a nice complement to Urry's sociology of flows, by problematizing the material and ecological sides of the equation.

Material flows are part of the history of civilization; however, the exponential increase since the 1970s in the mobility of people and information in time frames ever closer to instantaneous marks an exponential shift in the complexity and dynamism of modern society. Today's global map overlays a pre-existing global economy founded upon the flow of remote physical materials that were highly resistant to mobility. Seemingly immaterial, the emergent network of flows has ironically increased pressures on material flows, while simultaneously masking those material realities, as shifts in the paths of material dispersion are readily mistaken for ecological modernization and de-materialization. Outcomes are not predetermined; however, as the same processes enabling escalation also provide avenues for

revelation, simultaneously enhancing the need for, and opening avenues for, greater reflexivity. Such reflexivity is expressed in the form of increased awareness of ecological crises, interpretive struggles over the meaning of such crises, and expression of social discontent, all with unpredictable end points.

One critical ramification of Liquid Modernity is clearly expressed in this current context: the option for personal dissociation – however removed one is by geography or awareness – is lacking, rendering complicity, conscious or otherwise, among all members of global society. Consumers do not have a choice whether or not to consume energy after all. Even the presumed choice *among* energy supplies is fallacious. While boycotts of "dirty oil" are certainly politically meaningful, the choices posed are merely a facade when applied to global supplies of energy staples. An individual, community, or state that refuses to purchase petroleum products from the tar sands and yet replaces them with equal amounts of fossil fuels produced elsewhere does nothing to reduce demand on a shrinking pool of global reserves, and inevitably that demand increases exploitation of those same non-conventional fuels. The futility of our convenient subsuming of environmental concern into a green marketplace is laid bare; our choices among blood diamonds and the "guilt-free" diamonds of Canada, between Nike and Birkenstock, between conventional and organic foods are nearly as speculative. If we choose to continue to support a dominant global economic structure premised on "fossil capitalism" (Huber 2008), the necessarily escalating reliance on non-conventional fossil fuels will come at a huge cost to social and ecological wellbeing. The scale of those costs demands recognition and attribution, and the freedoms enabled by fossil fuel consumption come with a responsibility to deal with irreversible consequences; ultimately "more freedom means less choice" (Shove and Warde 1998:7). As we will argue, these freedoms and responsibilities raise the obvious questions: What are the likely avenues of response by societies? Without the luxury of naiveté, does not a collective agreement to engage in suicidal tendencies have foreboding implications for social order and human psyche alike? The only way forward – if forward movement is at all plausible – is with our eyes wide open. Will the Athabasca tar sands become a global wakeup call? Our twenty-first century Titanic?

Where Do We Go from Here?

If the potential for collective response to threat exists at all, one would think that potential would be ripe now. This potential, however, often receives little scrutiny; most commentators presume that such a response is either determined by structural conditions or entirely unrealizable. Setting aside the latter group of fatalists, the former group tends to be divided into three categories. First, many pull out that now age-old, reliable calling card, technological optimism (Lomborg 2001; Simon 1981). Technology has without question enabled seemingly miraculous changes in our relationship with the biosphere throughout history, so why should the tremendous potential of human ingenuity be doubted now? A role for technology in

responding to material and environmental crisis can certainly not be ruled out. But the exponential increase in resource supply and effort that would be required for the development of new technologies capable of accommodating an infinite growth trajectory cannot be ruled out either, even assuming solutions are possible within the confines of universal physical and ecological laws (a mighty lofty assumption indeed). States cannot simply continue to underwrite the costs of technological optimism through public resources, and markets will only do so to the extent that costs can be imposed on society in commodity pricing. But when the commodities in question include food, water, and energy, the "if they want it bad enough they will pay" clause embedded in market logic poses a serious ethical problem.

Others invest hope in the authority of states to intervene. But w*hy would they?* Even setting aside issues of state autonomy and capacity, *why* would a given state invest resources in substantive, as opposed to purely symbolic, responses to ecological degradation? Some presume a response in instrumental terms, like the much-anticipated internalization of ecological rationales into efficiency-based decision-making hypothesized by Ecological Modernization Theory (e.g. Mol and Sonnenfeld 2000; Spaargaren and Mol 1992). Others suggest states will assume responsibility for environmental well-being because *World Society* told them to (Frank et al. 2000). The historical record suggests otherwise. States are faced with limited sustainability imperatives, and more often than not are compelled to partake in just the opposite. To the extent that they are beholden to the corporations benefiting from environmental disruption, states have a structural incentive to avoid, rather than address, environmental problems. Of course growing concern in domestic and global civil society creates tensions for state actors, but fortunately for state agents facing such a bind, the direct *indications* of environmental degradation are often obscure, and in many instances dependent upon scientific interpretation by a techno-scientific elite, themselves divided and influenced by social pressures (Finlayson 1994). This set of circumstances contributes to an extraordinarily high degree of interpretive flexibility, such that interpretations themselves often determine political outcomes (Freudenburg et al. 2008), which have little more than symbolic influence on the condition of our ecosystems.

We are left then with reliance on the transformative potential of civil society. Recent encouraging signs are changes in individual-level environmental awareness and behaviour, and the growing political influence of environmental mobilizations of various forms. All too often, however, these efforts have been too little and too late. Even the ecologically conscious among us in the Western world face limited abilities to remove ourselves from our consumptive lifestyles. A society-led transition to a post-carbon society may well test the organizational capacities of civilization, but we warrant that is a test well-worth critical consideration. Several crucial preconditions would need to materialize. Unleashing this transformative potential requires first and foremost a legitimacy crisis to unfold, which in turn depends upon a particular reflexive course: the collective recognition of the illegitimacy of current forms of order and distribution; the imagination of alternative trajectories; and the predilection and capacity to act on such projects, by embarking upon untrodden and therefore uncertain future paths.

Legitimacy in Fluid Modernity

Centre stage in the current analysis is consequently taken by the role of legitimacy – described roughly as concession to the "justness" of given power structures, projects, and ideologies by those subjected to them. Legitimacy presumes a relation, in which some entity exerts power over another, and the latter concedes to such an imposition, forsaking one's own power to reject or rebel. While theoretical interest in legitimacy enjoys a lengthy scholarly history, the concept remains elusive. More often than not legitimacy tends to be presented in absolute terms: legitimacy is either present or absent. Yet since legitimacy is inevitably embedded in fluid modernity, it is more appropriately measured in degrees rather than absolutes, and as a flow rather than a structural condition. Likewise, the social contract itself and its component parts are culturally and historically contingent. Both the expectations on states associated with that contract and the delineation of societal groups to which the contract pertains are quintessentially fluid, defined by globalized markets and polities, creating an ever-changing cartography of routes through which legitimacy crisis may emerge (Blanchard et al. 1998; Nye and Myers 2002).

Empirical researchers usually resort to measurement of hypothetical indicators of legitimacy's presence. The *presence* of conditions favouring legitimacy, such as shared beliefs, is by necessity conjoined with certain notable *absences*, however, in that any given perspective is inevitably partial, concealing as much as it promotes (Freudenburg and Alario 2007). As Habermas (1975), among others, has been wont to point out, dominant ideologies serve to support the inequitable distribution among its subjects of both wealth and threat. Inequities are not the only form of contradiction that must remain concealed, however, in order for legitimacy to persist. Some belief systems are also associated with deeper structural irrationalities, the revelation of which would be equally threatening to those who benefit from the current social order. Steadfast ascription to continuous progress from within the confines of an economic system wholly dependent upon finite resources and waste sinks is one such irrationality. The treatment of these same sources and sinks as isolated from the biosphere in which they exist is another. While the application of the concept of legitimacy is often restricted to institutions of authority – namely states – legitimacy is tied not just to the stability of authority structures but also to the ideologies themselves that states inevitably serve to endorse, and the particular projects that embody those ideologies. If legitimacy is enabled by the presence of shared beliefs, it stands to reason then that it is the presumed legitimacy of those beliefs themselves that, by extension, affords legitimacy to the authority structures and projects embodying those beliefs.

Neither inequity nor irrationality need pose a threat to legitimacy, however, provided the indications of such contradictions either remain concealed or can be effectively explained away. One main effect of political discourse, in addition to the promotion of both its own authority and the ideologies espoused, is to *conceal or discount* the inequities and irrationalities endorsed by state and ideology alike. Legitimacy is thus sustained only to the extent to which such contradictions remain

unacknowledged. Such legitimacy is enhanced through the control of information through certain mechanisms – including the mass media in particular – which have the effect of maintaining the hegemony of certain beliefs.

Energy provides a particularly complex and useful venue for evaluating this fluid legitimacy. It is an enterprise in which, while benefits are most certainly not distributed equitably, we do all nonetheless benefit. Or more to the point, we would all (and many do) very much suffer without it. At the current nexus, however, the level of scrutiny to which states are exposed continues to escalate, suggesting the possibility that activities un-noticed in the past can generate significant controversy for state and corporate proponents of certain forms of energy development today. The rising potency of global warming and peak oil as political (and economic, health, security, etc.) issues have broadened the parameters of critical scrutiny, raising the spectre of legitimacy threat to the realm of global market share and international reputation. The growing disruptions caused by the development of our remaining oil reserves may well pose a legitimacy challenge for states today, even within petro-states that have historically enjoyed high levels of local support, or at least quiescence. At the same time, those states with jurisdiction over the last remaining reserves of fossil fuels may face increasing economic incentive but also political pressure to *develop* those resources, ostensibly to avoid an energy crisis, placing state actors in a rather delicate position on the domestic and international stages, in which discursive manoeuvrability is key to the maintenance of legitimacy.

What is interesting here is the prospect of persistent adherence to the legitimacy of certain social structures to exacerbate the likelihood for contradictions to arise, and undermine the very foundations of those social structures. Beck (2009) argues that the accumulation of hazards at the global scale will transpire in reflexive modernization, a process of learning from and responding to structural disfunctionalities at an institutional level. Unfortunately, Beck presumes that the experience of collective victimhood will in and of itself transpire into societal response. For us, any hope for social transformation beyond both peak oil and global climate change rests in the potential for a sufficient number[2] of individuals to call into question the legitimacy of those social contexts, and secondly to pursue courses of action – including collective action – that are intended to encourage the transformation of those social contexts. Legitimacy crisis, in other words, does not rest solely on the acknowledgement of contradictions. Legitimacy cannot be conceived of as a deterministic source of agency, the absence of which automatically triggers social struggle. Many social structures clearly lacking in legitimacy as it is defined here have persisted for great lengths of time. A legitimacy crisis requires individuals to express their discontent, and design and pursue projects intended to establish new norms and rules of behaviour.

[2]What that number is poses a frustrating source of elusion for empirical researchers, but conceptually it is determined by the level of accumulated behavioural change that is needed to overwhelm the absorption capacity of the existing social system.