Imagining Alternatives in the Emerald City: The Climate Change Discourse of Transnational Fossil Fuel Corporations

by

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Bachelor of Arts, St. Thomas University, 2009

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Supervisory Committee

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Abstract

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Discourse has the power to organize thought—and therefore, to limit imagination. The purpose of this project is to trace the contours of climate change discourse constructed by transnational fossil fuel corporations, to make visible the ideological barriers it creates to imagining post-capitalist alternatives. It is undertaken in the context of a well-established urgency for global collaboration to halt, mitigate, and adapt to the social, economic, and ecological impacts of climate change, and takes as its point of departure the fundamental link between ecological degradation and the capitalist mode of production (with its accompanying imperatives of accumulation and profit), as well as the necessity of counter-hegemonic praxis to pursuing system-transformative change on the scale required for humanity to negotiate the looming crisis in a just and ecologically viable way.

Conceptualizing popular media as a discursive battleground in which the voices of corporations (through the evolving mediums of advertisement) are privileged, I employ critical discourse analysis to explore the framing of climate change messages by five major transnational oil and gas corporations, toward developing an analytical framework for the burgeoning climate change movement grounded at the intersection of global corporate capitalism and ecological degradation.

Climate change messages included images, videos, and narratives intended for public consumption which spoke to the source, resolution, and/or future of human-induced and climate-related ecological problems. These were drawn from corporate websites, blogs, Facebook and Twitter feeds, and YouTube channels over the course of 2016.

As action research, I have undertaken this project with the explicit aim of empowering climate movements – of which I count myself a part – to imagine alternative futures. To contribute to this aim, I have created a media literacy toolkit that links corporate climate change messages with the interests they represent to make visible the dynamics of power that mobilize those interests.

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Acknowledgments

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Finally, I want to acknowledge with immense appreciation the support of my family and friends, whose faith, patience, sacrifices, and love are the foundation of everything I do.

Dedication

For my daughter, Aya, who has become the nucleus of my hope for a better world and inherits our struggles to build it,

For Dr. Michael Clow, whose dream to change the world changed mine,

And for change agents across the world who are daring to imagine alternatives.

Imagining Alternatives in the Emerald City: Mapping the Climate Change Discourse of Transnational Fossil Fuel Corporations

"Culture is the survival kit of humankind" (Mikko Lehtonen, 2000).

Are We "Global Warming Ready?"

Strolling through the West Edmonton Mall in 2007, a large billboard caught my eye. The scene was archetypal for fashion advertising – a rugged male model slathered lotion on a female model's bare back as she posed provocatively in a tropical beach setting – but with a notable exception that stopped me in my tracks. In the background the ocean water lapped at eye-level with the iconic, stone-chiselled features of Mount Rushmore, and the corner of the ad boldly declared "Global Warming Ready" with an officious stamp of approval.

Diesel Jeans released an entire advertising campaign in that vein. Beautiful, white, affluent-looking men and women in high-fashion apparel lounge above a submerged New York City, speedboat past an underwater Rio de Janeiro, stroll through a lush tropical park in Paris, pose in a city square peppered with macaws like pigeons, and break from a high-heeled hike through a desert to lean against the partially buried, sand-swept wall of China. Each ad features the "Global Warming Ready" stamp as prominently as the company's logo.

On their website Diesel offered tips for addressing global warming – Ten Things You Can Do – which ranged from turning the heat off and copulating for warmth to insulating homes with recycled denim, in response to a fictitious consumer who asked how she could 'atone for wrecking the environment' without changing her 'glamorous lifestyle.'

The campaign also included a brief partnership with stopglobalwarming.org featuring a link to their 'virtual climate march,' and a link to purchase Al Gore's influential documentary *An Inconvenient Truth*. In one Global Warming Ready commercial, a stoic British narrator introduces the problem of climate change in simple but alarming terms to dramatic music, only to abruptly switch tack when he asks:

> Hold on – what will happen to love, fun, friendship, sex, fashion, music, party? We cannot stop wanting them, just because of a few degrees. Global warming cannot stop our lives! We invite people to keep thinking, acting positive, having fun, but with something more: a clear awareness of the problem, the understanding that our simple daily actions can contribute to saving this place we call planet Earth.

Diesel's campaign was explicitly designed to stop me in my tracks. "We are only a fashion company and do not think that – with just one campaign – we can save the world," the Diesel Worldwide Team (2007) acknowledged, "but if our unconventional tone of voice and the reputation of our brand can grab and hold people's attention a little longer than a news feature can, make them think twice about the consequences of all our actions and *realize our individual responsibility*, then something will have been accomplished" (emphasis added).

Diesel is, of course, selling their product – and using the environment as a backdrop in advertising to pique interest, to reach a particular audience, or to link a product with a certain ethos is nothing new. Even invoking a controversial issue to bolster brand and product recognition is a well-established advertising technique, and Diesel is no stranger to employing it, having published an advertisement featuring two male sailors kissing upon return from World War II at the height of the 'don't ask, don't tell' debates in 1995. The company itself, and more specifically its founder Renzo Rosso, have been

consistently lauded by fashion, business, and advertising press for their fearless and irreverent marketing through the lens of Rozzo's vision: a 'borderless global village' with 'one visual language'. The Global Warming Ready campaign, for example, earned them a Silver Lion at the Effie Awards in Cannes, and was heralded in keeping with Diesel's tradition of "generating attention and provoking discussion of serious societal issues with a tongue-in-cheek ironic voice" (Canadian Newswire, 2007).

But Diesel is making a political statement that transcends the straightforward transaction advertising is presumed to stimulate. Even if we never purchase their product, Diesel engages us in a conversation that – at first blush – has no bearing on the sale of Italian haute couture. When asked during a Businessweek interview what the philosophy behind his provocative marketing style was, Rosso answered "…whatever is happening in the world changes the politics and strategy of Diesel's communication. Our advertising is ironic and humorous – it's not product advertising. It's the message that's important – a common, shared way of seeing things" (Edmonson, 2003).

What shared vision might Diesel impart through their Global Warming Ready campaign?

The dark, ironic humour that characterizes Diesel's advertising grants their messages a peculiar ambiguity – are they advocating or condemning the kind of egocentric, frenetic consumerism underpinning the lifestyle they construct in their campaign? From an environmental psychology perspective, Diesel's approach is unlikely to change individual behaviour, lacking any meaningful grounding in attitude-behavioural theory (such as clear normative and attitudinal pressure to adopt pro-environmental behaviours, or strong links between behaviour and pro-environmental outcomes). Diesel's claim that lending

the reputation of their brand to the problem of climate change may help raise consumer awareness is also heavily suspect, since public awareness in America about global warming peaked at over ninety percent in 2006, a year before the campaign (Nisbet and Myers, 2007).

From a marketing standpoint, on the other hand, the ambiguity of their message and the ironic tone helps to reinforce the kind of exclusivity that adds exchange value – after all, denim's humble symbolic origin is the working class, and Diesel's signature style is 'distressed' (worn and faded) denim, hardly the sort of thing one pays nearly $300 for. And because global warming is a hot-button issue that affects everyone on Earth, Diesel's campaign might inject their brand into the consciousness of folks like me whose eyes have long since learned to slide unseeing over commercial billboards.

But whatever Diesel's *intended* outcome, by invoking global warming in their campaign they stepped into an international debate with immense social, political, and economic significance. And, ambiguous or not, their messages are ubiquitous in a cultural landscape so heavily colonized by advertising.

Diesel is not alone in launching an environmentally-themed advertising campaign. A deluge of 'green advertising' has swamped the public for decades, and climate change has not been exempt. Ominous music accompanies an image of a Reese's Peanut Butter Cup beset by heat waves as the company reveals the terrifying truth: "stop global warming now," it warns, "or all the Reese's will melt." "Scientists Predict Global Warming" reads a newspaper clipping in a Miller's ad; "No Problem" reassures copy placed next to a cold looking six-pack of beer. "Please stop global warming" appeals a

print ad for Bianco featuring a thin, white model with flowing blond curls, trailing her expensive shoes in several inches of water flowing through a posh sitting room.

The capacity for advertising to persuade individual consumers, stimulating 'demand' and inflating value, has been heavily problematized across disciplines. A prodigious literature exists on what's known as "greenwashing," the practice of employing increasingly sophisticated communication techniques to make a product or brand appear environmentally responsible. Much of this literature, and the efforts of dedicated activists (such as David Suzuki's Eco-Label Guide, EnviroMedia Social Marketing's Greenwashing Index, and Greenpeace's StopGreenwash.org), have focussed on measuring the veracity of claims or the persuasive value of advertising. A common assumption is that the intent of an ad is to sell a product – which Diesel is obviously doing here at the expense of a serious issue – or more critically, to influence public disposition on an issue (for example, to escape accountability). Corporations are often conceptualized as singular entities advancing their individual interests in direct competition with others.

But through the lens of my involvement with environmental and alter-globalization movements, and critical literature on the evolving transnational capitalist class, corporate actors seemed less like instrumentally rational islands of self-interest, and more like a class 'for itself.' We watched multinational corporations organizing themselves into broad coalitions to engage multilateral climate change negotiations, orchestrate international trade agreements, and exercise supranational dispute resolution processes of mutual benefit. As diverse as their myriad brands and products were, common threads ran through their campaigns: technological innovation as the province of industry and the

only reasonable way to address ecological problems, for example, and corporations as protagonists in an ongoing struggle to meet the insatiable needs of consumers, driving human welfare upwards and global progress onwards. More than a marketing tool, advertising could be productively theorized as one element of a much broader project to shape environmental debate in the relatively cohesive interests of a corporately organized capitalist class. Each ad then becomes one instance of a larger discourse serving to legitimize and advance those shared interests. Cumulatively, this creates an overarching frame within which "awareness" and "discussion" of environmental problems do happen, but in ways that don't fundamentally challenge (or even in ways that frankly reinforce) the status quo. What implications might this pose for environmental activism? How might that larger discourse infiltrate and undermine our efforts to take meaningful action on ecological problems like climate change?

This Little Pig Went to Market

Not too long after Diesel's post-apocalyptic beach party stopped me in my tracks, another ad caught my eye. The Vancouver-based Media Foundation, producers of the quarterly magazine *Adbusters*, created a commercial to promote Buy Nothing Day, their annual international day of protest against consumerism. The ad opens with a grunting, burping pig, superimposed over North America. A narrator compares American consumption with that of other nations, advising that "we are the most voracious consumers in the world, a world that could die because of the way we live in North America. Give it a rest!"

Like Diesel, Adbusters invokes contemporary issues, employing jarring imagery to arrest their audience and demand attention. And, like Diesel, Adbusters draws on (and

subverts) popular cultural messages and symbols in an effort to construct and promote a given *lifestyle*; what CEO Kalle Lasn calls "the new cool" (Lasn, 2009). But unlike Diesel – which, in the end, is only a fashion company after all! – Adbusters "takes aim at corporate disinformation, global injustice, and the industries and governments who actively pollute and destroy our physical and mental commons" by "challenging people to become participants as opposed to spectators" (Adbusters, n.d.). In essence, Adbusters disrupts and subverts corporate discourse by hijacking carefully constructed and heavily publicised advertising campaigns as a platform to deliver their own message at the advertiser's expense (Coyer, Dowmunt, and Fountain, 2007). For example, Adbusters rebranded RJR Nabisco's iconic cigarette mascot "Joe Camel" as "Joe Chemo." Using the same aesthetic and design approach as RJR Nabisco did in their ads, they substituted, for glamorous images of Joe in a hot tub, playing pool, or riding a motorcycle, images of a sick, despondent Joe getting chemotherapy or resting in an open coffin. In doing so, Adbusters leveraged 23 years of marketing on the part of RJR Nabisco – a 1991 study found that 90% of their six-year-old sample could match Joe Camel to a picture of a cigarette – to promote an anti-smoking message profoundly at odds with the company's interests. This tactic is colloquially referred to as 'culture-jamming' or 'brandalism.' "Create new ambiences and psychic possibilities," challenges a tagline on their website. It's a powerful suggestion.

Yet, despite Adbusters' purported radicalism, what struck me about the American Pig commercial was how closely it aligned with Diesel's Global Warming Ready campaign. Both problematized individual consumption at the expense of identifying the social, political, and economic contexts in which that consumption is embedded. Both

characterized their audience as consumers, rather than citizens. Both emphasized the agency – and culpability – of individuals at the expense of collective public action, while omitting the agency of elites and the impact of industry. As though in dialogue, the American Pig commercial condemned North American 'consumer culture,' haranguing people to cease participating – for a day, at least – while the Diesel campaign celebrated it, prophesizing its triumph over the looming threat of global climate catastrophe, linking it firmly with our lives and values, and brazenly mocking the very tone of guilt and shame invoked by the American Pig commercial. Despite their purportedly oppositional interests in the climate debate, both subscribed to a larger discourse which places individual avarice and unbridled personal consumption at the center of environmental politics. Soron (2006) neatly sums up the impact of this reductive frame:

> This process of personalization [of the politics of consumption] is visible in the image of the "North American Pig" itself, which transforms an entire continent – one crosscut with different countries, regions, institutions, political forces, economic interests, classes, and social and cultural groups – into a single swollen creature, writhing and belching in the torpor of greedy indulgence. What this amplified image of consumer gluttony fails to capture are the structural underpinnings of overconsumption in today's "affluent" societies and the abiding inequalities of power with which they are enmeshed (235).

Culture jamming and brandalism are rich with counter-hegemonic potential. They very cleverly exploit the discursive effort that underwrites the translation of a dominant group's views into a common sense worldview. Adbusters rightly recognizes popular media as a site of struggle – once articulated, discourse is vulnerable to interruption and subversion. Maintaining and expanding hegemony takes effort, and wherever that effort

is discursive there is the opportunity to interrupt its logic. But there is also the threat of reproducing or reinforcing it.

In order for climate movements to become a politically transformative force, we need a coherent, counter-hegemonic narrative that both challenges and supplants the worldview of corporate capital. We must be conscious and deliberate when we tell the story of climate change, lest we fortify the legitimizing narratives of capital that drive the frontiers of its hegemony at the expense of our welfare. Basically, we need to stop telling their stories, and start telling ours. One important task toward distinguishing between the two is tracing the contours of their story and linking it with the interests at play. To that project I've contributed a critical discourse analysis of the climate-themed advertising of five major transnational fossil fuel corporations, presented the strongest themes as a story, and proposed some points of intervention in the mechanics of that storyline.

In Chapter one of this thesis, I draw on a fraction of the wealth of critical scholarship in three key literatures: political ecology (in particular ecosocialist and materialist ecofeminist theory), neo-Gramscian theory (especially hegemony, discourse, and the transnational capitalist class), and environmental advertising, to synthesize the theoretical framework that guides this critical discourse analysis. In section one I review the well-theorized relationship between ecodegradation – in particular, climate change – and capitalism, vis-a-vis the well-worn but persistent narratives of overconsumption, overpopulation, and industrialization/modernization. In section two I use the concepts of hegemony and discourse to explore the dimensions of culture and power that complicate our understanding of the root causes of, and possible solutions to climate change. I review work on environmental and advocacy advertising to position ads as textual

expressions of a larger corporate discourse which, once identified and re-contextualized, can be subverted.

In Chapter two I describe my methodology: critical discourse analysis from an action research orientation as an environmental activist. I describe my sampling and data analysis strategies.

In Chapter three I present my findings and analysis. Section one breaks the synthesized discourse into narrative elements, common themes about the problem and resolution of climate change. In section two I examine some of the characters cast by fossil fuel corporations, the ways they foreshadowed our future, some of the common frames they employed (and the interests they serve or obscure), and some of the underlying assumptions that must be taken for granted to lend the discourse coherence (along with a few of their implications for climate movements). In section three I briefly explore how corporations used three forums in the sample – websites, social media, and commercials – and some of the inter-textual themes that surfaced.

Finally, in Chapter four I conclude with some of the implications of these findings – in particular, the outstanding congruence between the campaigns in the sample – and make some suggestions for further research. I have summarized the results of my analysis into a quick-reference, plain-language field guide for climate activists, which can be found in the Appendix.

A Cautionary Note

Fossil fuel corporations were a strategically valuable slice of the transnational capitalist class to engage for several reasons. First, they are some of the world's wealthiest corporations, dedicating vast resources to influencing public attitudes and policy (e.g.,

through lobbying, political donation, and advertising). Second, the nature of the industry – including its well-publicized environmental impacts, complex and technical processes, and heavy extractive and processing components – lends itself to more explicitly political messaging about ecological crises than other transnational revenue titans like information technology or retail. Third, fossil fuels themselves are a major contributor to greenhouse gas emissions like CO_2, which in turn trigger the global warming that drives climate change. Consequently, fossil fuels have played a central role in scientific and public engagement with climate change, and are often a key focus of action for climate movements. Not surprisingly, fossil fuel corporations represent a major obstacle to addressing climate change, from outright denial to less visible obstructions of policy intervention.

With that in mind, one important consideration – both about making fossil fuel corporations the subject of this analysis, and about outlining their story of climate change, with all of its focus on energy transitions and carbon intensity – is the risk of fetishizing CO_2.[1] Swyngedouw describes this discursive cul-de-sac, which has culminated in the commodification of CO_2 in 'carbon markets:'

> CO_2 becomes a fetishist stand-in for all climate change calamities; it therefore suffices to reverse atmospheric CO_2 levels so as to return to a climactic status quo *ex ante.* An extraordinary techno-managerial apparatus is therefore under development, ranging from eco-technologies of various kinds and Promethean geo-engineering proposals, to complex managerial and institutional configurations aiming to produce a socio-ecological fix that simultaneously ensures that nothing fundamental changes in socio-ecological structures (2015:139).

[1] Thank you to Dr. Martha McMahon for pointing this important risk out to me!

‘De-carbonization’ without transforming the social structures of accumulation that have generated the situation of rising atmospheric concentrations of CO_2 in the first place represents a shift in rifts rather than a meaningful transition. Even undermining fossil fuels as a viable industry in the ecosystem of capitalism falls short of the system transformation we need to genuinely address ecological crises (not to mention capital’s other contradictions).

Chapter 1: Literature Review and Theoretical Framework

Introduction: Business as Usual

"Under current economic and social trends, the world is on a path to unprecedented ecological catastrophe…the urgent and unavoidable political questions are: is it at all possible for the existing social system—the system of global capitalism—effectively to address the crisis…and address the most catastrophic consequences?" (Li, 2008:52)

In 2007, the same year Diesel launched its Global Warming Ready campaign, a report emerged from the United Nations Intergovernmental Panel on Climate Change (IPCC) that put debate concerning the fundamental link between human economic activity and climate change to rest (IPCC, 2007). Since their first assessment report in 1990, the IPCC has published five in total, each carefully documenting the mounting evidence and deepening impacts of climate change. With strong scientific consensus as to the cause, the pressing question became how we could—and should—address it. Li (2008) eloquently captured the urgency of answering that question – after scrupulously reviewing current projections from leading climate scientists, illustrating the dramatic changes required to address them, and demonstrating the dire consequences of inaction, he stated frankly: "It is quite obvious that the very survival of humanity and human civilization is at stake."

Seven years later, the 2014 IPCC report described recent emissions as "the highest in history" and identified impacts from climate change on "natural and human systems on all continents and across the oceans" (IPCC 2014:6). "Total anthropogenic GHG emissions have continued to increase over 1970 to 2010 with larger absolute increases between 2000 and 2010, despite a growing number of climate change mitigation policies," they advised (p.5). Every emission scenario the IPCC presented predicted future warming – amplifying existing risks and creating new ones that disproportionately

impact marginalized people and communities – and all but one scenario projected that warming would continue beyond 2100. Even if we stop emitting greenhouse gases altogether, they grimly advise, "many aspects of climate change and [its] associated impacts will continue for centuries" (p.16). It is evident that our approaches to addressing climate change to date have been sorely inadequate, even as the urgency and complexity of a coordinated global response dramatically increase.

The breadth and potential impact of the climate change[2] crisis, along with the legacy of social and ecological degradation under globalized corporate capitalism, highlight the urgency of imagining just and sustainable alternatives. Capitalism has been consistently unable to foster the conditions necessary to confront the fusillade of social and ecological consequences it produces (Foster, 2010; Clark and York, 2008; Schwartzman, 2009). But even its radical alternatives have replicated the project of accumulation that structures the metabolism of capitalism, leaving us wanting visions of the future and tools to build it that finally dispense with the relations of appropriation and exploitation in all of their myriad forms (Clow, 1992).

Such a profound reorganization demands unprecedented creativity, empathy, and solidarity. The ubiquity of our dependence on the biosphere, combined with the imperative of ecological crisis, creates fertile conditions for the negotiation of a collective agenda between a broad range of social movements. Altogether, climate change provides

[2] Although this research focuses on climate change for its encompassing imminence as an ecological threat, I hope the insights gleaned are applicable to a much broader range of environmental problems not explicitly captured under the auspice of climate change, but sharing a common root in the metabolic disorder of capitalism. Foster (2008) introduces a brief litany of these issues which, he cautions, is not exhaustive: "…destruction of the ozone layer, extinction of species, loss of genetic diversity, acid rain, nuclear contamination, tropical deforestation, the elimination of climax forests, wetland destruction, soil erosion, desertification…the despoliation of lakes, streams, and rivers, the drawing down and contamination of groundwater, the pollution of coastal waters and estuaries, the destruction of coral reefs, oil spills, overfishing, expanding landfills, toxic wastes, the poisonous effects of pesticides and herbicides, exposure to hazards on the job, urban congestion, and the depletion of non-renewable resources" (p.7).

a powerful impetus for engaging critically with capitalism as the organizing principle of our global economy, challenging its long hegemony, and moving together toward a 'just and livable world.'

And yet, despite the urgency of climate change and its potentially unifying character, the foremost solutions advanced over the last two decades share a common foundation. John Bellamy Foster articulated this in *Ecology against Capitalism*:

> We are told the answer is better gas mileage…voluntary cutbacks in consumption…a whole panoply of green taxes, green regulations, and new green technologies, even the greening of capitalism itself…in all of these views, however, there is one constant: the fundamental character of business as usual is hardly changed at all. (2007:8)

Moreover, by taking business as usual for granted, these symbolic approaches work to present the illusion that – for better or worse – ecological degradation can only be addressed "as usual, through business" (Luke, 2006).

Maintaining business as usual primarily serves a particular set of interests: those of a corporately organized and increasingly transnational capitalist class (Clow, 1992; Salleh, 2011; Carroll, 2010a; Foster, et. al. 2010; Brownlee, 2005; Robinson, 2004; Beder, 1997). Yet these views are frequently mobilized by mainstream environmental movements. Environmental sociologists, political scientists, government bureaucrats, NGOs, and economists have all articulated various discursive frameworks wherein the fundamental link between climate change and capitalism is scarcely tackled – or, worse, constructed as a positive partnership with winners all around (Clow, 1992; Salleh, 2011, 2010; Foster, et. al. 2010; Luke, 2006; Beder, 1997). As catastrophes loom, critical engagement with these discursive frameworks is imperative; specifically, how they are constructed, whose interests are advanced, and who is ultimately affected.

Naming our Asteroid: A Root Cause Analysis of Climate Change

"We are brought up believing that capitalist market relations are more natural, more incontrovertible, than anything within nature. It is this way of thinking that we have to break with if we are to restore our relation to the earth." (Foster, 2008:12)

The Great Collision

Since Rachel Carson published her seminal text Silent Spring—invoking the unsettling image of a spring without songbirds in the 1960's to protest the indiscriminate use of biocides—the link between human activity and ecological degradation has been extensively documented. For half a century we have grappled with the consequences of our economic activity: the appropriation of natural resources and processes, their combination with human labour to produce commodities, the market-based exchange of those commodities, and their subsequent disposal. By now it is a foregone conclusion that the way we have organized our economic activity in the 20th and 21st centuries has been inimical to sustainability, yielding the unprecedented – and in many cases irreversible – deterioration of our world. Land, air, water, species, even ozone and climate – humanity owes our survival to a specific set of ecological conditions, which we are exponentially altering.

In general, contemporary environmental debates focus on how either our economic activity or our ecological systems can be brought to heel in order to resolve their contradictions. Public debate about climate change was late to acknowledge the relationship between economic activity and ecological degradation, in part due to its disaffecting scientific complexity and paralyzing scope (Kenis and Mathijs, 2011), and in part due to a trenchant, protracted campaign of denial heavily funded by industry (Wright and Nyberg, 2015; Farmer and Cook, 2013; Oreskes and Conway, 2010). But despite the herculean efforts of corporate-funded think-tanks, foundations, and media, even the

climate change debate now orbits around questions of adaptation and mitigation that address either reducing the impact of our economic activity on the biosphere or reducing the impact of its consequences on us.[3]

James Gustave Speth – once environmental advisor to US Presidents Carter and Clinton, founder of the Natural Resources Defense Council and World Resources Institute, and administrator of the U.N. Development Program – goes so far as to define "today's environmentalism" as "the principle approaches to date for controlling the economy's impact on the natural world" (2008:xi). He neatly sums up more than five decades of multi-disciplinary research: "The pattern is clear," he says of humanity's impact on the planet. "If we could speed up time, it would seem as if the global economy is crashing against the earth – the Great Collision. And like the crash of an asteroid, the damage is enormous" (2008:1).

If Speth's asteroid metaphor seems like a stretch, in the case of climate change the supporting evidence is damning. There are grounds for serious concern about the future, the IPCC reasons, considering that past shifts in climate – at rates lower than we are currently driving – have caused "significant ecosystem shifts and species extinctions" (2014:13). They point out that in several emission scenarios the changing climate will outpace the capacity of many species to move or adapt; the ocean's oxygen will be reduced and the waters will acidify; and sea levels will rise even if global temperatures are stabilized, devouring low lying and coastal areas. Renewable ground and surface water will be diminished in dryer regions, even as the death toll rises from flooding,

[3] See for example the 2014 IPCC synthesis report and the 2015 Paris Agreement signed at the 21st Conference of the Parties (COP21) under the auspice of the Framework Convention on Climate Change (FCCC) for adaptation and mitigation themes.

landslides, and extreme weather events in others. Food security will be undermined, illness exacerbated, and violent conflict escalated.

These crises are emerging on the heels of previously existing ones, both social and ecological—such as massive deforestation, pervasive pollution, widespread soil depletion, enormous biodiversity loss, rising geopolitical tension, and extreme inequality and poverty.

In 2016, with Arctic sea ice at a record low in its "maximum yearly extent" for the second consecutive year, we were already witnessing trends in temperature more drastic than the IPCC projected (Vinas, 2016). In March of that year NASA released data confirming that February was "the most unusually warm month ever measured globally," at 1.35 degrees Celsius above average, surpassing the record set just one month prior by 0.2 degrees (Holthaus, 2016; Matheison, 2016). Notably, the agreement reached at the recent UNFCCC COP21 in Paris was "to drive efforts to limit the temperature increase" this century to 1.5 degrees Celsius (UNFCCC, 2015). The asteroid metaphor is apt.

Nor is Speth alone in drawing the comparison – Glenn Adelson (2008) also rhetorically invoked the asteroid in his introduction to the complex science of climate change, musing that:

> If an asteroid hurtling toward Earth would, with strong probability, strike this planet in forty years, raise sea levels permanently between six inches to sixteen feet, force up to one-quarter of all species into extinction, inaugurate plagues and disease, inundate parts of some nations, drown populated islands whole, render coasts uninhabitable, intensify hurricanes, typhoons, and tornadoes into record-breaking storms, cause frequent floods and landslides, and kill millions of people, then every government would work furiously to discover how that asteroid might be diverted or destroyed. (P.17)

And yet, even as international conferences, frameworks, protocols, and multilateral agreements proliferate, the furious, coordinated effort on behalf of governments required to confront the *Chicxulub Impactor* of our generation has yet to materialize. Despite more than half a century of clarion calls from natural scientists to radically alter the relationship between our economy and the biosphere, both the rate and intensity of global economic activity have actually continued to expand exponentially (McNeil, 2000).

Adelson's strident conclusion is that the problem is too complex, its consequences too diffuse and incremental, to inspire the kind of political will and heroic action a single catastrophic event might provoke; but despite its complexity and the inherent uncertainty of projections, the potential impacts of climate change are now both well understood and well publicized, with individual catastrophic events already implicated[4]. Climate change is now firmly rooted at the center of public concern and debate, granting it an explosive political salience from federal election platforms to civil disobedience and direct action. Citizens, academics, grassroots social movements and non-governmental organizations across the world have taken up the cause through a range of frames – from broader human rights and social justice perspectives to targeted fossil fuel divestment campaigns – but at the eye of this storm the asteroid continues apace.

What's in a Name?

Foster (2002) has argued that our inability to notably restrict or condition economic activity so far is due to a failure to recognize the fundamental contradiction between capitalism and the ecosphere – first, we must name our asteroid.

[4]See, for example, Trenberth, Fasullo, and Shepherd's 2015 analysis of extreme weather event attribution in which they argue that a focus on how the larger thermodynamic environment (such as anomalous sea surface temperatures) may have intensified a given weather event makes visible the impact of climate change on recent extremes like superstorms Sandy and Haiyan.

While few credibly dispute the relationship between our accelerating global economic activity since the industrial revolution and our current ecological crises, most popular analysis has stopped short of drawing a causal link between capitalism and climate change (Soron, 2010). Ecological crises have been variously attributed to overpopulation, modernity, industrialization, consumerism, or individual avarice, but as Speth frankly pointed out: "with increasingly few exceptions, modern capitalism is the operating system of the world economy" (2008:7). Human economic activity across the world is either primarily organized by, or deeply impacted by various configurations of capitalism. It is capitalist economic activity in particular that drives our asteroid.

This distinction is more than semantic. When capitalist modes of production are naturalized as 'the economy,' the mechanisms by which they drive ecodegradation are obfuscated – by definition, humans must conduct economic activity to survive and thrive, and all economic activity entails some throughput (Kenis and Lievens, 2014). But not all economic activity creates perennial ecological crises.[5]

Capitalist economic activity in particular has demonstrated a predisposition for crises; its triumphant history of sustained, exponential growth is punctuated by cyclical financial, social, and ecological catastrophes (McDonough, Reich, and Kotz, 2010; Streeck, 2014; Harvey, 2014; Foster and McChesney, 2012). [6] Moreover, even in its

[5]For example, subsistence farming and indigenous gathering economies, although increasingly subsumed through colonial projects under the logic of capital, do not drive climate change in the way that 'modern,' industrialized economies do. They are often regenerative in ways that belie the assumption that ecodegradation is a necessary by-product of human prosperity. In her discussion on climate strategy, Australian ecofeminist Ariel Salleh (2011) reminds us that "…so-called 'developing countries' in the global South have been on a sustainable, low-carbon path for thousands of years. It is colonisation that spread what Marx called 'metabolic rift,' damaging ecosystems and appropriating people's livelihood resources for the manufacture of profitable commodities."

[6]Conversely, capitalism is not the only mode of production that has yielded ecodegradation – nor does it hold a monopoly on institutionalized oppression, exploitation, or alienation – which has sometimes led to its analytical dismissal as a causal factor (see, for example, ecosocialist Peter Dickens' (1996) discussion of

periods of apparently vigorous and stable growth – a feat for which it has long been celebrated as a harbinger of human welfare – capitalist modes of production generate profound socio-ecological consequences which must constantly be managed. While these are frequently constructed as the natural outcomes of prodigious economic growth – the price of human prosperity, increasingly mitigated by human innovation – more compelling conceptualizations have posited both operational and fundamental, imminent contradictions between the logic of capital and a just and livable world.

For example, the situation of competition celebrated by neoliberal economists for its capacity to spur innovation and efficiency contracts the time horizons for decision-making to create short-term investment cycles, which necessarily preclude a regenerative and precautionary relationship with natural resources and systems as these operate on much grander timescales (Foster, 2002; Magdoff and Foster, 2011; Angus, 2016; Sarkar, 1999).

Similarly, the way capitalism organizes our relationship to nature – as Harvey (2014) puts it, "slicing and dicing it into commodity forms and property values" – reduces complex systems to economic objects, their worth narrowly defined in terms of exchange value and profitability such that their indiscriminate exploitation (often to the point of exhaustion) becomes reasonable and justified.

An insidious 'treadmill of production' (Schnaiberg, 1980) is created by mutually reinforcing social, cultural, and political architectures that create and exacerbate

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modernity and the division of labour). This is, however, a red herring – one need not demonstrate that ecodegradation is unique to capitalism in order to make causal claims about its relations! Similarly, capitalism's global preponderance at the juncture between humans and the biosphere makes it urgent to address regardless of whether it is the sole perpetrator of ecological crises. But the insight that ecodegradation is not unique to capitalism is still valuable, as it highlights the importance of precisely identifying specific causal mechanisms to avoid replicating them in future configurations.

structural dependencies on economic growth. Capitalist markets privilege technological developments that generate profit, which in turn drives escalating production. This expansion causes problems which are addressed in turn by further growth, creating a cycle where growth must continually accelerate simply for us to maintain our relative position – the economic equivalent of the red queen's race.

Complementing the structural dependencies on economic growth is an entire industry dedicated to stimulating 'demand' in ways that both accelerate existing patterns and continually open new 'markets' by penetrating, privatizing, and commodifying aspects of our lives and world that were previously untapped (Harvey, 2014). Following Istvan Meszaros, Clark and York (2008) describe the logic of capital as "a totalizing framework of control" which "subsumes all natural and social relationships to the drive to accumulate capital" (15).

Finally, the story of capitalism – the ideological infrastructure that promotes its social and political legitimacy, reinforces its relations and institutions, and extends its logic across the world – hinges on a narrative that reduces us to a collection of self-interested individuals fundamentally driven to maximize our personal gain without regard for the environment or our fellow inhabitants (Magdoff and Foster, 2011).

More fundamentally, although capitalism is frequently credited with securing national and even global economic growth (classically described using Gross Domestic Product, or GDP, as a metric) that increases standards of living, this is not its *raison d'etre.* Capitalist modes of production are organized to maximize and accumulate profit. This in turn depends on infinite compound growth, a feat that does not automatically improve human welfare and, worse, is not physically possible in our finite ecosphere

(Harvey, 2014; Foster, 2010; Clow, 1992). The kinds and scales of growth organized to maximize and accumulate profit inherently produce socio-ecological crises because the 'wealth' capitalism generates depends on appropriated materials, energy, and processes (Magdoff and Sweezy, 1989; Moore, 2016). This creates an ultimately irreconcilable contradiction between capitalism and the ecosphere that is necessarily exploited under its auspice (Wright and Nyberg, 2015; Clow, 1992). Jason Moore puts this frankly: "the problem today is the end of the capitalocene, not the march of the anthropocene. The reality is not one of humanity overwhelming the great force of nature, but rather the exhaustion of its cheap nature strategy" (2016: 113).

The Metabolic Rift

The premise that capitalist modes of production lay at the root of modern environmental crises is not new – Marx and Engels made brief but prescient ecological critiques of capitalism and their insights are still meaningful. John Bellamy Foster has devoted significant energy to unearthing, explicating, and expanding upon their early discernment that capitalism is plagued by an existential conflict – both ideological and material – with ecological sustainability. This understanding of ecological crises fundamentally informs this project, which has emerged in dialogue with what Hannah Holleman (2015) has referred to as "third stage" ecosocialist research, so I will summarize its logic here.

In biology, the term metabolism is used to describe the chemical reactions, transformations, and exchanges within a living organism that make life possible, providing for processes such as growth, reproduction, and stimulus response. Classically, metabolism is the synthesis of two complementary processes: catabolism, where complex

molecules are broken down into energy and components; and anabolism, where complex molecules are constructed by harnessing the components and energy released by catabolism. This complex dance is carefully regulated by the body in response to internal and external conditions, with innumerable processes choreographed from the cellular level to the body as a whole.

In the mid-1800s, Justus von Liebig – the founder of organic chemistry and a contemporary of Marx – extended the concept of metabolism to describe the biochemical processes of natural systems as he sought to artificially synthesize these, eschewing the need for organic matter. Marx drew on Liebig's ecological metabolism theory to elucidate a *social*-ecological metabolism that dialectically integrated his materialist analyses of nature and human history. Marx observed that humans are universally locked into a mutually constitutive metabolic relationship with nature, which – like human history – creates conditions we must navigate to survive and thrive. As we use our labour to meet those needs, however, we transform nature and in turn transform ourselves. At a macro level, each mode of production therefore has its own 'social metabolic order' that structures the interchange between society and nature, which has profound implications for both social and ecological reproduction (Foster, Clark, and York, 2010; Clark and York, 2008).

This analysis of the way capitalism interrupts the metabolic relationship between humans and the biosphere—exemplified by the massive transfer of nutrients from rural soils to urban centres during industrialization, where it became waste rather than being recycled back into the soil from which it came, simultaneously depleting soil and polluting cities—offers a powerful starting point for understanding the ecological impact

of capitalism. If one considers humans and nature holistically, our destinies intertwined in a complex of metabolisms that maintain life, the relations of capital are – to borrow again from biology – fundamentally parasitic. Capitalism is a system by which existing metabolisms (e.g., within communities or ecosystems, or between them) are co-opted to generate profit for the capitalist. It is the organized appropriation of resources, energy, and processes, in an increasingly globalized fashion, to generate surplus value and accumulate profit. Because this value accumulates rather than cycling, capitalism creates metabolic rifts by interrupting the regenerative flows of energy and matter that sustain life. From this perspective, capitalism survives in existential conflict with social-ecological reproduction, and therefore cannot be sustained *ad infinitum*.

Accordingly, Marx argued that capitalism sows the seeds of its own destruction (and subsequently creates fertile ground for the development of something better) by creating metabolic disorders that undermine the very sources of wealth from which value is appropriated. A common critique of this thesis is articulated, for example, by David Harvey in his 2014 work *Seventeen Contradictions and the End of Capitalism:*

> Capital has a long history of successfully resolving its ecological difficulties…past predictions of an apocalyptic end to civilisation and capitalism as a result of natural scarcities and disasters look foolish in retrospect. Throughout capital's history, too many doomsayers have cried 'wolf' too fast and too often. (246)

Recall, however, that at the end of Aesop's fable about the shepherd who cried wolf to fool his neighbours, a real wolf appears to devour his sheep while his neighbours look on, mistakenly believing his cries are again a false alarm. While prematurely pronouncing the death of capitalism may do more harm than good, we dismiss its terminal prognosis at our own peril. As Clow poignantly asserts, "even the most

optimistic scenario for letting capitalism play itself out would leave Earth a far less rich, beautiful, diverse, resilient, and stable system of plant and animal life, and leave precious little upon which the survivors could build a desirable society" (1992:3). Foster's elaboration of the metabolic rift posits a key mechanism by which capitalism has continued to thrive, ascending to global hegemony in spite of the perennial social and ecological crises it generates.

Locked into the imperative of perpetual growth in a finite biosphere, capital then exists in a constant state of crisis management where "metabolic rifts are continually created and addressed – typically only after reaching crisis proportions – by shifting the type of rift generated" (2010:78). In this way capital maintains its parasitic symbiosis by temporarily extending the viability of its host, appearing – as Harvey suggested – to resolve its own ecological crises as quickly as they appear. Put bluntly, "to the myopic observer, capitalism may appear at any moment to be addressing some environmental problems…However, a more far-sighted observer will recognize that new crises spring up where old ones are supposedly cut down" (2010:78).

This "shell game" of shifting rifts is performed materially, spatially, and temporally. Capital materially shifts rifts by making qualitative transitions, for example, between non-renewable energy sources (such as coal and shale gas), or between production processes (such as wood and plastic) (Clark and York, 2008). Qualitative shifts are frequently constructed as steps forward in a linear (though iterative) process where human ingenuity overcomes adversity by creating and resolving unintended consequences, developing increasingly efficient technologies that will eventually vanquish natural laws. Instead, these shifts create new rifts because they substitute one

metabolic disorder for another, preserving the parasitic accumulation of profit by exploiting new pathways. That's not to suggest that production processes cannot become more efficient in the sense that they reduce their overall impact on the biosphere – but because the metabolic relation of capital remains intact, these increased efficiencies are quickly translated into increases in the scale of production that often negate the reduced impact (Foster, 2000).

Capital's spatial displacement of rifts may be mobilized by state military power (for example, the thinly veiled ecological imperialism of the Afghanistan war, or the massive colonial projects of industrializing Europe) or through more subtle geopolitical means, such as coercive debt policies or trade liberalization regimes. As capital becomes increasingly transnational, these shifts can happen on such a grand scale that they step out of the consciousness of a community or nation even as they step into the consciousness of another. An often cited example in environmental circles is industrial production, which has increasingly moved 'elsewhere,' becoming so divorced from North-Western purview that each (predominately white, affluent) American uses an average of 24 acres of bioavailable land that they will never even *see* to maintain their standard of living (McKibben, 2007). As a result I can look out my window and see clear skies – I might be forgiven for imagining that air pollution is a thing of the past – but many commodities in my home have been produced in China, where artist and activist Wang Renzheng recently created a solid brick from particulate in the air (Phillips, 2015). Air pollution is so noxious in some areas of China that it kills an estimated 1.6 million people per year (Kaplan, 2015). In the winter of 2015, a toxic shroud descended over Shenyang with a density of over 1,200 micrograms per cubic meter, *48 times* the World Health

Organization's safe level (Rauhala, 2015). In line with the logic of capital, one intrepid start-up company in Edmonton now bottles air from Lake Louise and Banff, selling the pressurized aluminum canisters with attached breathing masks to the Chinese (among other markets).[7] Closer to home – but still notably absent from the vistas of white, affluent Canadians – mothers and babies of the Aamjiwnaang First Nation living on a reserve in Ontario's "Chemical Valley" are exposed to the cumulative pollution of more than 40% of Canada's chemical industry, with more than 60 industrial facilities clustered within 25km of their land (Canadian Press, 2013). By concentrating the health and environmental impacts of industry in marginalized communities (what Klein has aptly titled 'sacrifice zones') and 'outsourcing' them to other nations, capital presents the seductive illusion of linear progress and dematerialization on the one hand while intensifying material production on the other.

Finally, capital shifts rifts temporally – for example, by inter-generationally 'downloading' the responsibility to 'innovate' a way out of the predicaments that support short-term generation of profit. Some of the gains made by transnational capitalists today are made possible by the future labour of humans who haven't even been born yet, along with the natural resources and conditions they will need that may not even yet exist – such as the problems of waste disposal posed by nuclear power generation and "clean coal."

[7]See their website at http://vitalityair.com/ where they confidently claim "As we continue to live in highly polluted areas, we are your solution to pollution!"

Crises of Legitimacy in a Landscape of Shifting Rifts

A key implication of these measures is that, although the material conditions under capitalism provoke critique and resistance, these episodic crises can be contained without ultimately threatening the reproduction of capital.

The role of capitalism in ecodegradation has not gone unnoticed. Since the 1970s ecological critiques of capitalism have rapidly flourished across disciplines from diverse perspectives.[8] Nor has capitalism been absent from the vocabulary of environmental movements – like other social movements, environmentalism comes in diverse stripes, each informed by the histories of its proponents and shaped by the terrain in which they struggle. On the streets of Coppenhagen in 2009 rang the chant "system change, not climate change!" and on signs in Paris in 2015: "capitalism has no solutions for climate change," "save the planet, scrap capitalism," "more future, less capitalism," and "capitalism = climate chaos!"

The largest climate change march to date – The People's Climate March in New York on September 21, 2014 – organized hubs according to key issues for activists, which included Anti-Capitalism and Challenge Corporate Power, networks that marched together in the "We Know Who is Responsible" section.

There exist both strong environmentalist critiques of capitalism – many of which are emerging at the bleeding edge of a burgeoning climate movement – and explicitly anti-capitalist movements with environmental grievances (the Zapatistas, for example). In Canada, First Nations consistently stand at the crossroads of capitalist accumulation and ecological wellbeing in the struggle to protect their ways of life and traditional territories

[8]From biologist Barry Commoner to ecosocialists and political ecologists such as James O'Connor, Joel Kovel and Michael Lowy, Saral Sarkar, John Bellamy-Foster, Brett Clark, Richard York, Fred Magdoff, Istvan Meszaros, and Ian Angus; ecofeminists like Vandana Shiva, Ariel Salleh, and Maria Mies; and leftist scholars like Naomi Klein.

from immense development projects that proceed without prior and informed consent, massively disrupt ecosystems and livelihoods, and leave a toxic legacy that persists for generations. Actions such as the Mi'kmaq land and water defenders' fracking blockade at Elsipogtog and the Unis'tot'en Camp on Wet'suwet'en territory disrupt "the economic infrastructure that is core to the colonial accumulation of capital in settler political economies like Canada's" (Coulthard, 2013).

But in the past, these movements – like critiques of capitalism in general – have erupted infrequently into mainstream consciousness only to be driven back into the margins. In parallel, business as usual remains firmly entrenched in climate debate, and the dominant solutions advanced to date have left unchallenged, sought to preserve, or even celebrated the engine of accumulation at the heart of environmental crises. This profoundly limits the possibilities for system transformation, as in general environmental crises have been depoliticized, their common cause mystified, their resistance fragmented, and their outcomes remedial (Foster, 2002; Magdoff and Foster, 2011; Harvey, 2014).

How is this accomplished? As Foster suggests, the attributions we make about environmental crises like climate change necessarily structure our response. They grant certain strategies, alliances, and futures intelligibility and cast others as irrational or impossible. To the extent that these attributions efface the causal role of capitalism, they preclude meaningful action and in some cases serve to reinforce the structures, institutions, and relations that cause eco-degradation in the first place.

Consider the common ascriptions of ecological crises to overpopulation, industrialization, modernization, consumer culture, or greed. Although each of these may

make important contributions to our understandings of ecodegradation, they cannot be properly addressed in isolation from the political economy in which they are all embedded. Yet in each case, capitalism remains – to borrow Chris Shilling's (1993) term for the once paradoxical treatment of bodies in sociology – an 'absent presence.'

Where 'overpopulation' is concerned, Salleh (2011) wryly observes that in a world where more than half of the population emits just 1% of global CO_2, attributing climate change to population growth is in fact a sleight of hand that scapegoats the bodies of Global Majority women. Those nations with the highest population growth rates actually have very low emissions per person – it is *industrial* growth that drives greenhouse gas emissions, with the wealthiest nations contributing the most (Satterthwaite, 2009). And as George Monbiot blogged in 2009, much of third world industrial growth is driven by foreign commercial operations: "many of the emissions for which poorer countries are blamed should in fairness belong to us. Gas flaring by companies exporting oil from Nigeria, for example, has produced more greenhouse gases than all other sources in sub-Saharan Africa put together."

Even within the industrialized, high-GDP economies, the scale of contribution to ecodegradation is not equally distributed among individuals – gross disparities in wealth and power exclude many people from the much-celebrated affluence of the 'developed' world, with a handful of individuals commanding wealth comparable to entire nations. And that is to say nothing of the throughput of *institutions* – the for-profit production by the world's top 500 corporations, or global militaries, for example.

Proponents of the overpopulation frame have advocated a variety of measures including some on the wrong side of social justice (such as coercive sterilization and birth

control policies, or anti-immigration policies), the more laudable empowerment of women (through education, employment, and greater control over their own fertility), and the paradoxical prescription of rapid (neoliberal) economic development to improve incomes and opportunities for individuals whose livelihoods might otherwise depend on the number of living children they have. These measures – however well intentioned – shift the blame for climate change, along with the burden of addressing it, to a Global Majority that has contributed least to the problem; while reinforcing the primacy of capitalism and lending legitimacy to its continued global expansion (Angus and Butler, 2011).

Similarly, 'overconsumption' approaches that emphasize either the inherent greed of individuals or a culturally mediated 'affluenza' – the pathogenic addiction to consumption theorized by Graaf, Wann, and Naylor in 2001 – depoliticize ecological crises and personalize solutions to such an extent that addressing climate change becomes simply a matter of educating and admonishing people to live differently without regard for the conditions within which they make their choices (Soron, 2006).

Attributing economic growth to a culture of consumption obscures the active role of capital in both generating and sustaining new frontiers of desire and commodification, ultimately serving to justify economic growth on the basis of consumer 'demand'. Suncor, for example, has this to say about their ongoing contribution to climate change: "As we continue to grow our production to meet domestic and global demand, our emissions will increase. The same goes for every oil-producing jurisdiction." Even the most well-meaning effort to limit that demand – narrowly defined in terms of individual end-users (as Suncor describes: when we drive our cars, heat our homes, or travel) –

cannot succeed without confronting the system within which that demand is constructed and maintained.

These approaches, epitomized by Adbuster's American Pig commercial, may actually serve to buttress the forces that structure the behaviour of individuals in the first place – for example, by invoking the same reductive instrumental rationality used to justify the relations and institutions of capital.

In the case of modernity, much can be said – a vast literature exists that I won't reproduce here – but the notion that climate change is the unfortunate by-product of a linear evolution in human societies (development) toward the (more or less uncritically desirable) 'modern' state is ahistorical and eurocentric in its abstraction of western European ideals from their colonialist histories and, consequently, from the capitalist relations of production undergirding those histories (Bhambra, 2009).

Industrialization, too, is unhelpful in explaining ecological crises when conceptually amputated from profit and accumulation, to which it has historically been wedded. In both industrialization and modernization frames, economic growth appears self-driven and agentless, flowing naturally from spontaneous advances in science, technology, and energy. These narratives link industrialization and modernization firmly with human wealth and prosperity, positioning ecological crises as unintended consequences – bumps along the road – to be overcome by market-sponsored ingenuity.

Wright and Nyberg (2015) articulate this 'conventional wisdom:'

> Based on a vision of technological progress and human betterment, environmental degradation has been seen as simply a problem of early industrialization…increasing economic development, technological innovation, and environmental reform have over time minimized pollution and environmental harm.

As they note, the scope of climate change and accelerating modern emissions have interrupted this conventional wisdom, creating space for alternative narratives (such as the treadmill of production). But without challenging assumptions fundamental to industrialization frames, the prescription becomes *more* modernization – ecological modernization, to be precise – to transcend the physical trappings of industry by dematerializing production (through increased efficiency, scientific and technological innovation, and shifting purchasing habits).

Despite their elision of the causal role capitalism plays in climate change, narratives that position consumption and population as the key drivers for economic growth have been essentially hardwired into our institutional approaches to climate change. These approaches – proceeding uncritically from the conceptual scaffolding on which capitalism has flourished – equate economic growth with human welfare and naturalize capital's relations, policies, and institutions as 'development.' Within these frames, the fundamental conflict is between individual humans, who consume to survive and thrive, and non-human nature, which provides for that consumption within certain ecological parameters. This essentially problematizes life itself – its quantity (population size) and quality (personal consumption) – at the profound expense of engaging with those social structures and relations that organize it.

A cogent illustration is the most recent IPCC report, widely (though not exclusively) considered the most comprehensive global consensus statement on climate change. It quantifies the "human influence on the climate system" at length, with sophisticated analyses assigning the relative impact of multiple causal factors. The drivers for those causal factors, however, are constructed using the Kaya presumption, a

fossil-fuel-adapted version of the IPAT.[9] They therefore conclude – briefly but with high confidence – that "globally, economic and population growth continue to be the most important drivers of increases in CO_2 emissions from fossil fuel combustion" (2014: 46).

The Kaya identity, like the IPAT, helps structure discussion of environmental impact at a high level of aggregation and project future trends. It describes CO_2 emissions in terms of population, gross domestic product (GDP) averaged across population (to represent 'wealth' or 'affluence'), the carbon intensity of energy, and the energy intensity of GDP (which serve as proxies for 'technology'). As the IPCC cautions, these factors are neither fundamental driving forces in and of themselves, nor independent of one another. Yet they somewhat arbitrarily organize discussion about the sources of, and therefore the resolutions to, climate change – and in doing so, limit alternatives. In Foster's (2011) words:

> The famous IPAT formula...has been used by some to suggest that population growth, the consumption habits of most individuals, and inappropriate technology carry the totality of blame for environmental degradation. The answer then is sustainable population, sustainable consumption, and sustainable technology. This approach…generally serves to disguise…the treadmill of capitalist production itself.

Indeed, the conclusion that climate change is primarily driven by economic and population growth – and that these factors may be mitigated by technological innovation – leaves us ill-equipped to address it. As Foster has argued, internalizing these narratives has significant consequences for environmental movements.

First, when economic activity is conceptually untethered from the system that organizes it (and the interests that maintain it) the solutions to climate change become

[9] The IPAT equation encapsulates the notion that environmental impact (I) is equal to the product of population (P), affluence (A) and technology (T).

personal and apolitical. These reductions of social issues to private troubles come at the expense of engaging directly with capital accumulation and profit; and in some cases inspire a wholesale rejection of 'class politics' in favour of an uncritical condemnation of individual lifestyle choices. Soron (2006) articulates this position:

> …the crucial social antagonism is no longer between capital and labour – both of which are wedded to the goals of unrestrained economic growth and consumption – but between the heedless and wasteful consumers and those individuals who have chosen to adopt more ecologically responsible lifestyles (225).

As a result, environmentalists have often found themselves in the uncomfortable position of earnestly advocating for a sharp reduction in the standard of living in wealthy countries, or a sharp reduction in the birth rate of the global majority. This compromises solidarity in a world where – as Ian Angus (2016) points out – many people actually *need* more stuff. It also leaves more or less intact the social structures of accumulation that drive ecological crises, precluding meaningful action. This represents a powerful victory for capital, which escapes more direct intervention as the global economy is flattened into the sum of individual economic activity, and the thoroughput of industry is added to each person's balance sheet. Suncor's tar sand operations, for example, appear less problematic than the efficiency of my oil water heater, because Suncor only exists to fill that heater. From that perspective 'supply-focused' measures such as industry regulation, taxation, or divestment appear futile. As Yale's Corporation Committee on Investor Responsibility (2014) responded to student calls for fossil fuel divestment:

> the buildup of atmospheric GHGs is caused by the *combustion* of fossil fuels…targeting a segment of the fossil fuel extractive industry (the supply side) for potential divestment largely on account of emissions by other actors downstream from them…is in our view misdirected (2).

Second, the presumption that ecological problems can be mitigated indefinitely through the magic of technological innovation shifts the focus from system-transformative solutions to (sometimes heroic) measures to sustain the status quo. The resulting institutional approaches heavily privilege the purchase and manufacture of new, proprietary technologies for mitigating and adapting to climate change over engaging with those local peoples who, in mediating the nexus between humans and non-human nature in their everyday lives, have become experts in ecological sustainability (Salleh, 2011). Meanwhile, environmental movements are left encouraging personal and national investment in 'green' technologies which incrementally reduce our impact on the biosphere – only to have further increases in production offset those successes [10] (Foster, Clark, York, 2010). Recalling that the ultimate goal of our economic operating system is the maximization and accumulation of profit rather than the provision of high-quality livelihoods, the space created by our conscientious purchasing habits becomes an opportunity to advance another round of compound growth unless we confront the system itself. Like nature, capitalism abhors a vacuum.

Third, when economic growth and capitalism are uncoupled in environmental debate, we risk conflating human welfare – which self-evidently requires economic growth to increase and economic activity to sustain – with capitalism, which generates economic growth not for human welfare, but for profit. This creates an artificial opposition between human and ecological welfare, on which capital swiftly capitalizes.

[10] The Jevons Paradox, first raised by William Stanley Jevons in the 19th century, posits that the space created by increases in efficiency is filled by commensurate increases in consumption. Although its original configuration posed 'consumer behaviour,' innovation, population growth, and the impact of pricing on forces of 'supply and demand' as primary drivers of this phenomenon, the accumulation imperative at the heart of capitalist modes of production is also a compelling explanation.

Foster (2002) vividly illustrates this with a case study of the spotted owl controversy in the pacific northwest, where a multibillion dollar logging industry was quick to orient the plight of species extinction against that of the worker in a "jobs vs. owls" campaign that pitted environmentalists and labour against one another, compromising the integrity of – and solidarity between – both movements. Locked in a bitter war with workers, environmentalists found themselves struggling to justify the value of the spotted owl on moral, aesthetic, and scientific grounds in a macabre cost-benefit analysis that drew a direct line from the protection of old growth forest to the destruction of more than twenty thousand jobs, devastating communities and causing a ripple of economic disruption all the way to Japan. That line elided the way both the plight of the owl and the plight of the workers were generated by a system organized to produce profit in a way that hinges on alienating both people and nature. It obscured the agency of an elite corporate class who then appeared to be arguing in the interests of their workers and communities. But what will ultimately happen to workers as old growth forests in the northwest rapidly dwindle, in an industry that must shed jobs by the tens of thousands should old growth logging be curtailed?

Without confronting the systemic source of environmental crises, environmental movements risk being drawn into – and even reinforcing – a process of mystification that conditions the possibilities for resistance. The fundamental role that capitalist modes of production play in generating the problems environmentalists take up is obscured, precluding system-transformative change. Harvey (2014) bluntly articulates the result:

> [environmental politics]…ignore entirely the ecology capital is constructing and nibble at issues that are separable from the core dynamics of what capital is about. Contesting a waste dump here or rescuing an endangered

> species or valuable habitat there is in no way fatal to capital's reproduction (252).

Moreover, the widespread solidarity between movements that could meaningfully impact the reproduction of capital is squandered (Harvey 2014).

Naming our asteroid, then, is of primary importance. In line with Foster, Ian Angus and Simon Butler (2011) suggest that: "To build [a climate] movement, climate activists must understand the causes of environmental crisis and the changes needed to prevent catastrophe" (3). To that end, the focus of ecosocialist literature to date has been identifying and popularizing the inherent contradictions between capitalism and sustainability. This is important work. But given those irreconcilable contradictions, why are critiques of capitalism still marginalized in mainstream environmental debate? Where these critiques do break into popular consciousness, why do they often circle back to remedial measures that preserve the relationships of production fundamental to capitalism? Is raising awareness about the root causes of climate change enough to catalyze effective resistance?

Our Emerald City: Hegemony, Discourse, and Climate Change

"Maggie may be gone, but TINA lives." – Laura Flanders

"Is it not our duty, as always, to make social relations, protest, refusal, struggle, and hope reappear wherever they are crushed, distorted, or trapped…? It is not enough to denounce the order; one must demonstrate that it is not all-powerful, find the living source under the cement, the voice beneath the silence, the debate beneath the ideology.[11]" – Alain Touraine, La Voix et le Regard

[11] "Notre devoir n'est-il pas surtout, comme il le fut toujours, de faire réapparaître les rapports sociaux, la contestation, le refus, la lutte et l'espoir partout où ils sont écrasés, déformés ou enfermés…? Il ne suffit pas de dénoncer l'ordre; il faut démontrer qu'il n'est pas tout-puissant, retrouver la source sous le ciment, la parole sous le silence, le débat sous l'idéologie." (Touraine, 1978:80)

Even as the root cause of environmental problems and the changes necessary to avert catastrophe become clear, challenges remain for climate movements struggling to mount effective resistance. In their research on why environmentally concerned citizens choose to emphasize individual behaviour or collective action, Kenis and Mathijs (2011) – somewhat baffled by their results – reported that:

> Almost all respondents point to the structural organization of society as the root cause of climate change, stressing, for example, 'the growth economy' or 'capitalism.' However, if one asks about solutions, the first, spontaneous answer one tends to get is not the transformation of these structures, but individual behaviour change (p.54).

Although several respondents felt strongly that radical system transformation was necessary to fully address climate change, they unilaterally believed such a transformation was *impossible*. For environmentally aware citizens, Kenis and Mathijs posit, awareness-raising programs are not effective ways of catalyzing action when gaps remain in praxis – envisioning alternatives and generating strategies to get there.

At the heart of Foster's problematic – naming our asteroid – is a discursive struggle key to bridging the present with alternative futures. Carroll articulates this eloquently: "among the challenges faced by those interested in creating an alternative future is that of constructing counter-hegemonic strategies and visions: cognitive and cultural resources for a political shift from episodic, defensive resistance to responsible, radical proactivity" (2015:1).

Beyond the wealth of critique that lays bare the contradictions and consequences of capitalism stretches the thorny matter of how something so ubiquitous can be resisted and subverted. Moreover, how can this resistance transcend the apolitical behavioral

intervention espoused in Kenis and Mathiijs' sample, and the intervallic, reactionary politics Harvey (2014) describes, to become transformative?

We are not lacking in will – as capital consolidates its power and expands its frontiers, it undermines the conditions necessary for its own reproduction and ours, provoking opposition at every turn. Nor are we lacking motivation – in the case of climate change, although its impacts are unevenly distributed, its implications are far reaching – none of us is ultimately immune to its consequences. As climate change escalates in tandem with the brutal legacy of globalizing capital, the conditions seem ripe for what ecofeminist Ariel Salleh calls "a movement of movements" – the negotiation of a global solidarity grounded in a reimagining of labour and value, incorporating local, national, and transnational problems and perspectives, and drawing on the wealth of knowledge and experience formerly relegated to the 'periphery' to "anticipate future models of provisioning in a green and autonomous commons" (2010:206).

But environmental movements must contend with the material and cultural conditions of capitalism, within which we necessarily develop our ethical purpose, build solidarities, and envision the future. We develop our subjectivities in dialogue with alienation and domination, steeped in social relations that are fragmented and reified, and in doing so risk divestment – through coercion or mystification – from our world-constituting agency.

Hegemony through a Critical Realist Lens

This problem is not unique to environmental struggles, of course, but rather has perturbed emancipatory philosophers for more than a century. Much effort has been expended in critical theory to understand the ideological mechanisms of domination, and

to overcome their seemingly intractable power[12]. In doing so, this work has sometimes tended toward a deterministic or fatalistic view of human agency on the one hand, treating agents as passive receptacles for the fully-formed worldview of the ruling elite, or a relativistic view on the other hand, which elides the constitutive role of material conditions and effaces the foundation for intransitive claims. In either case this risks reinforcing the paralyzing effects of ideology, disabling rather than building the theoretical scaffolding for transformative praxis.

To engage fruitfully with this problem, we have two pressing needs. First, we need an approach that acknowledges a material world beyond our constructions of it, so we can pursue claims about – and transform – the structural conditions that shape our lives. Critical realism, in the tradition of Roy Bhaskar and Margaret Archer, gives us the traction to dig into the generative mechanisms of those conditions without dispensing with the human agency that reproduces them.

Critical realists presume the existence of an 'intransitive' reality – a world of objects existing independently of our knowledge and experience of them – while simultaneously holding space for the 'transitive' nature – that is, the social and historical specificity – of knowledge-making (Joseph, 2002b). The term intransitive refers to a world wholly independent of our conceptions, an objective reality in which objects possess generative or causal powers *whether we experience them or not* – but these manifest in myriad ways as the complex interplay of forces (and the limits of our senses) serve to mystify them. Therefore, the scientific project is to reveal those underlying

[12] See for example Marx and Engels' (1987) work on the 'superstructure,' Lukacs' (1972) work on reification and false consciousness, and Althusser's (2014) work on ideological state apparatus.

forces[13] – so we can act on them – but the *processes* by which we pursue that project are biologically, socially, and historically mediated. The term transitive differentiates reality from our experience of it, capturing the knowledge we create to understand and explain it. Importantly, the transitive character of knowledge does not preclude the pursuit of claims about social structures and their generative mechanisms – we can still generate shared knowledge about the real world – which is crucial because such claims are conceptual catalysts for action (Archer et. al., 1998). This in turn enables a political ecology that makes practical knowledge claims about our relationship with, and impact on, the biosphere – laying the foundation for meaningful alternatives – without degrading into the mechanistic positivism or the constructivist relativism for which some scientific traditions have been much criticized (e.g., see Foster et. al. 2010).

A critical realist orientation is well-suited to environmental sociology, which necessarily transgresses the conceptual borderline between 'natural' (the physical, chemical, and biological[14]) and 'social' sciences (Bhaskar et. al., 2010). Science (insofar as it identifies causation) becomes unintelligible when the pursuit of intransitive claims is not acknowledged (what Bhaskar named the 'epistemic fallacy' of positivist/empiricist philosophies of science, which misrepresent ontological questions as epistemological questions). Explicitly embracing that aim helps – conceptually at least – to address the alienation of social from natural sciences that has resulted in "fragmented or balkanized" knowledge by firmly situating sociology within its material context, without losing sight of the unique properties and tendencies of human society (Dickens, 1996). As Peter

[13]For example, by creating laboratory conditions where we might remove or control intervening factors to activate and isolate the potential of a given object.

[14]Among natural sciences, ecology in particular exemplifies the rich complexity and multi-faceted contingency described by Bhaskar, as innumerable variables exist in a tangled web of relationships further complicated by the self-determination of living elements.

Dickens (1996) summarizes in his critical realist analysis *Reconstructing Nature*, human society has its own causal powers and properties, which are rooted in and emergent from ecological systems, but cannot be reduced to or explained by them. Ecological systems, and indeed biological mechanisms, are themselves rooted in and emergent from chemical and physical processes, and are similarly irreducible. Organizing knowledge in this way centers the human-nature nexus, without reducing the biosphere to a human construction or transposing natural laws directly onto human society.

Second, we need a suite of theoretical tools that preserve the dialectic, historically contingent character of human agency, social relations, and material conditions – and help bring into focus the potential within the present for the future we need. For this I think we can draw on Gramsci, and the wealth of emancipatory scholarship that has developed and expanded his ideas (Carroll, 2010b; Artz and Yahya, 2003; Mann, 2009).

For Gramsci, cultural hegemony – the promulgation of a worldview (*weltanschauung*) as conventional wisdom or "common sense" – is essential to achieving and maintaining dominance on the basis of social cohesion (Ives, 2004). To the extent that project is accomplished, the ruling class secures legitimacy for the material conditions and social relations that maintain and reproduce their power, according it a gloss of consent and limiting the necessity of violence and coercion. Understood in this way, oppression is a highly contingent project necessarily vulnerable to resistance – hegemony "cuts both ways" (Carroll and Ratner, 2010:8).

Nor is this project a straightforward endeavor. Rather, hegemony involves complex agential forces including "the elaboration of political projects, the articulation of interests, the construction of social alliances, the development of historic blocs, the

deployment of state strategies, and the initiating of passive revolutions," in constant dialogue with the collection of social structures and material conditions that enable and constrain them (Joseph, 2002a:1).

Acknowledging then that capital's hegemony is not a static object, but rather an ongoing, historically contingent accomplishment, rooted in the material conditions from which it is constituted, a useful place to start is by asking how it is maintained – especially under evolving ecological, political and social conditions such as climate change and globalization – and in whose interest. As Foucault argued, when we ask how something is made, 'unmaking' it becomes implicitly plausible.

The Transnational Capitalist Class

In our current historic moment, the human face of capital is a transnational, corporately organized class who shares an interest in maximizing and accumulating profit – the key beneficiaries of a rapidly globalizing confluence of capitalisms (Robinson, 2004; Carroll, 2010a). This transnational capitalist class (TCC), organized around the neoliberal project to create a singular global production system liberated from national regulation and intervention, has allied with a range of political and cultural elites into an historic bloc that muddies the borderlines between economic and political spheres and transforms the role of nation-states in the global field (Robinson, 2004; Sklair, 2002). Although critics question the extent to which corporate agents may operate as a 'class for itself' in the competitive fray of capitalism, a growing theoretical literature has amassed since the 70's that illustrates the material conditions for such agency[15] – and more recent, robust empirical study has demonstrated the "panoply of socio-political relationships"

[15]See, for example, the work on this subject of Kees van der Pijl, Anthony Giddens, Henk Overbeek, Robert Cox, Stephen Gill, Leslie Sklair, William Robinson, and William Carroll.

(Carroll, 2010a:2) by which cohesion is achieved and shared interests are mobilized. Through a range of interlocking corporate directorships and shared ownership stakes (including between the various 'fractions' of capital, such as finance and production), revolving-door roles in political and regulatory bodies, common institutional and academic pedigrees, and a network of agenda-setting strategic organizations, the TCC negotiates their constellation of interests into a coherent project: maximizing and accumulating profit on a transnational scale.

As a case-study of the power and coordination of the TCC, the climate debate has much to offer. Sharon Beder, for example, illuminated a range of mechanisms employed by corporate agents acting in concert at the national level to preserve the hegemony of capital in the face of ecologically motivated crises of legitimacy – what she calls "corporate activism" (1997:17). These include industry 'front groups,' ostensibly grassroots public advocacy but organized, funded, and even staffed by corporate agents; lawsuits against public participation (SLAPPs) that produce a 'chill' effect; 'think tanks' devoted to producing apparently objective scientific and policy analysis; and a sophisticated public relations apparatus devoted to re-establishing credibility, deflecting criticism, defining sustainability and putting it to work generating new markets.

As climate change politics have played out on increasingly international terrain, we can trace the contours of these strategies writ large. For example, coalitions of transnational corporations[16] have proliferated in step with international climate change negotiation, allowing their coordinated engagement of multi-lateral processes as non-governmental organizations, where they represent the 'voice of industry' unencumbered

[16]E.g., the Global Industry Coalition, the Global Climate Coalition, or the World Business Council for Sustainable Development, which joined forces with the International Chamber of Commerce to form Business Action for Sustainable Development.

by national interests (Clapp, 2005; Wright and Nyberg, 2015). An evolving architecture of supranational trade regulation and arbitration creates a chill effect similar to SLAPPs but at the level of state regulation, where the real threat of legal sanction[17] is complemented by the increasing mobility of capital (Clapp, 2005; Klein, 2015). [18] On the public relations front, transnational corporations have exerted concerted pressure to influence the texts emerging from international climate change discussions, actively shaping the definition for 'sustainable development' and locating industry as its primary protagonist (Clapp, 2005; Sklair, 2001). They have also collaborated broadly on self-regulation and certification schemes, emphasizing voluntary initiatives at the expense of legally binding measures that could be monitored and enforced (Clapp, 2005).

These developments in climate politics are imprints of a much larger project pursued by a global historic bloc dominated by the TCC (Wright and Nyberg, 2015; Sklair, 2001), which itself is embedded in the deeply entrenched, material conditions and relations of capitalism. As political ecologists have argued, it is these structures and relations that we must jettison if we mean to address the urgent crisis of climate change.

But underwriting capital's hegemony is a worldview that lends it coherence, secures its legitimacy, and justifies the advancement of its frontiers. As environmental movements struggle to negotiate and articulate alternative frameworks for approaching climate change, we must transcend that worldview even as we operate within it – a tall order – lest we end up reproducing it. It is not enough, for example, to demand a market

[17]E.g., challenging state regulations or programs through lawsuits under international trade agreement, such as the World Trade Organization.

[18]As Dryzek (2013) points out, free trade regimes have shifted the balance of power such that "nation states are compelled to pursue policies to encourage footloose investors to locate capital in their countries…and this means removing environmental restrictions on trade" (48). This has created a political economy less hospitable to state-sponsored, policy-driven rift shifting, such as the major shift from fossil fuels to renewable energies envisioned by prominent climate activists.

shift from fossil fuels to renewable energy within the logic of capital. Nor is it enough to harangue individuals to live different, more ecologically sound lives within that same logic. When we take up the questions posed by capital and struggle over meaning within their discursive infrastructure, we reinforce their primacy and surrender our transformative potential. As a result, we ask how we might preserve the *economy* – read, capitalism – rather than how we can best preserve our lives, our health, and our world. The answers are necessarily a host of incremental, technocratic, and market-based adjustments that stop well short of proposing the kinds of fundamental system changes necessary to fully address the colossal implications of climate change (Foster, Clark, and York, 2010). The collective agency of civil society and the roles of state and international governing bodies are circumscribed, recast as supporting infrastructure for the development of new markets (Wright and Nyberg, 2015). Citizens are recast as consumers, their agency captured by the market, and class conflict is reduced to lifestyle choices (Soron, 2006). In each case, these ideas seem to be natural, reasonable conclusions drawn from the real conditions within which we live.

Importantly, the common sense of a hegemonic worldview is not automatic; it must be established and – as conditions change and challenge its convention – maintained and re-negotiated. Those junctures have immense strategic value, because they provide glimpses of the concrete mechanisms by which hegemony operates and the interests at stake in its maintenance, interrupting its natural, self-evident character. This makes things more accessible to agency, allowing for a radical break in the lockstep between our imaginations and their interests. In essence, hegemony's contingent character creates

space for the negotiation and articulation of counter-hegemonic visions that resonate more powerfully and broadly than the status quo.

The Power and Vulnerability of Discourse

One important channel for such effort is discourse, which tends to generate tangible texts. Hegemony operates discursively as powerful agents produce or mobilize discourses that legitimize their worldview, shaping political agendas and defining what is possible or reasonable. Lemke describes this intersection of discourse and hegemony: "discourse functions ideologically in society to support and legitimate the exercise of power, and to naturalize unjust social relations, making them seem the inevitable consequence of common sense necessity" (1995:20 quoted in Gorlewski on page 9). Cumulatively, these discourses – to the extent that dominant groups are able to naturalize their premises – privilege certain ways of thinking, knowing, and being while disqualifying others.

And yet, as articulations of power, discourses may be contested, making them sites at which hegemony may be either reproduced or undermined (Gorlewski, 2011). The influence of discourse as it operates 'on the ground' in everyday interaction is neither pre-determined nor one-directional; once articulated, discourse may be employed both to dominate and to resist. This makes texts an important site for understanding and interrupting hegemony.

Texts may *appear* static and final but they are actually dynamic and incomplete – their activation requires readers and context, which cannot be strictly controlled. Mikko Lehtonen offers a helpful analogy for this inherent mutability: "it is more profitable to think of texts as travellers who have once been sent on the road and who can meet most

different contexts on their way, where they can appear in most manifold forms" (2000:104). Texts themselves play a role in the production of meaning, of course, but the intentions of their authors are vulnerable to intervention in the way texts are read. Texts are only the "raw material of meaning" in that they must activate the reader's own contextual resources in order to be legible – so the way texts are crafted in the first place depends on known or shared values, beliefs, language, schemas, etc., and these may contribute to objection and resistance in the very same ways they contribute to the production of *intended* meaning (Lehtonen, 2000:111).

As multiple discourses emerge to organize our engagement with climate change, one urgent question for climate movements is how (and why) certain discourses come to be institutionalized – granting them disproportionately constitutive power vis-à-vis marginalized discourses that may otherwise effectively catalyze resistance. As Fairclough (2006) observed:

> In situations of disorientation and crisis, one finds a proliferation of discourses imagining alternative forms of organization for economy, state and society…One central question for cultural political economy is about the variation, selection and retention of discourses, that is, how certain of the many discourses which are circulating in a time of crisis are selected, and how they come to be retained, and thereby come to be capable of having constitutive effects on real economic, political and social processes (24).

As a preeminent hegemonic force, with prodigious cultural, political, and material resources, the TCC employs discourse to mobilize and adapt their hegemonic worldview, structuring debate about climate change, for example, such that "market solutions…become self-evident, with corporate capitalism the way the world is interpreted, lived, and understood" (Wright and Nyberg, 2015:44).

That is not to suggest a monolithic discourse presented by a singular voice – quite the opposite. Much like the metabolic rift shifting described by Clark and York, the totalizing, pragmatic character of accumulation projects lends itself to a range of otherwise competing narratives and alliances of convenience between strange bedfellows – and this works in the interest of capital (Tetzlaff, 1991). In Carroll's (2006) words,

> the pragmatically material project of capital can be realized by any combination of ideologies that instill compliance in the workforce while discouraging effective challenge to the system. As fragmentation becomes a cultural dominant, *consent without consensus* gains effectivity as a structural aspect of hegemony (12).

For example, it matters less whether people cleave to the fiction that climate change is the conspiratorial invention of alarmist radicals, or to the conviction that climate change is a real and present threat that globalizing industry is best positioned to handle; so long as the way we make sense of climate change does not compromise the reproduction of capital, any number of stories may be accommodated (and disseminated). In fact, the sophisticated elaboration of *both* stories can effectively disarm solidarity, leaving change agents talking past one another or acting at cross purposes (Tetzlaff, 1991). Over the course of the climate debate, prominent fossil fuel corporations and industry associations – some of which had invested extraordinary resources in propagating positions of 'scientific skepticism' or outright denial – have deftly performed an about-face as the tide of public opinion has turned to embrace the urgency of climate change. But this change of heart, gilded as it has been with gold standard marketing campaigns espousing the power of corporations to address climate change, has actually conceded little ground as concrete, effective steps to mitigate the problem are still vigorously (if less visibly) resisted by those same parties (Influence Map, 2015). Seth

Klein and Shannon Daub of the Canadian Centre for Policy Alternatives dub this "the new climate denialism" (2016).

This nimble, chimeric deployment of discourse poses important strategic implications for environmental movements. First of all, the 'noise' created by those amplified corporate voices can distort our perception of public opinion, emphasizing dissenting views for which we might not otherwise mobilize resources to address. It also complicates resistance as we position ourselves vis-à-vis this shifting discursive landscape – in dialogue with the TCC, which sets our agenda and even the language with which we execute it.

Secondly, as Kenis and Lievens (2015) and Wright and Nyberg (2015) have pointed out, capital has proven an adept appropriator of meaning, effectively incorporating environmental critique and dissent. Where dismissing or silencing environmental concerns has failed, narratives of "corporate environmentalism" and "green economy" have emerged that reimagine environmental crises as business opportunities, best addressed by the profit-motivated, resource-rich, innovative captains of industry shackled only by our small-minded regulatory interventions. Along that line of reasoning, "market actors, once they become 'conscious' or 'responsible,' have all the power needed to change productive practices" (Kenis and Lievens, 2015:6). Through this "recuperation of resistance," oppositional forces are harnessed to drive the transformations necessary for the survival of capital accumulation and, in some cases, even to open new frontiers for accumulation (ibid:11). With its broad assimilation of values and stories, capital moves on a millipede of justifications. In Wright and Nyberg's words, by incorporating critique into corporate discourse, "the hegemony of corporate

capitalism does not exclude alternative narratives and imaginaries. It makes them naïve and forlorn" (2015:44).

And yet as discourse is articulated, it leaves a tangible imprint that makes it vulnerable to critical analysis. As environmental problems have taken centre stage in the public arena, infiltrating popular consciousness and dialogue, there is no shortage of texts to suit this purpose. A surge of "green" initiatives, programs, policies, and especially products has swept through North America. Everywhere are suggestions for how we can reduce our "footprint," achieve "sustainability," become "environmentally friendly," and "save" the Earth. Environmental concerns – most recently climate change – have enjoyed increasing political salience, prompting international conferences, treaties, institutes, cultural artifacts, and a deluge of literature that spans disciplines.

Environmentally themed discourse analysis has tended to adopt a pluralist approach, organizing the multiplicity of views into thematic, coherent meta-narratives that facilitate comparison. From this perspective, as agents engage with problems like climate change, discourses emerge that frame environmental concepts and interests and, in turn, further mediate that engagement (Dryzek, 2005).

Dryzek, for example, positions environmental discourses as emerging from industrialism, and from that point organizes them according to what he considers key distinguishing factors: whether they are "prosaic" (in taking the current system of affairs as a given) or "imaginative" (in redefining the contemporary arrangement), and further whether they are reformist or radical in their approach. Dryzek's account of environmental debate is thorough and his organization of discourse in terms of the amount and character of change they seek illustrates an important point: to make changes,

one must first be capable of imagining alternatives. He carefully details and critiques each discourse in terms of the soundness of its arguments and its impact on policies and institutions. He stops short, however, of assigning them to groups of actors (much less to classes) and examining the way power is employed by groups to structure discourses and advance one over another.

As we have seen, discourse is inextricably linked to power – the construction and maintenance of a hegemonic discourse allows a dominant group to influence how we deal with issues and even to define what constitutes an "issue" in the first place[19] (Lukes, 2005). Discourse represents the power to shape how we think, feel, talk about, and act on climate change. In recognition of this power, discourses might be better organized according to whose interests they represent, enabling an exploration of how those interests are supported, constructed, and set in motion in opposition to (and at the expense of) conflicting interests.

In their chapter on climate discourse in *The Social Construction of Climate Change,* for example, Karin Backstrand and Eva Lovbrand (2007) organize climate debate into three overarching 'meta-discourses' according to the state (green governmentality), business (ecological modernization), and civil (civic environmentalism) interests they broadly represent. Mapping them in this way

[19]Lukes (2005) elaborates a three dimensional conceptualization of power; he positions the pluralist model as the first dimension, Bachrach and Baratz's (1970) critical elaboration of it as the second dimension, and constructs a third dimension to account for what is missing from both. The pluralist model (attributed mainly to Dahl) focuses on behaviour within the realm of an observable conflict of interests where actors are placed on a level playing field, acting in their own interests. In the second dimension, Bachrach and Baratz critique the limited scope of the pluralist view and advance the notion that power is also exercised outside the realm of observable conflict; they suggest that actors may secure control over what becomes an observable conflict in the first place, setting the agenda and organizing certain interests into or out of debate. Lukes presses the analogy further by positing a third dimension in which certain actors also exercise power outside of the realm of behaviour, structuring the very interests of other actors. Luke's model offers a springboard for engaging with the dynamics of power within discourse, which I draw on implicitly in my analysis.

foregrounds power relations by attaching discourses to agents and interests. It also makes visible some of the interplay between these broad spheres of influence – specifically, Backstrand and Lovbrand conclude that "although a discursive fault line exists between the science-driven and state-centric governance practices built into green governmentality, and the deregulated flexibility ideal of ecological modernization…these two discourses have become mutually constitutive in climate governance" (2007:131).

One limit of this approach, however, is its poststructural elevation of discourse from mediating our understanding of and engagement with reality, to actually constituting it. This reduction of the material to discursive effaces the political economic context of climate change, dispensing with critique of the content and implications of discourses in favour of analyzing how they are articulated and translated into practice. In Backstrand and Lovbrand's case, this leaves them more or less uncritically carving the civic environmentalism discourse into 'reformist' and 'radical' camps, and settling on the pragmatic value of the former (2006:71).

To further political ecology's project of reorienting environmental debate to confront ecological crisis as the material expression of global corporate capitalism, and seize the strategic value of critical discourse analysis for informing transformative praxis, we need to bring class back in. It is necessary, then, to synthesize and examine a *corporate* environmental discourse and the ways it reinforces the hegemony of capital. An effective starting point is one where transnational corporations, as global actors, make their case to the public about climate change, a site where the elaboration and mobilization of discourse intersect: advertising.

Advertising Climate Change

Much research has been conducted to explore the nature of advertising, especially to examine the validity of information and claims, the techniques employed to persuade, and more recently the role it plays in the production of culture. Discourse analysis has focused mainly on the manipulative prowess of advertising; that is, its capacity to create and transform social norms and values, to define and re-define notions of race, sexuality, beauty, relationships, etc. (Fleras, 2003; Kilbourn, 1999; Singer, 1994; Danesi, 2008; Messaris, 1997). Other approaches inventory the quality and quantity of information in ads, scrutinizing the validity of their claims (Nelson, 2001; Banerjee, et. al., 1995; Carlson, et. al., 1993). Some posit its impact on a social level, as in the development and maintenance of a 'consumer culture' in the grips of "neomania" (Danesi, 2008; McChesny, et.al., 2009). Still others seek to measure the persuasive value of certain strategies in shaping the attitudes and beliefs of individuals (Youn-Kyung, et. al., 1997; Jain, Kaur, 2004). While there is a wide range in the characterization of advertising as far as what it communicates and in what ways, the prevailing consensus as to its purpose is to sell more product.

In that vein, a prolific literature has emerged that characterizes environmental advertising in particular as a means of appropriating environmental issues and messages, and using them to sell products, expand market shares, and improve corporate images – a process that has commonly been labelled 'green-washing' (Karna et. al., 2001; Kilbourne, 1995; Linder, 2006; Beder, 1997). Discourse analysis in this context has been employed by researchers mainly to illuminate the appropriation of environmental meaning by advertisers to add exchange value to, or expand demand for, commodities (Linder, 2006). Despite their often sophisticated analysis of ads, which generally yield richly textured

descriptions of the meanings being synthesized and the processes by which this framing is accomplished, these analyses often hesitate to link their nuanced descriptions of themes to the broader sociopolitical context with which ads dialogue.

For example, in Linder's (2006) research, a large sample of ads pertaining to global warming was collected and organized into three distinct categories: 'social' or advocacy ads concerned with alerting the public and invoking a moral impetus to act; corporate ads appropriating the resulting meaning and reframing it with their products; and corporate ads which flip the original moral dimension on its head, employing irony to undermine the very values first elaborated in the advocacy ads. Linder's analysis is deep and refined, but shies away from drawing implications about how undermining the original call to action might serve the interests of capital. Rather than attributing themes identified to a larger corporate discourse, his analysis focuses on their role as strategies put into play by discreet corporate actors to make sales (albeit at the expense of a serious issue). In this way, corporations appear to be self-interested individuals seizing opportunities to profit, with the impact of their strategies only incidentally undermining environmental advocacy.

A vital yet often elided part of advertising's history, however, is its role in public relations and issues advocacy. McDowall defines this form (in contrast to consumer ads) as advertising that attempts "to sustain or change public opinion on long term, fundamental values underlying social and political institutions...it is concerned with the propagation of specific policy positions and strategy options on issues of public importance to support the interests of the sponsor while downgrading those of his opponents" (1982:vii). Advocacy ads emerged in force as a discrete form of advertising

in America in the 1970's, and were vigorously employed by corporations, government, political parties, and public interest groups alike as a mode for alerting public concern and rallying public opinion (Singer, 1994). Unlike corporate consumer advertising, which seeks to sell a product, service, or corporate image, corporate advocacy ads seek to sell political beliefs, resonating with and appealing to the public as citizens rather than transnational corporate giants (Beder, 1997). This form of advertising complicates the conceptualization of corporations as atomized, profit-maximizing individuals and instead positions them as a class voicing their shared interests in the contested terrain of public media. Advertising becomes a voice attributed to a class of agents rather than a disembodied tool for stimulating demand or inflating profit.

Even corporations themselves have espoused advertising as the 'voice' of industry. The notion that "commercial speech" (consumer advertising) was entitled to protection under the First Amendment to the US Constitution, though dismissed by the Supreme Court in 1942, has since manifested in an increasing measure of protection as it incrementally approaches First Amendment status (McChesny et. al., 2009). Advocacy advertising, on the other hand, dodges Federal Trade Commission regulations concerning false claims and deceptive or misleading messages altogether by asserting itself as expressly political – which the US Supreme Court ruled was beyond regulation for veracity because falsehood is inevitable in political debate (Beder, 1997).

As a form of communication, advertising is not neutral – it is an increasingly expensive and privileged endeavor, dominated by major corporations (McChesny et. al., 2009; Falk et. al., 2005; Artz and Yahya, 2003). In Canada, government spending on advertising continues to decline, from $136.3 million in FY2009/10 to $75.2 million in

FY2013/14 (Public Works and Government Services Canada, 2014). In contrast, operating revenues for the advertising industry rose to $7.1 billion in 2011/12 (Statistics Canada, 2012). In the US, over $404 million was spent purchasing broadcast and print space for 'pure' advocacy ads alone in FY2004/05, with corporations accounting for 79% of that spending – business interests outspent publically based interest groups by more than five to one (Falk et. al., 2005). Corporations have even spent more money on advertising than political lobbying. In 2005, the Annenberg Public Policy Centre reported that six of the top ten spenders on advocacy advertising outspent their lobbying budgets (which must be reported in the US) with their advertising budgets. In their report, they point out that by federal regulatory standards, their top ten would appear to have spent 74.6 million to lobby governments; whereas when their advocacy ads targeting federal policy makers are included, that number increased to 184.8 million, *double* what had to be reported (Falk, et. al., 2005). As globalization has unfolded, the monopolization and commercialization of media have kept pace, further amplifying the voices of major corporations and extending the reach of advertisement (Artz and Yahya, 2003).

From a critical perspective, advertising has been linked directly (and even proportionately) to the crisis of overproduction inherent to capitalism (and most apparent in its late stages). On an ideological level, beyond simply toggling desires and creating new 'needs,' advertising helps re-define what is important personally, socially, and politically. These immersive stories re-cast generative agents – whose labour produces everything from machines to human beings – as *consumers,* and corporate entities – which produce nothing – as *producers*. This mystification has important implications for resistance, as "the deflection from production to consumption is a deflection from the real

world to the imaginary world" (Leiss, Klein, and Jhally, 1990:31). Within this configuration the key to our social identities becomes our relationship to things which are produced, rather than the role we play in producing them.

A critical approach to environmental advertising, then, might move beyond conceptualizing advertising as sophisticated techniques of persuasion designed to encourage consumption to consider them as the voice of corporations – instances of a larger discourse in action. Making that discourse explicit might allow us to highlight its privilege relative to the climate change debate and how it has been mobilized or challenged by environmental groups, policy makers, and citizens. Tracing its contours might facilitate its recognition and deconstruction, which in turn may help unlock our collective imagination by grounding approaches to climate change in a critique of global corporate capitalism and the structures (social, political, and economic) that maintain it.

Conclusion: Resisting the Usual Business

"It may be the end of the world as we know it, but for the great host of humanity and for the quietly nurturing Earth, that should be fine" (Clow, 1992).

In Lyman Frank Baum's iconic work *The Wonderful Wizard of Oz,* he describes the well-known Emerald City, which – though no greener than any other city – appears emerald by virtue of the green-tinted eyeglasses residents and visitors are made to wear upon arrival, a humbug designed by the Wizard. This image comes to mind for me whenever I contemplate the 'greening' of capitalism – is it just products, brands, and services being 'painted' green, giving them a superficial viridescence, or are we also wearing a *worldview*, a humbug perpetrated by the transnational elite?

To effectively address climate change, we must confront its root cause – we must name our asteroid. But through emerald-tinted glasses, even that great collision looks

green. As Luke points out, the sustainable development narratives that have dominated international discussion on climate change might best be termed sustainable degradation, for their emphasis on incremental, technological, and (consumer) behavioural interventions that sustain the ecosystem of capital in the face of its insurmountable contradictions (2006). To the extent that such narratives structure our attributions and solutions, alternatives to business as usual are framed-out of our collective imaginations.

In this chapter I have echoed political ecologists and ecosocialists such as John Bellamy Foster, Joel Kovel, Michael Lowy, Enrique Leff, James O'Connor, and ecofeminists such as Ariel Salleh and Maria Mies, in calling for a critical environmental sociology/political ecology rooted in historical materialist and dialectical conceptualizations of nature and society, explicitly concerned with overcoming the exploitation and alienation of both. I've added my voice to Salleh's call for a movement of movements to address climate change that builds solidarity between the classically defined proletariat and what she calls the "meta-industrial class" – those performing reproductive labour (indigenous peoples, women, and peasant farmers) who have historically been conceptually conflated with nature as a 'free gift' on the one hand or as a 'condition of production' on the other. I've drawn heavily on Gramsci's work, from a critical realist perspective, to theorize some mechanisms by which environmental movements are kept in strategic abeyance. From that theoretical architecture I argued the value of critical discourse analysis for interrupting the hegemony of capitalism, dismantling the reification of its structures and relations, and forging solidarity between disparate social movements. I proposed the necessity of synthesizing a corporate environmental discourse, and articulating a coherent counter-discourse, to organizing

climate-motivated resistance to capitalism and imagining just and sustainable alternatives to 'business as usual.' I conceptualized corporate advertising campaigns as concrete textual snapshots of such discourse in action, and suggested they may serve as footholds for tracing the contours of capital's hegemony and interrupting its conventional wisdom.

In the next chapter I outline the methods by which I've attempted to contribute to that ambitious project in a small and preliminary way. By applying critical discourse analysis to the climate-change-themed advertising campaigns of transnational oil and gas corporations, I approach these as strategic opportunities for the burgeoning climate movement (of which I count myself a part). Rather than asking whether/how ads persuade, I ask "what does the TCC want us to think about climate change, and why?"

Chapter 2: Methodology

Critical Discourse Analysis

"Discourse analysis should bring about an understanding of the way things were, not the way things are…when we strike a critical distance from a discourse we, in a sense, put it behind us, consign it to the past." (Parker, 2004:260)

Dryzek (2005) describes discourse elegantly as "a shared way of apprehending the world" (2005:9). More precisely, Parker offers a working definition that depicts it as "a system of statements which constructs an object" (2004:252). Beyond merely describing the social world, discourse provides frames on which proponents hang fragments of information. Discourses are organizing forces employed to make sense of the world (Parker, 2004). They offer footpaths to follow, acting as a mediator between social actors and the chaotic complexity of reality. They construct relationships, meaning, and legitimacy; they lay a foundation of assumptions and premises which structure analysis and debate (Dryzek, 2005; Parker, 2004).

As Dryzek's use of the verb 'apprehend' rather than 'comprehend' reflects, a key characteristic of discourse is its potential to arrest action, to capture and mystify. Discourses are systems of knowledge, which are intricately bound to power. Dryzek draws on Foucault to illustrate that discourse itself embodies power, insofar as it structures the perception of its proponents "such that some interests are advanced, [and] others suppressed" (2005:9). Power is also implicated where actors secure the acceptance of discourses from other actors, and still further where they are able to naturalize their discourse as a 'transparent' account of reality (Dryzek, 2005). "A strong form of the argument," Parker explains, "would be that discourses allow us to see things that are not

'really' there, and that once an object has been elaborated in a discourse it is difficult not to refer to it as if it were real" (2004:253).

The term 'discourse' itself refers to the intangible, overarching constructs that organize our perception of reality, but discourses leave a tangible mark on the images, writing, and conversations that take place under their auspice (Carroll, 2004; Parker, 2004; Adger et. al, 2001). Particular discourses may be traced through those expressions – referred to within discourse analysis literature as 'texts' – and made explicit, enabling critical examination and resistance (Mills, 1997). Parker defines 'texts' as "delimited tissues of meaning reproduced in any form that can be given an interpretive gloss" and explains that "all the world, when it has become a world understood by us and so given meaning by us, can be described as being textual" (2004:253).

A strength of using the term 'text' is to highlight the way we 'read' the meaning of things – even those things that are not textually based – and to therefore implicate the authorship of those meanings. For my purposes, the term 'text' will be used in reference to advertisements, including those that go beyond words to include elements such as images and sounds.

Discourse analysis, then, entails discovering and mapping discourses through the systematic interrogation of texts. Conversely, a *critical* discourse analysis[20] implies an engagement with the dynamics of power and oppression at work in the construction and

[20]Within discourse analysis literature Carroll (2004) identifies two major strains: post-structural endeavors (such as deconstruction and genealogy), which seek to subvert the authority of discourse toward undermining notions of 'truth' within the context of western modernity, and those located in the camp of critical realism (Bhaskar, 1993). While both are concerned with challenging hegemonic discourse, the conflict of critical realists is with the 'facticity' and ideology of discourse, its capacity to mystify actualities. This research is located within the critical realist tradition, as my aim is not to dispute the notion of truth, but rather to make explicit and challenge the particular notions of truth advanced within the corporate environmental discourse, and to highlight their manifestations in the context of the environmental movement.

mobilization of discourse, as well as a conscious emancipatory agenda guiding the research process (Carroll, 2004; Van Dijk, 1993; Caldas-Coulthard and Coulthard, 1996; Fairclough and Wodak, 1997). Critical discourse analysis has a powerful role to play in transformative praxis. Carroll (2004) describes this potential:

> By identifying institutions that are reinforced or subverted when a discourse is used, by considering which categories of persons gain or lose from the use of the discourse, and by showing how a discourse connects with other discourses that sanction oppression (and how discourse allows dominant groups to justify the present through narratives about the past), a critical analysis can challenge the ways in which discourses operate, and open spaces for resistance (229).

If discourse can structure imagination, organize debate, and legitimize social relations, interrogating it is a project integral to social movements. To survive, discourse must continually be reproduced and transformed – stories told, adopted, and adapted – by social actors (Adger et. al, 2001). Apart from its important contribution to generating critical theory, critical discourse analysis informs practice – it can be a strategic tool for undermining oppression and mobilizing resistance. This dimension has been fruitfully theorized in social movements literature, within which 'collective action frames' organize interpretation and experience in ways intended to interrupt competing narratives and catalyze action (Benford and Snow, 2000). Just as multinational corporations can tell us the story of climate change in a way that legitimizes the status quo, climate movements can tell the stories that challenge it, in a way that legitimizes alternatives and sparks change.

Patrick Reinsborough and Doyle Canning explore the transformative power of stories in their book *Re:Imagining Change.* In it they bring together more than a decade of

research and experimentation to offer a framework for "story-based strategy," a collection of strategic tools and resources that facilitate the deconstruction of discourse and help change agents harness the power of narrative to build movements. They advocate for bringing storytelling into the centre of social change efforts – both by understanding and reverse-engineering the hegemonic discourses that validate and advance those relations and practices we seek to change (which they call "control myths"), and by reflexively building our own discourse in ways that resonate with our values and prefigure alternative futures. In particular, their "narrative power analysis" draws on critical discourse analysis to provide a practical, accessible, and strategic tool for story-shifting on the terrain of dominant culture:

> A narrative power analysis can help us understand the story we are trying to change, identify the underlying assumptions that allow that story to operate as truth, and find the points of intervention where we can challenge, change, or insert a new story (28).

This entails breaking the narrative into its elements – conflict, characters, imagery, foreshadowing, and assumptions – and identifying "control memes" (self-replicating units of cultural information such as slogans or images that succinctly marginalize, co-opt, or oppress) that help the narrative spread. With the narrative deconstructed and laid out, points of intervention emerge, strategic footholds in an otherwise smooth and impenetrable façade.

Because they are mutable, contingent on our participation, even just the act of making discourses explicit and exploring their implications can enable compelling resistance. As Kylie Smith observes, "capitalist hegemony was not, is not, possible, without a complete

identification at the level of the self" (2010). For example, the project *Beyond Killing us Softly: The Strength to Resist* brought together leading scholars and activists in women's studies, psychology, and media studies to assemble a media literacy program for young folks that catalyzes resistance to patriarchal narratives in advertising. They presented various examples of popular media to groups of young students and traced within them discourses of body loathing and imperfection, to encourage a critical engagement with messages in the media they referred to as an 'inoculation.' Inoculation interrupts the immersive character of media and introduces the critical distance necessary to bring power into focus.

With that in mind, this action research involves both an exploration of advertising on climate change by the five most powerful transnational fossil fuel corporations to map their discourse, and a critical analysis of the dynamics of power at work in its construction and mobilization. My overarching aim is to sensitize environmental movements to this discourse – and empower them to sensitize the public in turn – in the interest of challenging the hegemony of global corporate capitalism through the opening presented by our exigent ecological crisis.

There are three spheres to which I aspire to contribute. First, I hope to support the work of political ecology within the framework of environmental sociology by highlighting some of the discursive barriers to critically engaging with capitalism from an ecological perspective. I believe there are insights in that literature that are crucial to the fight against climate change, and an important dimension of making those accessible is identifying the way hegemonic discourse operates to immobilize and marginalize critique.

Second, I hope to contribute to the literature on environmental advertising, which has tended to focus on greenwashing. This is important work, but captures mainly the commercial facet of the phenomenon at the expense of the ideological one. By conceptualizing corporations as agents of the TCC, and positioning advertising as a venue that privileges their voices, the value of environmental advertising as a hegemonic project comes into focus – and so too does the importance of contesting it.

Third, and most importantly, based on the importance of struggles over meaning to the transformative power of social movements, I hope to generate insights that might be of strategic value to the climate movement with which I identify. Following the example of media literacy campaigns along with Reinsborough and Canning's story-based strategy, critical discourse analysis can help map and critique the fossil fuel industry's strategic discourse on climate change – which could contribute to public inoculation, movement building, and social transformation.

Sampling Strategy

This research does not posit a direct link between advertisement and the behaviour of individuals—the aim of analyzing ads is not, in this case, to arm well-meaning environmentalists with tools to resist the manipulative prowess of corporate marketing campaigns or to better distinguish between fact and fiction when evaluating environmental claims in ads. Rather, advertisements in this case are a means to an end, as they offer a potent opportunity to examine corporate discourse in action because of their careful construction. Corporations invest inordinate sums of money and employ sophisticated visual and psychological techniques to structure their messages most effectively; indeed, an entire industry has emerged to do just that (Fleras, 2003). Dryzek

quotes a major public relations journal which described environmental issues as “the life and death PR battle of the 1990s” and wryly observes that “this is no less true in the new millennium” (2005:12).

Although conventionally advertising has been defined based on its intent to sell product and, historically, the primary media for such efforts have been television and radio commercials or print ads, there is compelling justification for taking a broader approach now. First, the line between product and advocacy advertising is becoming increasingly blurred, as branding – which straddles the two – has taken a more central role. For the purposes of my own inquiry it was important to include both commercial and advocacy advertising.

Second, the practice of advertising has evolved alongside information technology and increasingly sophisticated behavioural and cultural study. Industry now works their charm into nearly every medium we use and in progressively subtler ways. So-called 'native' advertising disguises commercial and political messages as news articles, 'product placement' inserts commodities into pop culture through music and movies, and corporations create their own websites; Twitter, Facebook, and Instagram accounts; and YouTube channels. Rather than distinct campaigns, corporations create entire engagement and public relations strategies that are periodically refreshed to stay culturally relevant. For these reasons, I have considered corporate messaging intended for public consumption in any medium ‘advertising’. This includes both messages where the corporations 'speak' (e.g., through infographics, reports, and commercials narrated from the corporation’s perspective) and where executives speak on the corporation's behalf

(e.g., through interviews, articles, or blogs penned by CEOs and posted on a corporations website or shared on their social media).

Social media in particular has taken on a central role in advertising, alongside its increasing salience to popular opinion as a source of news and popular culture, and its powerful capacity as an organizing platform for mobilization. Given the cost, versatility, and accessibility of digital media online, corporations employ it to advertise directly, to curate supporting content, and even to reproduce ads from other media (e.g., uploading television commercials to their YouTube channel or print ads to their website). This makes a corporation's internet presence a key messaging hub where a valuable cross-section of its advertising can be easily accessed, so I have focussed my efforts there.

Given the prolific nature of online content and its salience to a given political moment, I limited my sample of social media content to posts in 2016 to allow for a detailed qualitative analysis. This also oriented the messages in time, presenting a more coherent snapshot across fossil fuel corporations in a similar context.

Due to the in-depth nature of analysis involved with interrogating text, a non-probability sampling approach was most appropriate (Ritchie et. al., 2003). The aim was not to obtain statistically generalizable data concerning the advertisements, but rather to uncover elements of a discourse which may be elusive and entrenched within advertisements. Selection was ‘criterion based’—that is, advertisements were sampled according to characteristics that enabled a detailed exploration of the phenomena at hand (Ritchie et. al., 2003:78). Eligible ads were constructed by major, transnational fossil fuel corporations; they could implicate more than one medium (e.g., print ads, website, social media, and/or video); and they spoke to climate change directly or through implication.

My sample was designed to be relatively 'homogenous' according to these criteria, to enable a detailed snapshot of the discourse in the context of advertising (Ritchie et. al., 2003:79). Lastly, ads with voice or text were limited to English or French to accommodate my own linguistic limitations.

Following Carroll's (2009) investigation of transnationally interlocking directorates, the top five fossil fuel corporations with online advertising material related to climate change were selected from *Fortune* magazine's Global 500 2016, which is published in July of each year to display the largest corporations (calculated by revenues in US dollars) from the previous year. The table below describes the resulting sample:

Table 1: Sample of Major Transnational Fossil Fuel Corporations

Rank	Company	Revenue ($Million)
5	Royal Dutch Shell	$272,156
6	Exxon Mobil	$246,204
10	BP	$225,982
24	Total	$143,421
31	Chevron	$131,118

Although China National Petroleum and Sinopec Group are both highly ranked in the Global 500 list, they were screened out of the final sample because their online presence was less robust than the others, with far fewer messages addressing climate change. Particularly in the case of Sinopec, I also lacked the cultural resources and context required to decode some of the messages translated into English.

Data Analysis

Parker (2004) outlines seven criteria for distinguishing discourses, and elaborates the need to move beyond them to consider the role of institutions, power, and ideology. His clear and systematic description of discourse analysis has guided this research process.

The investigation was organized 'hierarchically,' proceeding through multiple levels of analysis from specific, descriptive data to general, reflective themes (Creswell, 2009:184). This involved three main stages: first, the sample was collected and interrogated; next, data was examined comparatively for overarching themes; and finally, the themes were synthesized into a corporate environmental discourse for critical analysis. I drew on Reinsborough and Canning's compelling framework for narrative power analysis to structure my approach, with the intention to generate insights that are both widely accessible to, and have strategic value for, social movements and change agents struggling to address climate change. I also looked for themes in the way certain mediums were used and how they differed – websites, social media, commercials – and considered some of the inter-textual themes as texts dialogued with broader social and political currents and other institutions.

Interrogating the text:

This involved, as Parker suggests, identifying the objects and subjects referred to within the campaigns, and exploring how they were discussed and portrayed. Anticipating the narrative power analysis, I identified who 'spoke,' with what kind of voice, and on whose behalf; what kinds of imagery or metaphors were employed; the detail of the messages and how they were framed; and perhaps most importantly, what was not discussed or portrayed at all (a powerful way to interrupt the coherence and naturalizing character of discourse). At the granular level of each text I asked what corporations in the sample were saying about climate change and how.

Starting with each company's corporate website and proceeding through their social media (e.g., Blogs, Facebook, Twitter, YouTube), I sought and retrieved climate change-

related content for the public in 2016. I drew on my own experience as a researcher and activist to identify messages indirectly related (i.e., without the key words "climate," "warming," "GHG," or "CO_2/carbon") but relevant to public discussion on climate change – for example, articles tagged with "#ExxonKnew," messages about natural gas and renewables, content addressing methane emission, or content about key events or institutions (e.g., COP21 or policy scenarios released by the International Energy Agency).

To preserve the structure and context of the content, I recorded screenshots and grouped analysis by source – so, for example, content from ExxonMobil's "Energy Factor" blogs or Shell's "Sustainability" section on YouTube was analyzed together, enabling a closer examination of where and how the messages were presented.

Throughout the process I kept descriptive and connotative observations distinct, as identifying connotations is the more explicitly interpretive process[21] (Creswell, 2009). This enhanced reflexivity on my part, but also generated an additional facet of data by allowing me to document some of the personal resources (cultural knowledge, impressions, experiences, etc.) that informed my reading of the text.

[21]Beyond the necessarily interpretive nature of data analysis (Barnes et. al., 1996), pursuing connotations is a subjective process as it requires a particular 'cultural knowledge' and the units of data are often 'polysemous' (in that they may yield multiple different meanings). Barthes (1977), however, cautions against relegating the process entirely to the subjective realm, imagining a spontaneous, uncoordinated, and incalculable plurality of meanings. Although texts are open to many different readings, the interpretations available are not random, but instead depend on the initial investments into the text (such as cultural, practical, or national knowledge) and the resources of the reader, which may be classified. This process calls for careful reflexivity on the part of the reader to identify which personal resources are mobilized in the interpretation of a text. Further, while each unit is open to a variety of interpretations, advertisements involve a concerted effort to structure units such that interpretation is *limited* and *directed*. Advertising, and discourse in general, involves privileging certain meanings over others and then obscuring that process, such that the desired collection of meanings and their relationship appear natural and un-arbitrary, thus removing it from the purview of agency and resistance. As important to the meaning of the text is its structure – how that meaning is organized and presented so as to focus and direct interpretation.

Because critical discourse analysis does not take as its starting point the positivist presumption of a researcher's objectivity, and instead seeks to explicitly position the researcher in the sociopolitical context from which they make their observations, the validation of data is not a straightforward process. This limits its utility for generating quantifiable and generalizable facts, but makes it an ideal methodological tool for action-oriented research (e.g., the necessary transparency of the researcher's ethicopolitical drivers, the rigorous attention to contextual resources). Throughout the results chapter I have paired sample texts with their corresponding themes, to help readers trace my reasoning from data to conclusions (Lupton, 1992).

Assembling a discourse:

Discourse is rarely apprehended in its totality; instead we are confronted with fragments (Parker, 2004), elements embedded within a range of texts and often taken for granted. From the preceding analysis a comparative step emerged involving the grouping of connotations, the identification of subsequent themes across companies, and their synthesis into an overarching caricature. Here I drew on Reinsborough and Canning's narrative power analysis to identify the common elements of that narrative – the conflict, characters, and foreshadowing/resolution. My question here was more general – what do major oil and gas corporations, as a subset of the broader TCC with a special interest in the climate debate, want the public to think and feel about climate change?

Disassembling a discourse:

Having sketched out a corporate climate change discourse, the last step was a contextual, critical analysis of the institutions and interests it supports, the power relations it establishes or reproduces, and what ideological effects it yields. This was an

explicitly political process – my intent was to interrupt its coherence and ‘common sense’ character to create space for transformative action within the interregnum triggered by our looming ecological crisis. I used three key theoretical tools to structure my analysis: framing, imagery, and mythos.

As a verb in the context of critical discourse analysis and other sociologies of “meaning work,” the term ‘framing’ captures the dynamic and evolving social struggle to produce, mobilize, and counter ideas, organizing collective interpretation (Benford and Snow, 2000). The way elements of a story are organized – especially what is included or excluded by the boundaries constructed by a text – can have a profound impact on how the story is read. Likewise, pointing out the mechanics of framing and highlighting those elements ‘framed out’ of a text can suspend the immersive character of media and open space for critical reflection (Reinsborough and Canning, 2010). For example, Diesel’s *Global Warming Ready* campaign invites us to imagine the future in a way that neatly elides the complex and devastating impact of climate change, shouldered disproportionately by the poor and marginalized. As they tell it, the story of climate change plays out like a global beach party, illustrated by the white, affluent paragons of

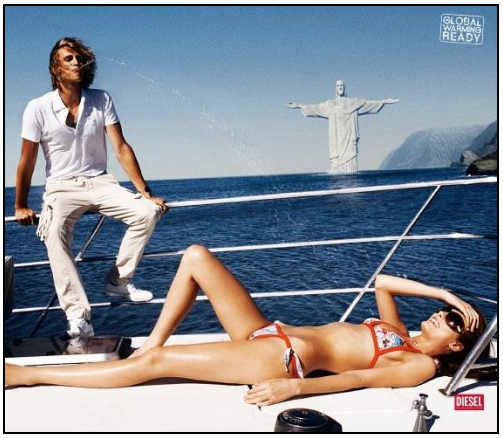

Figure 1: Speed-boating over an underwater Rio de Janeiro in Diesel's Global Warming Ready Campaign

Figure 2: A firefighter in Rio de Janeiro carries the body of an infant recovered from a landslide - from BBC News.

fashion speed-boating over an underwater Rio de Janeiro (Figure 1). But if we trace that narrative to its logical conclusion, lurking outside the margins of that frame are some visceral realities. Diesel's vision of unrelenting prosperity in the face of planetary crisis excludes images of, say, a Brazil ravaged by dengue fever epidemics, of broken bodies being recovered from catastrophic landslides (Figure 2), of communities demolished by torrential rains and gale-force winds, or of startling death tolls in the wake of deadly flooding. Already, Rio de Janeiro has been acutely impacted by climate change, experienced most severely by the 20% of their population living in favelas and struggling with extreme poverty[22]. For this project, my aim was to problematize the corporate framing of climate change within the sample.

Next, I identified emerging themes about the kinds of voices, language, and imagery employed in the sample. I asked what roles fossil fuel corporations cast for themselves and the public.

Finally, I highlighted and engaged critically with some of the underlying assumptions – hidden premises inherent to the discourse.

Through this last layer of analysis I hope to step onto the discursive battleground of climate change in a manner that directly confronts the material and ideological impossibility of reconciling global corporate capitalism with its social and ecological consequences; recognizes the crisis of climate change as a manifestation of the organized,

[22] In 2010, less than three years after Diesel's campaign, Rio de Janeiro saw the heaviest storm in 50 years, dumping almost a foot of rain over 24 hours and triggering over 180 mudslides that killed 175 people and left more than 15,000 homeless. Across the Guanabara Bay from Rio, rescue teams waded through garbage and the stench of decay as a mudslide unearthed the landfill upon which the Morro de Bumba favela had been constructed. "Torrential rains and gale-force winds crushed the flimsy houses built up the slope of the old landfill and swept them downhill in an avalanche of mud, cement, bricks and corpses that buried the homes further down" (Frayssinet, 2010). That same year, temperatures in Rio reached 44°C for a day, making it the hottest urban area on the planet (second only to a small town in Ghana). Less than a year later flooding and mudslides north of Rio claimed more than 1,000 lives (Mackay, Webster, and Kermeliotis, 2012).

transnational project of wealth accumulation at the heart of capitalism; and empowers other change agents to imagine and implement post-capitalist alternatives. To that end, I have summarized my findings in a plain language toolkit (see appendix A) for identifying and engaging critically with corporate discourse about climate change to, hopefully – as Parker suggests – help consign it to the past.

Chapter 3: Findings and Analysis

With an extensive collection of climate change messaging from five of the most powerful fossil fuel corporations in the world, my first task was to distill the key ideas: the messages that recurred, set the tone for reports, articles, and speeches, perched at the climax of commercials, or were emphasized in headlines, hashtags, and slogans. In these I looked for themes, echoes that ricocheted across mediums and throughout the sample, which I used to synthesize the overarching industry discourse on climate change.

The first section describes this discourse, organizing key themes about the problem of climate change and how it can be addressed. The second section brings in a narrative power analysis to explore the characters cast by fossil fuel corporations, the ways they foreshadowed the future, some of the problematic frames they've employed to organize engagement with their story, and some of the unspoken assumptions the reader must take for granted in order to understand and accept the discourse. The third section presents a discourse practice analysis to examine the forums and media used in the sample.

Narrative Elements: The Story of Climate Change

With the centrality of storytelling to movement building and mobilization in mind, in this section I've organized themes from the sample into two narrative elements – the conflict and its resolution – to capture the story of climate change according to transnational fossil fuel corporations.

Problem: The Energy Challenge

"There will be more people on this planet, more people living in cities and more people rising from poverty. They will all need energy if they are to thrive. The issue is how to balance one moral obligation, energy access for all, against the other: fighting climate change. We still need fossil fuels for a lower-carbon, higher-energy future." – Ben van Beurden, CEO at Shell, IP Week Dinner in London, UK (2015).

Across the sample – every corporation and every medium – a singular story emerged that organized engagement with climate change. In a world where energy demand is rising, driven by growing populations, increasing prosperity, and the laudable goal of bringing energy security to the world's energy poor, the challenge of climate change is actually two-fold: producing more energy, but with fewer emissions. Shell, BP, and Total summarize this story in their joint letter to the UN and national governments: "we owe it to future generations to seek realistic, workable solutions to the challenge of providing more energy while tackling climate change."

Corporations heartily agreed that expanding the world's access to reliable, affordable, and modern energy should be the primary concern of consumers, governments, and industry. Acknowledging that unmitigated climate change risks compromising that project, they advanced a collection of solutions designed to accommodate the foregone conclusion that fossil fuel production must continue to increase over the next century. As Total frames it, "our main responsibility is to help provide safe, affordable energy solutions to as many people as possible, while managing energy consumption and the related emissions."

The world needs more energy

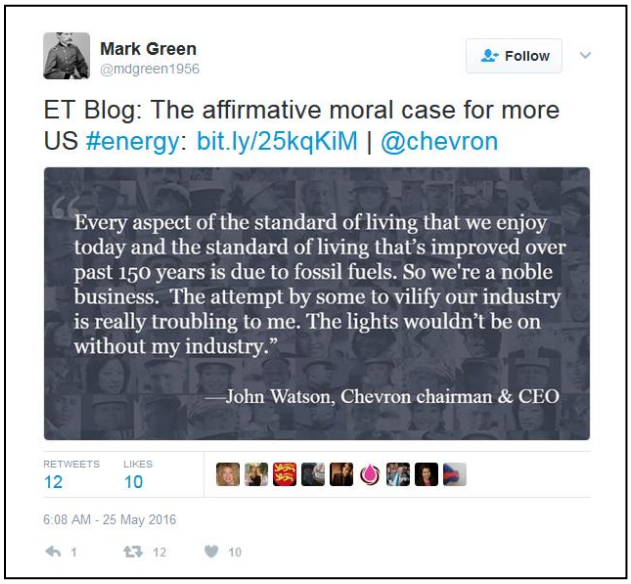

Figure 4: The affirmative moral case for more US energy - from Chevron's Twitter feed

Although there was some variability in which aspects they emphasized, all five corporations constructed energy – in particular fossil fuels – as integral to modern life and social progress. They devoted significant space across every medium to communicate this fundamental role, from laundry-lists of fossil-fuel-dependent conveniences like smartphones and refrigerators to more basic requirements like sanitation, medical devices, and education. Throughout ExxonMobil's "Energy Lives Here" ad campaign, for example, they make the invisible role of energy visible by illustrating its flow with swirling ribbons of colour. In the ad "Energy in our Lives," ExxonMobil takes the viewer on a tour through this energy-viewing lens, revealing colourful ribbons everywhere. A voiceover guides our interpretation: "The billions of gallons of fuel that get us to work…electricity flowing through the devices that connect us and teach us…almost 100% of medical plastics are made from oil and natural gas…an industry that

Figure 3: The invisible role of energy made visible in ExxonMobil's Twitter feed.

supports almost ten million American jobs." The imagery effectively reinforces the importance of the oil and gas industry to modern life – in particular ExxonMobil, on whose logo the ribbons of 'energy' come to rest.

To that end, corporations in the sample – whether through their own in-house projections or by invoking an IEA scenario – unilaterally projected that energy demand will continue to increase dramatically this century. Population growth and increasing prosperity – especially in India and China where populations are still growing and GDP is surging – are consistently constructed as the driving forces behind rising global energy needs. ExxonMobil, for example, predicts "the largest expansion of the global middle class in history," concluding in their Energy Outlook that energy demand will rise 25% by 2040.

Figure 5: ExxonMobil predicts rising demand in their Outlook for Energy - Journey to 2040

Chevron and Total both use estimates from the IEA of more than a third. BP predicts that the global economy will more than double by 2035 as incomes rise in "emerging

economies" and the world's population increases by 1.5 billion, escalating "world demand for energy…by as much as 34%." Shell offers several possible future scenarios that, much like the IEA, share in common the premise that energy production must increase.

Figure 6: Population and prosperity drive global energy demand. Top - BP Energy Outlook 2035, 2016 Edition. Bottom - BP Energy Outlook 2017 Edition

In one supplemental report, Shell goes so far as to pose the question "how much energy is needed for a better life?" and walks the public through demand projections assuming a more moderate vision of prosperity where basic material needs are met without excessive luxury. Presuming 100 gigajoules of primary energy per person "is approximately what is required to fuel the…decent quality of life to which people

naturally aspire," Shell calculates that supporting even this modest lifestyle for everyone would double world energy usage by 2100.

Supplying energy is a humanitarian project

Figure 7: More action needed to address climate change, yet over 1 billion still without access to electricity - BP Energy Outlook 2017 Edition

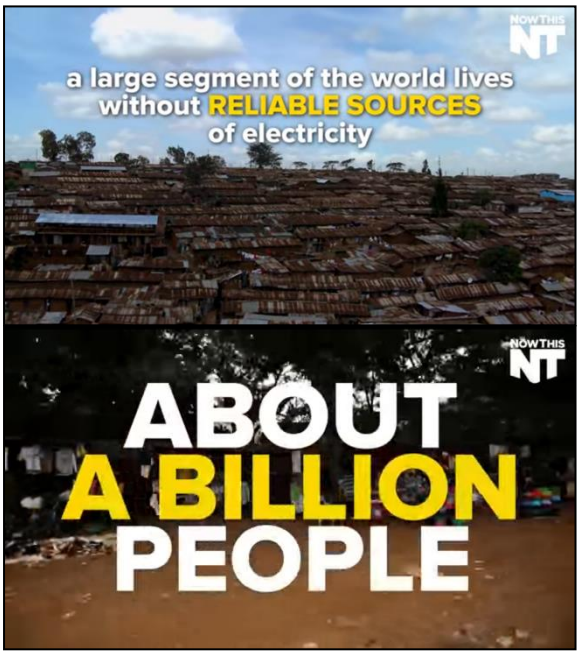

Figure 8: A large segment of the world lives without reliable sources of electricity...about a billion people - Now This News from Shell's Make The Future campaign

When establishing or projecting increasing production, corporations in the sample consistently cast two key characters from the "developing world:" the "world's energy poor" and the "burgeoning middle class." On the one hand, they offered roughly commensurate statistics on the number of people worldwide who lack access to electricity or to safe, clean cooking fuels, emphasizing the importance of meeting those fundamental needs. On the other, they constructed energy as the engine of development, consistently asserting its importance to increasing incomes and providing opportunities in the "developing world." Therefore, there was unequivocal agreement in the sample that expanding fossil fuel production is necessary to alleviate poverty, improve living standards, drive economic growth, and support the lifestyles of an expanding global

"middle class." Chevron summarizes: "there are still 1.2 billion people in the world without electricity and more than 2.7 billion people who still burn solid fuels, such as wood, crop residue and dung, to cook their food. Enabling affordable and reliable energy for these people, even as we maintain our modern lifestyles, is critical to global economic growth and stability."

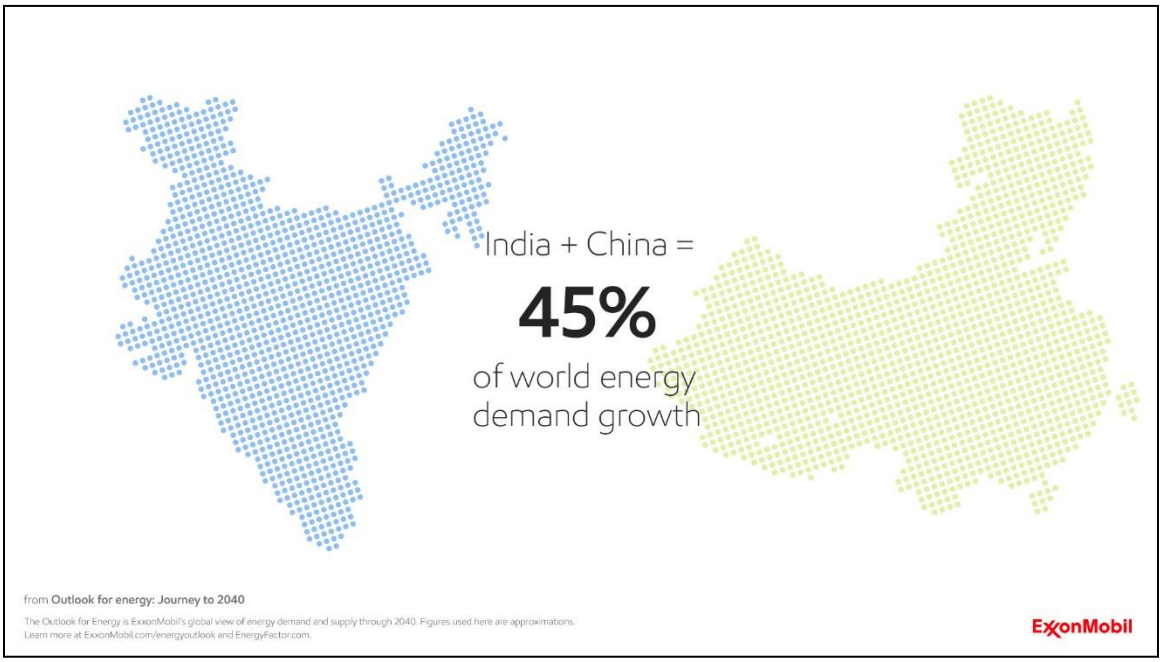

Figure 9: India + China drive energy demand, from ExxonMobil's Outlook for Energy Journey to 2040

Fast-growing, "emerging" economies like China and India were credited with the majority of demand (and therefore, conversely, emissions). The term "middle class" was regularly used as shorthand for citizens in those economies achieving lifestyles commensurate with affluent American consumers. "Many people in emerging economies will join the global middle class," explains Shell. "They will buy refrigerators, computers and other appliances that consume energy. And many will buy cars, more than doubling the number on the road." In a video introducing their 2017 Energy Outlook, BP's Chief Economist Spencer Dale projects "a shift in the pattern of demand… to fast-growing Asian markets where the story there is one of increasing prosperity, this development of

the burgeoning middle class demanding more energy, which drives up global energy demand in the future." Similarly, ExxonMobil envisions incomes in non-OECD countries increasing by 135% by 2040, generating 3 billion newly-minted middle class consumers expecting "air-conditioned homes, cars, and appliances like refrigerators, dishwashers, and smartphones." To supply this demand without compromising prosperity in "advanced economies," ExxonMobil reasons, energy production must increase substantially.

Figure 10: From ExxonMobil's Twitter feed – expanding energy supplies for the world's energy poor and the expanding global "middle class."

Through this lens, supplying energy becomes a moral imperative on par with reducing global emissions. Human welfare is inextricably linked with a growing economy, which in turn is fuelled by energy – wherever energy is abundant and accessible, the argument goes, it fuels aspirations for a better life, and progress necessarily follows. As ExxonMobil's VP of Public and Government Affairs Suzanne McCarron puts it, "…access to modern energy sources and technologies can lift whole regions out of grinding poverty. Reliable electricity allows a child in Africa to study and read in the

evening. Energy is the lifeblood of hospitals, businesses, schools….energy powers the pumps and filtration systems that offer clean streets, consistent sanitation, and clean water.” Although

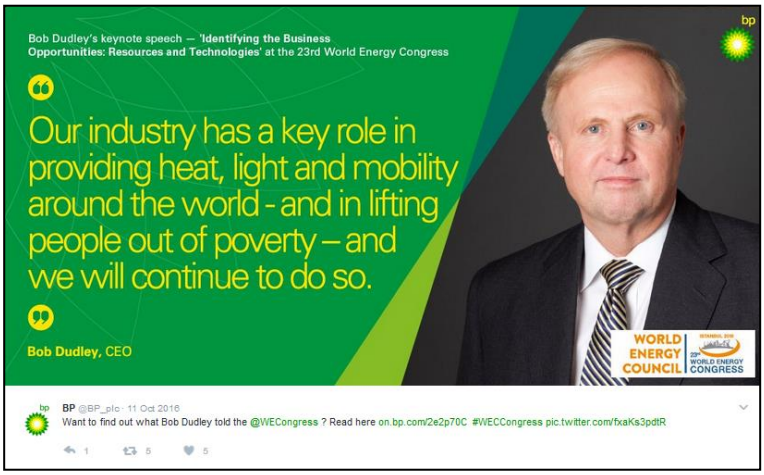

Figure 11: BP CEO Bob Dudley on the humanitarian role of the oil and gas industry - from BP's Twitter feed.

“reducing GHG emissions in the coming decades amounts to one of society’s most important challenges,” McCarron asserts, “society must continue to produce the energy sources that drive progress and provide the underpinnings of modern life.”

Shell delves most explicitly into this humanitarian dimension of energy, effectually positioning themselves as agents of change in the “developing world.” They boldly

Figure 12: How can the power of GravityLight change a community? From Shell's Make The Future campaign

invoke the images and voices of "energy poverty," consistently asserting that the global majority needs more energy to "enter the fold of development," and demonstrating that increasing access to electricity saves and improves lives. Much of Shell's MakeTheFuture ad campaign revolves around partnerships to deploy small-scale technologies in poverty-stricken regions of the world, and their impact on the quality of life of people who lack access to reliable electricity. For example, Shell extensively advertises their "#MakeTheFuture global energy relay," which included a tour in Kenya with pop music artist Yemi Alade to replace a community's kerosene lamps with GravityLights (LED lights powered by levering up a bag of rocks every twenty minutes). But Shell is not alone – Total advertises their pay-as-you go solar kits, Awango by Total, with images of villagers in Burkina Faso conquering the darkness to finish their homework. In remote villages in Myanmar, they highlight a woman working by lamplight in her vegetable garden, a fisherman increasing his income by extending his working day, and a family eating supper under a bright LED bulb.

Figure 13: "In Burkina Faso, darkness no longer stands in the way of education" for families with Awango – from Total's Awango by Total: Access to Energy for Everyone campaign

If ramping up energy production is the key to global progress, winding it down presages disaster. From ExxonMobil's perspective, for example, policies that may adversely affect the production of energy should be rejected on humanitarian grounds because they could restrict opportunities for developing nations. Poorly constructed measures to mitigate climate change may staunch economic growth; not only would this outcome threaten stability and welfare in developing nations, Chevron argues it would undercut their capacity to effectively address climate change in the first place. "As we work to address climate risks," Chevron cautions on their website, "we must create solutions that achieve environmental objectives without undermining global economic growth and our aspirations for a better quality of life for all." In his article *How the Trump Administration can help the United States take Control of its Energy Future*, Chevron CEO John Watson comments that "typically, it's the prosperous nations that can most afford to invest sufficient time and money to protect our environment." He further warns that "only as their economies prosper can developing nations more readily afford to address local environmental concerns, such as ambient pollution, and then global issues, such as greenhouse gas emissions."

"Renewables" are expensive and unreliable

In terms of meeting the world's needs and fuelling progress in emerging economies, not all sources of energy are equal. Two important qualifications were consistently advanced in the sample: energy must be both reliable and affordable to effectively enable progress. On their website, Chevron declares that "reliable and affordable energy is necessary for improving standards of living, expanding the middle class and lifting people out of poverty in developing nations as well as maintaining strong economies and

Figure 14: Even wind turbines need oil! From ExxonMobil's Twitter feed.

quality of life in the developed world." BP asserts that "access to affordable and secure energy is essential for economic prosperity." Shell stresses that "lives and livelihoods, economies and communities depend on convenient, reliable and affordable energy to prosper and grow." ExxonMobil maintains that "expanding access to reliable and affordable energy will improve the lives of billions of people around the world."

Consequently, the reliability and affordability of fossil fuels – in particular natural gas – were emphasized, whereas alternative sources were constructed as costly and/or intermittent.

In terms of affordability, BP contends that "renewables remain expensive" in relation to cheap and abundant fossil fuels, with the caveat that innovation and wider deployment may someday reduce their price. They advocate more research and development to "make renewables more competitive." In the Affordable Transition section on their website, BP acknowledges the importance of expanding the role of

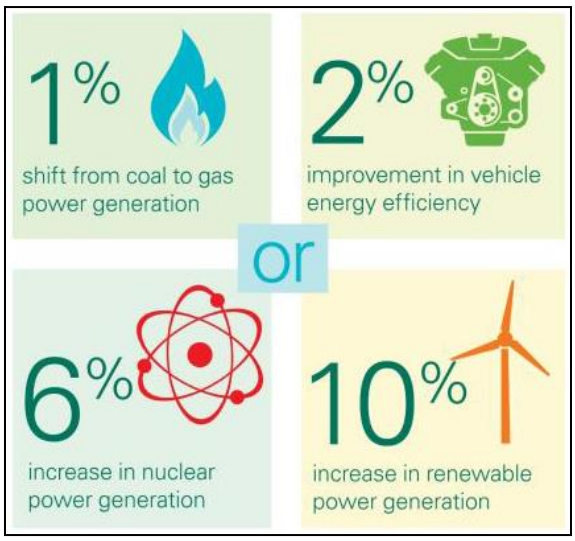

Figure 15: "Alternatives with Equal Benefit" - from BP's website.

renewables, but cautions that these currently provide only 3% of the world's energy – and that "largely…thanks to government subsidy." Chevron cites an even lower figure for wind and solar combined at 1%, and Watson opines that renewables receive a grossly disproportionate share of US federal energy subsidies – over half – compared to oil and gas. Federal policies to make lower-carbon technologies more affordable, he suggests, are misguided; for example, citing a report issued by the Congressional Budget Office, Watson warns that electric vehicle subsidies in the US were projected to cost $7.5 billion by 2019. "The burden is felt by the poor," suggests Watson, "who must continue to rely on traditional fuels at the pump; the wealthy are subsidized to buy electric vehicles."

Where reliability is concerned, solar and wind were universally constructed as "intermittent." The proposition that wind and solar power must be partnered with fossil fuels to become feasible was consistent across the sample; and corporations unanimously agreed that the ideal partner is natural gas. "By providing backup power, which intermittent sources cannot, natural gas is helping to support…wind and solar," ExxonMobil asserts. In an interview for Energy Post, Dale advises that "until there is an economically viable solution to large-scale storage of renewable power, we will need a balancing fuel to solve the intermittency problem." In the Natural Gas section of their website, Shell suggests that:

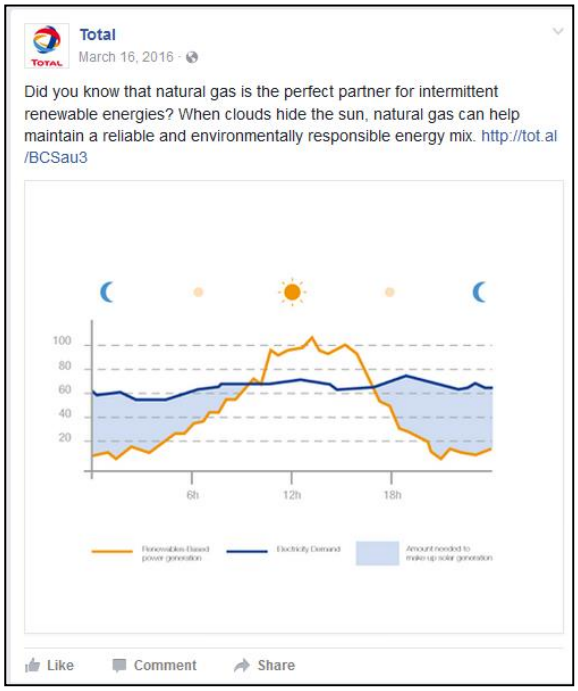

Figure 16: "Did you know that natural gas is the perfect partner for intermittent renewable energies?" From Total's Facebook feed.

"some renewable energy sources, such as solar and wind power, are intermittent due to the current absence of large-scale energy storage. They need a partner, such as natural gas, to maintain a reliable flow of electricity." In the Renewable Energy section, they echo that "natural gas, as a complement to renewables, addresses the current shortcomings of renewables in volume, availability, intermittency, storage and energy density."

While most corporations carefully framed a supporting role for natural gas, Total was more upfront: "as energies of the future, renewables are an ideal complement to fossil fuels." They described investing in solar as a part of their natural gas strategy, because "readily available natural gas resources can make up for the intermittent nature of solar energy, while the fixed price of electricity generated from solar energy can help smooth fluctuations in natural gas prices as they change with the market."

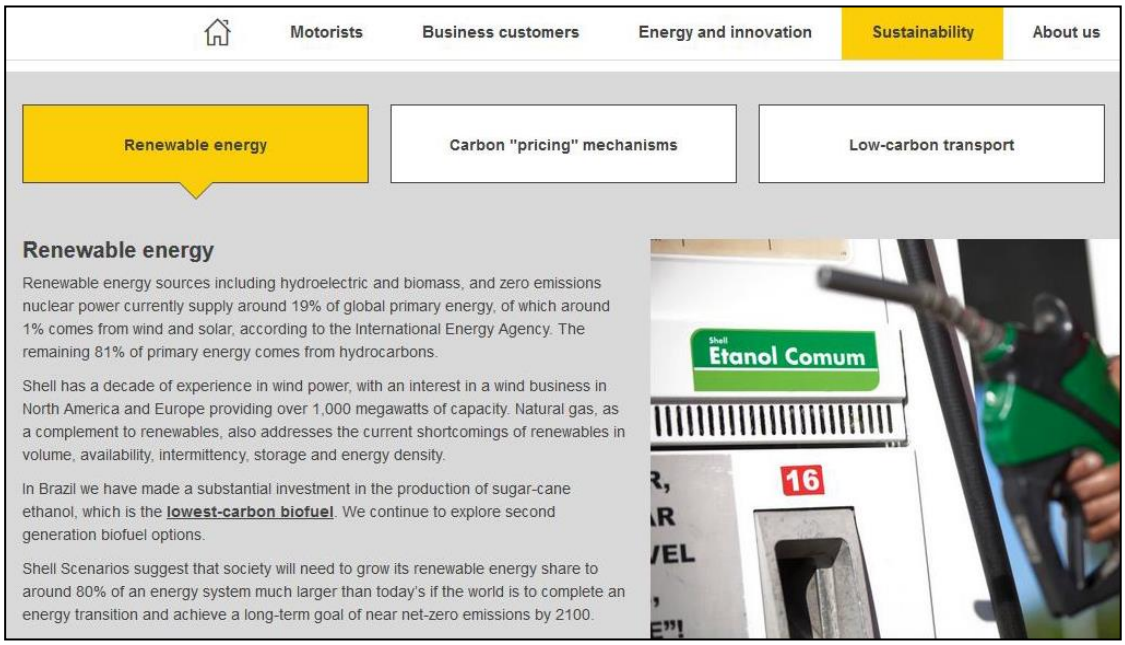

Figure 17: "Natural gas...addresses the current shortcomings of renewables in volume, availability, intermittency, storage, and energy density." From Shell's website.

Problems with the scale, portability, and versatility of alternatives to fossil fuel were also emphasized, as well as political obstacles, lack of infrastructure (in the context of existing, long-lived fossil fuel infrastructure), and competing considerations such as water and agricultural land use. Corporations in the sample agreed that renewable technology was nascent, with intensive investment and innovation required to make it viable. Chevron states this frankly: "…without a game-changing energy technology breakthrough, renewables will be insufficient to independently provide enough affordable and reliable energy to meet the needs of the developed world while also raising the living standards of developing countries." Shell encourages us to envision a zero-emissions energy system rather than a renewable energy system, as "optimism for a completely renewable future needs to be tempered by an appreciation of the significant technological, geographical, and market practicalities, let alone the political and societal challenge required."

Figure 18: BP projects "renewables" will increase their share of the energy mix to 9% by 2035 - BP Energy Outlook 2016 Edition, posted on BP's YouTube channel.

As a result, future projections on the role of alternative energy were mostly bleak, despite the common assertion that their share of "the energy mix" will grow rapidly. Chevron was the most pessimistic about the future of wind and solar, projecting a rise to 3% by 2035. ExxonMobil predicted that in 2040, wind, solar, and biofuels would account for just 4% of the world's energy use, with hydro, biomass, and geothermal energy clocking in at 12%. BP estimated that renewables will provide 9 or 10% of global energy by 2035, while Total invoked the IEA's 450

scenario to forecast an overall renewables share of 22% by that same year. Shell's New Lens Scenarios imagined a 30-40% share by 2060, "reaching perhaps 60-70% saturation if the time horizon is extended still further."

Fossil fuels for the foreseeable future

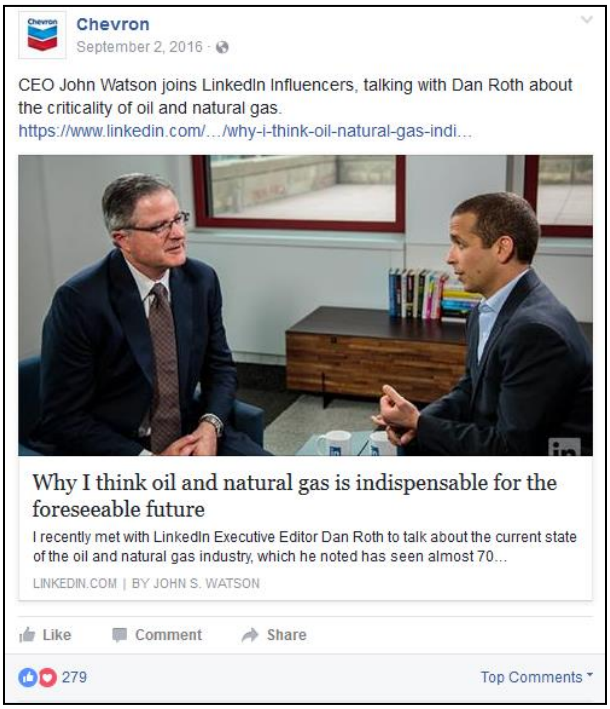

Figure 19: Chevron CEO John Watson on the indispensability of fossil fuels in the foreseeable future - from Chevron's Facebook feed.

Given escalating global demand, the pace and scope of development in emerging economies, the urgency of energy poverty, and the limitations of existing alternatives, corporations across the sample unanimously declared that fossil fuels must continue to play an integral role in the world economy.

A central assertion of corporations in the sample was that global demand for energy is such that we cannot afford to dispense with fossil fuels – every available energy source will need to be mobilized to adequately provide for everyone. Former ExxonMobil CEO Rex Tillerson states this plainly: "ExxonMobil's analysis and those of independent agencies confirms our long-standing view that all viable energy sources will be needed to meet increasing demand." Watson concurs: "Most forecasts call for global energy demand to rise by around one third or more by 2040 as populations grow, incomes rise and people all over the world strive for the standard of life we enjoy today. It's clear that to meet those needs we'll need all forms of energy – renewables, oil,

natural gas, coal and nuclear." Total's CEO Patrick Pouyanné agreed: "We need — the world needs — more energy. Demand for energy is increasing. We will still need fossil fuels."

In addition to the scope of demand, corporations agreed that the range of products and services necessary to support a fulfilling modern lifestyle – along with the infrastructure necessary to promote development and fuel global trade – make fossil fuels indispensable. Shell's New Lens Scenarios, for example, "envisage a future where renewables could eventually become the largest component of the global energy system," but caution that "it will only be possible to provide the full range of energy products by combining renewables with cleaner hydrocarbons such as natural gas, and deploying technology to capture and store emissions of CO_2." Shell concludes that reaching net-zero CO_2 emissions "will require a combination of the best of renewables, gas, and oil to meet all types of energy needs." They describe the future energy landscape as a "patchwork," asserting the necessity of natural gas to reliably supply an increasingly electrified economy, and citing a lack of alternatives in sectors such as petrochemicals, heavy industry, and heavy transportation: "As the energy system evolves, hydrocarbons will continue to play a vital role in the coming decades, providing much-needed energy to fuel transport, in particular aviation, and make everyday products from plastics to steel."

Figure 20: ExxonMobil is optimistic about the future of the "big three" fossil fuels - From ExxonMobil's Twitter feed.

Likewise, Chevron stresses the unique versatility of fossil fuels: “They’re abundant, reliable, energy-dense, can be stored, provide high-value consumer products beyond power and fuel, and have a global infrastructure of refineries, pipelines, ships, and distribution systems that’s been more than a century in the making.” They conclude that “…these factors support resilience of oil demand and growth in natural gas demand even in a world which restricts CO_2 emissions.”

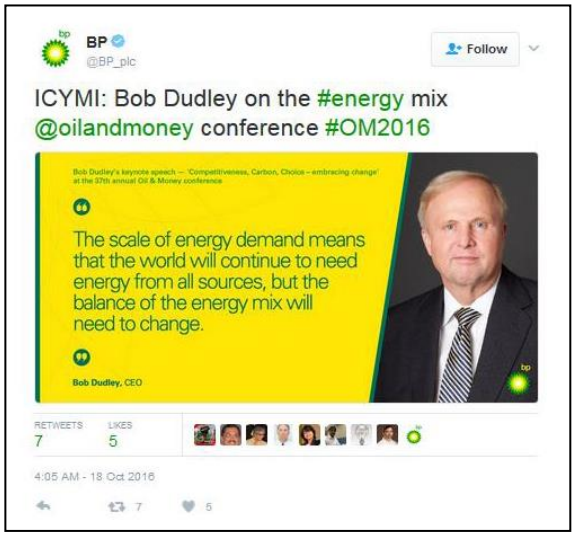

Figure 21: We need every energy source to meet global demand, so to address climate change we must tweak the "mix" - From BP's Twitter feed.

With regard to development, corporations contended that fossil fuels are the cheapest, most accessible, and most reliable energy sources available, making them ideal for fuelling rapid progress and alleviating poverty. Based on their “careful analysis of global needs and aspirations,” for example, ExxonMobil declares that “the world will need hydrocarbons to lift billions out of poverty.” Visions of a fossil-fuel-free future are simply not credible, as fossil fuels must continue to “shoulder the bulk of societal needs” even as we mobilize alternative energy sources and technologies.

In that same vein, BP and Shell emphasized a process of urbanization accompanying the rapid industrialization of “emerging economies,” which reinforces the enduring need for fossil fuels. Both BP and Shell foresee a massive increase in the number and density of resource-intensive “megacities.” This will create fossil fuel demand as heavy industry – concrete, steel, heavy machinery – is integral to building infrastructure on that scale.

Complex grids and large-scale, centralized energy become viable, with space and storage constraints limiting the role of solar and wind. They portray cities in "emerging economies" as a key site of intervention, where innovative design and technology can increase efficiency to enable sustainable development.

In "advanced" economies, corporations in the sample asserted the ubiquity of fossil fuels and a lack of alternatives. Shell reminds us that "most of the energy we use today comes from oil and coal, and increasingly from natural gas. These hydrocarbons power, heat and cool homes and workplaces, and fuel transport systems that take us to work or school, or bring us to a holiday destination. They enable industries that sustain our lives, and provide the chemical ingredients to make most of the products we buy – like the device you are using to read this page." Chevron estimates that more than half of the world's energy comes from oil and gas, declaring that "Fossil fuels have enabled the greatest advancements in living standards over the last 150 years…The energy we produce enables light, heat, mobility, mechanized agriculture, modern communications, the health system that keeps us well, and the many electronic devices that keep us

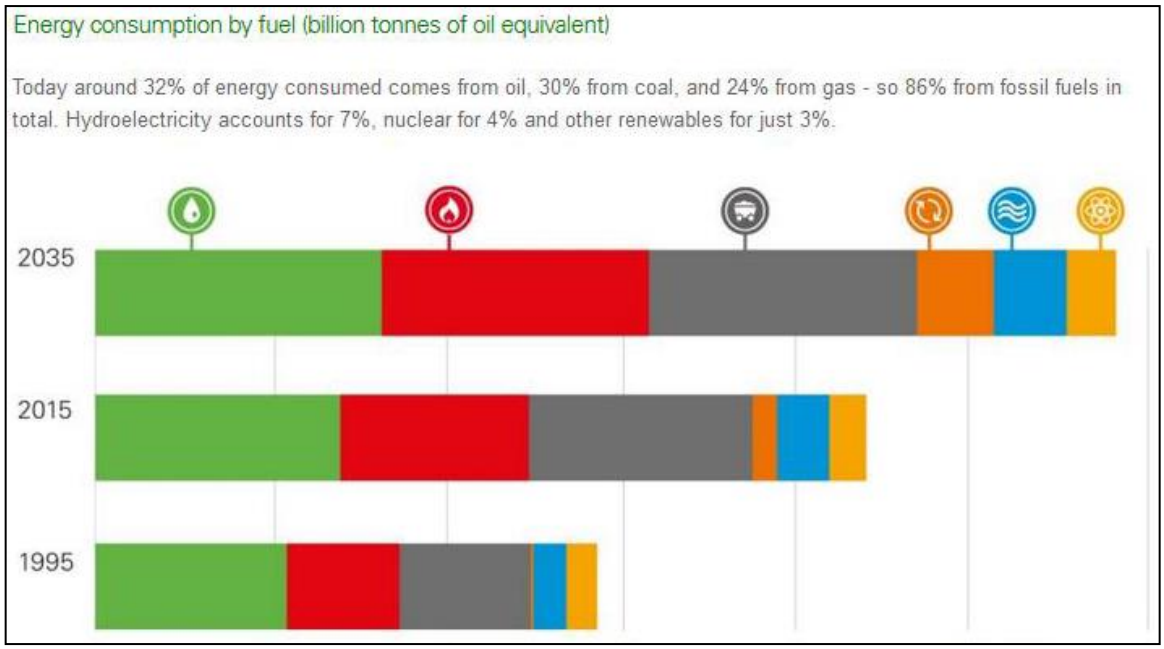

Figure 22: BP projects future energy consumption - From BP's website.

connected and entertained. It's also the feedstock for everything from crayons to contact lenses, not to mention the basis of our roads and runways."

Consequently, corporations in the sample were enthusiastic about the fate of fossil fuels regardless of the degree to which they imagined CO_2 might be restricted in the future. Total – the only corporation to boldly claim their existing strategic plan aligned with the 2°C goal – cited the IEA's 450 scenario to assert that "oil and gas will continue to cover about half of energy needs worldwide by 2035."

Chevron delved more extensively into IEA forecasts, concluding that in any case, fossil fuel production would continue: "Although the use of renewables will grow, under the International Energy Agency's New Policies Scenario (with calculations based on current and projected emissions policies) we see oil and natural gas are forecast to account for 50 percent of global energy demand by 2040. Even in its 450 Scenario (which accounts for a greater reduction in emissions), oil and natural gas will still account for 44 percent, with coal providing an additional 16 percent." In the most restrictive scenario, Chevron argued

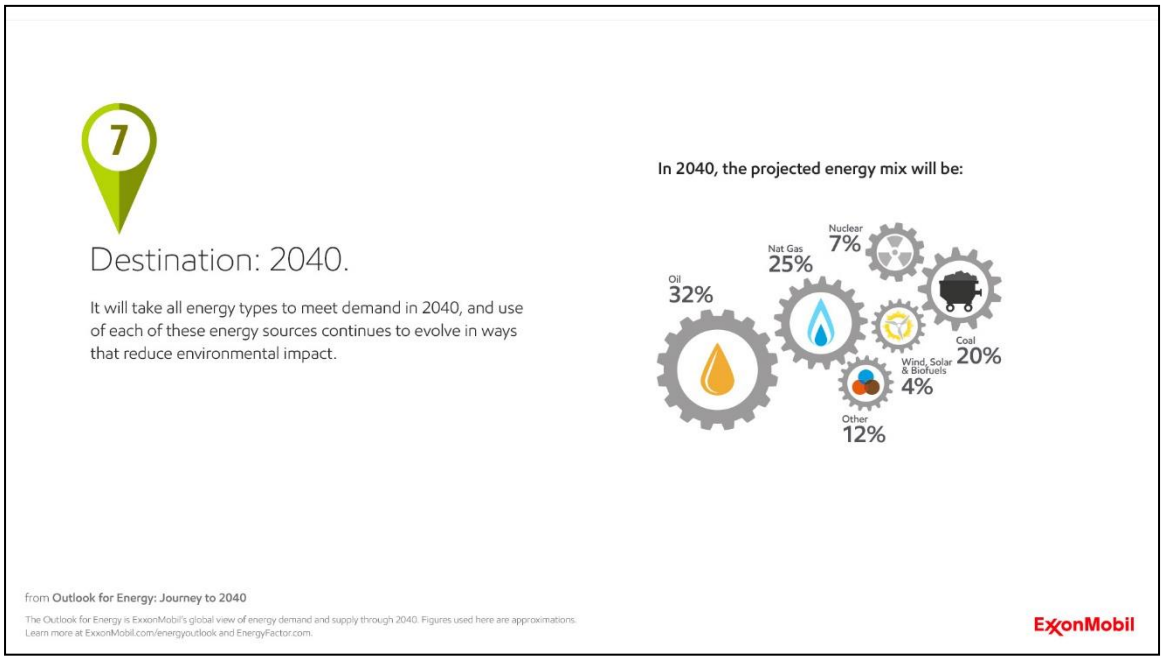

Figure 23: "It will take all energy types to meet demand in 2040" – ExxonMobil's Outlook for Energy: Journey to 2040.

that $12 trillion would need to be invested in fossil fuels through 2035 to meet demand – "an additional 40 million barrels per day of new oil and natural gas liquids production will be needed by 2035."

ExxonMobil predicted that oil alone will make up 32% of the global energy mix in 2040, with natural gas at 25% and coal at 20%. "Oil will remain the world's primary energy source," they suggest, "driven by demand in transportation and feedstock for the chemical industry." BP forecasts a modest reduction in the share of oil, gas, and coal, from 85% in 2015 to 75% in 2035.

In Shell's most ambitious scenario – their supplementary report A Better Life with a Healthy Planet – they envision a net-zero emissions energy mix where fossil fuels still occupy a quarter share in 2070 – 9% gas, 7% oil, and 9% coal. In their New Lens Scenarios, Shell imagines global oil demand continuing to grow until 2035 (Mountains) or 2040 (Oceans) – requiring investment in new supplies as currently producing ones dwindle.

Watson summarizes the industry position best: "The energy sector has been, and will continue to be, transformed over a long sweep of time. But this transformation must be compatible with meeting our economic and environmental priorities, and that means oil and natural gas will remain critical. These fuels remain for the foreseeable future the foundation of the energy economy, keeping the world's lights on, its factories running, and the transportation system moving."

Resolution: Reducing the Carbon Intensity of the World Economy

Having established increasing global demand, driven by population and economic growth; the moral obligation to fully supply that demand; and the inevitability of

increasing fossil fuel production to do so; corporations in the sample turned their attention to the second dimension of the two-fold energy challenge: mitigating the risks posed by climate change.

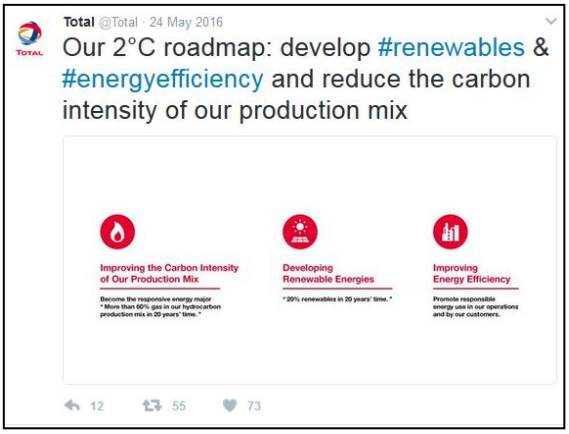

Figure 24: Total's roadmap to 2'C - From their Twitter feed.

Their answer to the dilemma of producing more energy but with fewer emissions was unanimous: reducing the carbon intensity of the world's economy. Three broad categories of action were advanced, with little variation in the approaches proposed. First, adjusting the "energy mix" to emphasize lower-carbon sources was universally acknowledged as a priority, with resounding support for the future role of "cleaner-burning" natural gas (mainly at the expense of coal). Second, innovation was unilaterally advanced as fundamental to decarbonisation, both by increasing the efficiency of operations and products, and by generating economically viable emissions-reduction technologies (such as Carbon Capture and Storage) or next generation energy technologies (like advanced biofuels or solar and wind storage). Third, corporations stressed the critical role of government policy in creating an ideal landscape for these first two solutions to play out efficiently, affordably, and without unduly impacting economic growth. With the notable exception of Chevron, every corporation in the sample expressed support for a globally-consistent price on CO_2 emissions.

Natural gas is the new coal

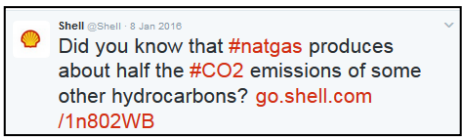

Figure 25: #Natgas produces half the emissions - from Shell's Twitter feed.

Of the fossil fuels, corporations in the sample devoted substantial effort to constructing natural gas

as the low-carbon, cleaner-burning fuel of the future. They extolled its abundance (enough to meet our energy needs for 200 years), its flexibility, its portability (liquid natural gas can be shipped worldwide), its affordability, and its lower contribution of air pollutants relative to coal.

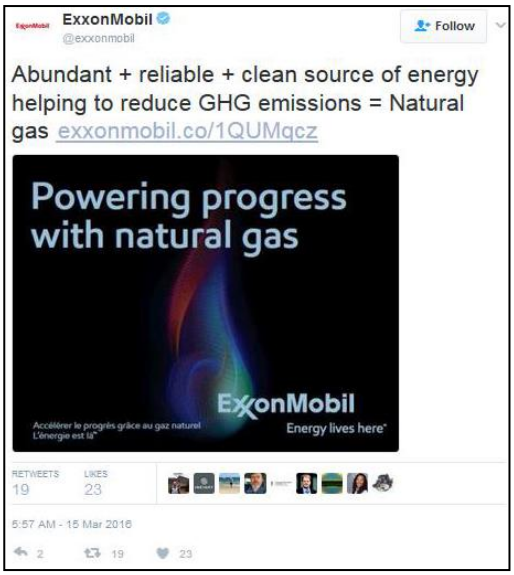

Figure 28: Fracking natural gas to address GHG emissions - From ExxonMobil's Twitter feed.

There was common agreement across the sample that the fastest and most affordable way to reduce CO_2 emissions in the short term is to replace coal in power generation with natural gas, which every corporation claimed emits 50-60% less CO_2. Shell, for example, asserts that replacing coal with natural gas is "the most affordable route for countries that are seeking to reduce their CO_2 emissions while maintaining reliable power generation." ExxonMobil states

Figure 26: 'Throwback Thursday' post on Chevron's Twitter feed 'reminiscing' about 1992, "the last time CO2 emissions were this low."

Figure 27: Falling emissions thanks to fracking - from ExxonMobil's Twitter feed

that “converting power generation from coal to natural gas is the most rapid and most cost-effective step society can take today to reduce GHG emissions.”

As proof of concept, Chevron, ExxonMobil, and BP all offered a purported decline in the CO_2 emissions from energy use in the US in 2015. In BP’s words: “As natural gas displaced coal in the market share…overall US emissions of carbon dioxide from energy consumption declined by 2.6%, even with growing consumption of oil and gas. This was the largest volumetric decline of carbon emissions of any country in the world last year, putting US carbon dioxide emissions from energy use 11% below their 2007 peak.” Watson confirms: “It all adds up to an extraordinary achievement: The U.S. is the world leader in both carbon reductions and in production of oil and natural gas. It’s not a coincidence that we hold both titles. There’s a direct link, with production of clean-burning natural gas driving success in cutting greenhouse gas emissions.” ExxonMobil is similarly enthusiastic: “the shale revolution – made possible by fracking – has played a pivotal role in reducing U.S. carbon dioxide emissions to levels not seen since the 1990s.”

Figure 29: 60% fewer CO2 emissions – Still frames from an #EnergyLivesHere ad on ExxonMobil's Twitter feed.

Natural gas was also extensively portrayed as an indispensable partner for unreliable solar and wind power, balancing their intermittency with its versatility and portability. In the Shell ad Why Can't You Have a Hybrid House, Cory and Jenna – two students trying to "live as cleanly as possible" without sacrificing the things that make their lives meaningful – explained to viewers that "in a few decades we might be able to rely solely on solar and wind energy. But we can't do that right now. The best way for us to run right now is natural gas, because it's the most sustainable way to fuel your life." They have a hybrid car, and wonder "why can't we have a hybrid everything…a hybrid life – a hybrid world?" A Facebook post by Total read "did you know that natural gas is the perfect partner for intermittent renewable energies? When clouds hide the sun, natural gas can help maintain a reliable and environmentally responsible energy mix."

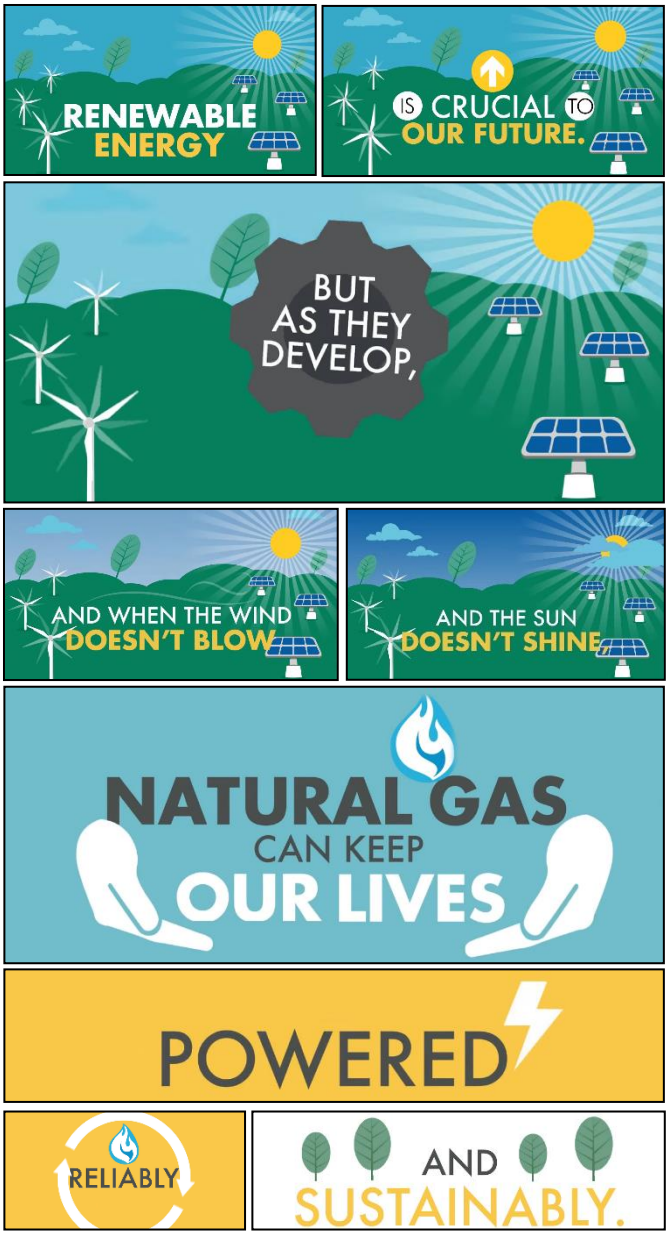

Figure 30: Still frames from the video "Why is Natural Gas Good? It's Available, Flexible, and More Sustainable." - From Shell's YouTube Channel.

The promise of natural gas was so compelling that aggressively expanding its production was consistently presented as a key step toward mitigating climate change. Every corporation included natural gas when describing their approaches to climate change, and most made expanding it a central part of their climate strategy. Total, for example, describes their plan to increase the share of natural gas in their hydrocarbon mix to 60% by 2035 as "spearheading" their " goal of becoming the leader of responsible oil and gas" by reducing the carbon intensity of their fuel mix. BP dedicates a section to Supplying Natural Gas on their Working Towards a Lower-Carbon Future page, where they showcase their approach to climate change. Similarly, Shell has a Natural Gas section on their Climate Change and Energy Transitions page. They advertise that "today,

Figure 32: The "age of Big Gas" - from BP's Twitter feed.

Figure 33: Natural gas is the fuel for the future - from Chevron's Twitter feed.

natural gas – the cleanest-burning hydrocarbon – makes up more than half of our production. We believe natural gas will be vital to building a sustainable energy future, especially in power generation, where it produces around half the CO_2 and just one-tenth the air pollutants that coal does."

A related theme – most prominent among the narratives of US corporations Chevron and ExxonMobil – is the safety and sustainability of the contentious extraction and processing practices required to maximize gas well efficiency. ExxonMobil carved out a significant presence on their social media and blog sites for describing the benefits and minimizing the risks of hydraulic fracturing (fracking), and crediting "shale gas" in particular with "ushering in an era of energy abundance," creating jobs, energy security, and a "manufacturing renaissance" in the US. "Fracking is the source of the most consequential environmental progress we have seen this decade," they tweeted.

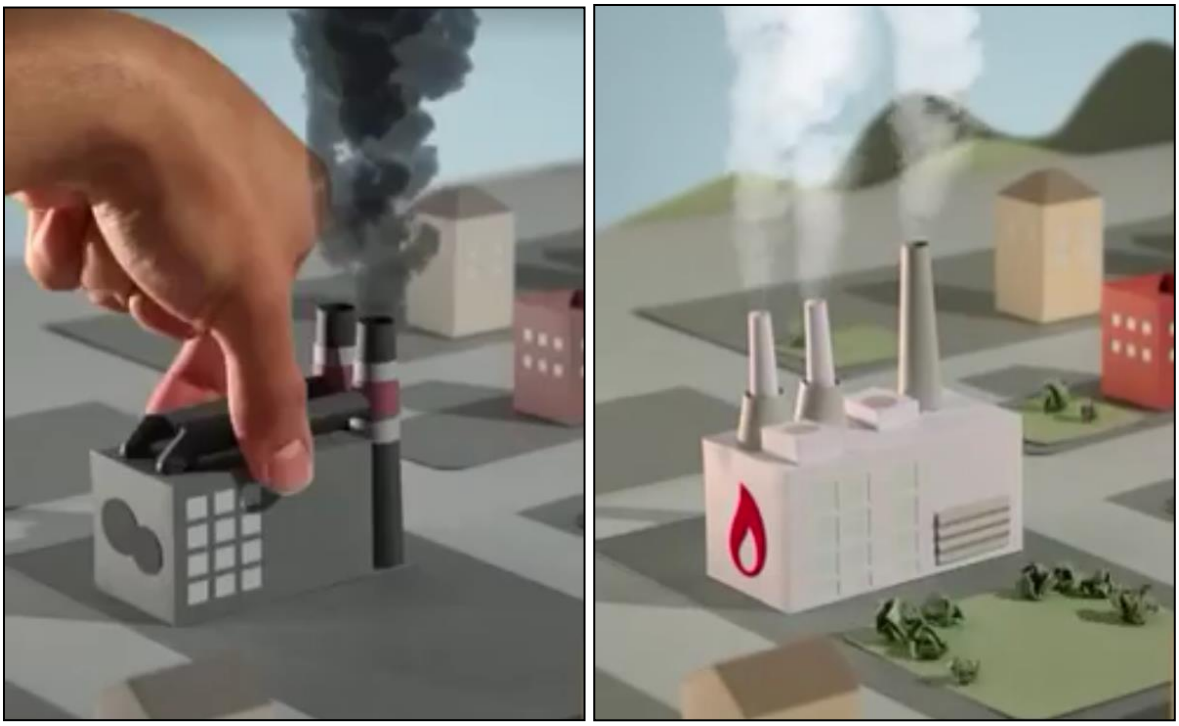

Figure 31: A hand plucks a coal-burning factory and replaces it with natural gas. Greenery springs forth. – Still frames from a .gif on Total's Facebook feed.

The sample represented a spectrum of engagement with the problem of methane emissions from natural gas extraction, but most addressed the issue in juxtaposition with coal. ExxonMobil cites EPA data to assert that methane emissions from fracking are already decreasing, and advocates against "costly rules and regulations that could stifle

innovation in order to reach an outcome that is already occurring." Shell calculates that so long as methane emissions along the gas supply chain do not exceed 3%, natural gas will have less impact on global warming than coal would have, and claims that most studies have located emissions under that mark. They cite leak detection and venting reduction programs as steps toward managing methane. Similarly, BP advises that "most government, industry and academic studies that have compared gas and coal for power have found that, over the long term, gas has significantly lower life cycle GHG emissions than coal." They also cite leak detection and venting/flaring reduction programs, along with their membership in the Climate and Clean Air Coalition - Oil and Gas Methane Partnership (OGMP) under whose auspice "participating companies analyse sources of methane to evaluate cost-effective technologies for methane emissions reduction." In an interview with Energy Post, Dale sums up the oil and gas industry's position: "methane emissions are an important issue and the industry is very attuned to that. But the big picture is that natural gas is an awful lot cleaner than coal." Total also advertises their membership in the OGMP as a means of addressing methane emissions, along with their participation in the Oil and Gas Climate Initiative (OGCI), which they report focuses on "raising awareness about methane emissions and developing an economically viable carbon capture and storage technology."

Innovation increases efficiency and generates solutions

Despite the sample-wide ebullience about the emissions-mitigating potential of natural gas, corporations acknowledged that much more needed to be done to meet rising demand while reducing emissions and they were of a single mind about the solution: innovation and technology. "Technological advancements that change the way we

produce and use energy will be instrumental to providing the global economy with the energy it needs while reducing GHG emissions," ExxonMobil asserts, "and history has shown that open, competitive markets create strong incentives for industry to invest in and develop breakthrough technologies." Shell declares "we are using our know-how, technology and innovation to deliver more, cleaner energy to help meet the world's growing needs, and find ways to use energy more efficiently." BP states that "technological innovation underpins our efforts for more efficient production and use of fossil fuels, as well as for longer-term alternatives to fossil fuel." A key pillar of Total's climate approach entails supporting research and development of "innovative technologies that can optimize industrial processes" and "innovative products and services with an environmental performance that is significantly higher than market standards."

Figure 32: Innovating the future of energy - from ExxonMobil's Twitter feed.

Corporations in the sample offered a variety of initiatives which were organized into three main themes: increasing the efficiency of operations, improving the efficiency of products and services, and investing in next-generation energy technologies that capitalize on a GHG-restricted world.

In terms of operational efficiency, corporations in the sample were careful to emphasize that the proportion of GHGs directly emitted by extraction and processing are minimal compared to those emitted by use. "Only 10-20% of emissions associated with oil and gas products come from the processes used to make them," BP claimed, "with the

remainder coming from consumer use in industry, power plants, buildings and transportation." Total calculated that "A 1% reduction in energy use by our customers has the same impact as a 10% reduction at our facilities. This is why our principal focus must be customers, as their energy use offers the main reservoir of savings."

Figure 34: Fossil fuel extraction powered by renewable energy - from ExxonMobil's Twitter feed.

Nonetheless, corporations dutifully highlighted the ways they were improving efficiency (and reducing cost). ExxonMobil, for example, describes efforts including a Global Energy Management System, expanding cogeneration infrastructure, employing wind power for offshore drilling, and reducing flaring. BP describes a new technology for producing purified terephthalic acid which produces 65% fewer GHG emissions than the conventional process. They also advertise their use of an industry benchmark index to compare the energy-intensity of their refineries with those of their peers. Total shares their commitment to efficient facility design, energy management systems, and eventually eliminating flaring.

Where products and services were concerned, corporations added two feathers to their caps: improving the performance of products to reduce

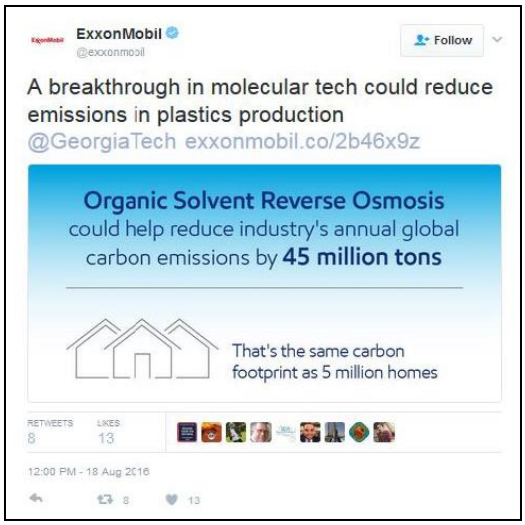

Figure 33: Technological innovation "reducing" emissions - from ExxonMobil's Twitter feed.

their lifecycle contributions to climate change, and educating consumers to help them make sustainable choices. On the first point, corporations listed products like low-viscosity lubricants, lighter-weight plastics, and less permeable tire liners, advertising their conservation of energy relative to conventional versions by framing the estimated difference as tons of CO_2 prevented (with an equivalence in cars or homes to add perspective). BP, for example, estimates that "compared with our 2004 Castrol formulation, our more recent lubricants have helped avoid more than five million tonnes of CO_2 over the past 10 years. That's the CO_2 equivalent of removing almost a quarter million European cars from the road each year." ExxonMobil claims that, were their fuel-saving technologies to be implemented in a third of vehicles in the US, 5 billion gallons of gasoline would be saved – "equivalent to taking about 8 million cars off the road."

Most corporations offered tips, quizzes, or infographics to help inform consumers about energy efficiency, and Total even advertised their Total Ecosolutions label as a means of helping consumers reduce their environmental footprint. "In 2015," Total claims, "the CO_2 emissions avoided across the life cycle of more than 90 Total Ecosolutions-labelled products amounted to 1.7 million metric tons, equivalent to the emissions of 190,000 Europeans."

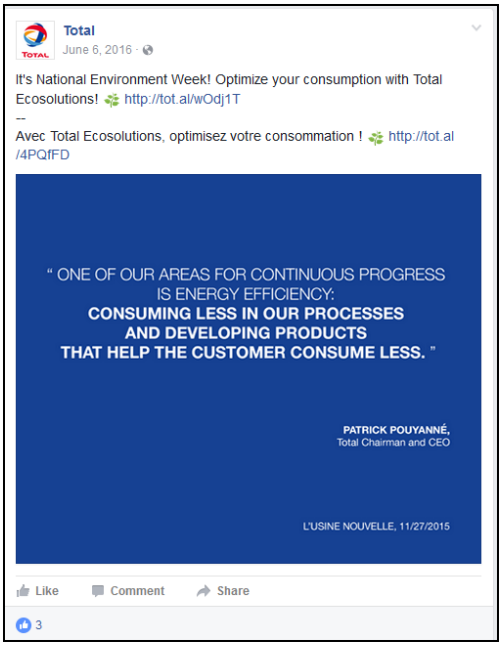

Figure 35: Ecosolutions for "optimizing consumption" - from Total's Facebook feed.

With regard to next-generation energy technologies, every corporation in the sample emphasized developing a cost-effective CCS

Figure 36: "Reducing" the world's carbon footprint by 9 million homes (equivalent to only 40% of the emissions anticipated from the natural gas extracted during the project) - from ExxonMobil's Twitter feed.

technology as either an active project or a key priority. Wherever pilots were being operated, the amount of carbon captured was presented in the same way as new and improved products. In the video "from Curiosity to Discovery," ExxonMobil scientist Vijay Swarup reports that their CCS pilot "captured six million tons in 2014 alone. That's the equivalent of eliminating the emissions of more than one million cars." Similarly, they report that their Gorgon gas project "could capture up to 1,000,000,000 metric tons of CO_2 – that's the equivalent of eliminating the carbon footprint of 9,000,000 homes."

Another predominant investment theme was renewable energy, with several corporations advertising their interests in developing various biofuels, piloting massive wind or solar farms, or introducing innovations in energy storage technologies like on-board hydrocarbon to hydrogen fuel cell or enhanced battery-separator film. As with natural gas, corporations in the sample portrayed adding renewable energy to their portfolios as an important strategic step toward addressing climate change – Total,

for example, describes their “20 in 20” goal to increase the share of renewables in their portfolio to 20% by 2020 – but with an important caveat. “BP invests in renewable energy where we can build commercially viable businesses at scale,” they explain. As a result, these investments tended to focus on liquid fuel alternatives that could, as Swarup

Figure 37: Shell Technology Ventures - From Shell's Facebook feed.

Figure 38: Investing $1 billion per year to "reduce carbon emissions and meet energy demand" - From ExxonMobil's Twitter feed.

hopes, be used in existing combustion engines. Other renewable technologies were paradoxically reserved either for remote, off-grid communities in the developing world – the energy poor – or for massive, centralized projects elsewhere.

Figure 39: Still frames from a video advertising Total Energy Ventures - from Total's Facebook feed.

Corporations also re-branded their research and development budgets and venture-capital processes as climate mitigation strategies. Figures up to $1 billion per year were offered up as proof of their commitment to innovative solutions. Total

showcases their Total Energy Ventures process, while Shell advertises their Shell Technology Ventures process, along with myriad contests, festivals, and initiatives aimed at uncovering and acquiring disruptive energy innovations.

Although every corporation emphasized innovation and technology, Shell truly made it the centrepiece of their advertising. The main thrust of their #MakeTheFuture campaign was their conviction that "human ingenuity, innovation, and technology" can be used "to unlock more, cleaner energy for the years ahead." For example, in a brightly coloured remix of the hit pop song Best Day of my Life, Shell brought together music idols from across the world to perform in a video highlighting their partnerships with various

Figure 40: Frame from Shell's music video Best Day of My Life, from their Make The Future campaign.

sustainably-minded energy technology start-ups like Bio-bean, MotionECO, and Insolar.

The idea that innovation and technology were the best tools for solving climate change was powerful enough that key players in the oil and gas industry – including Shell, Total, and BP – collaborated to establish "an ecosystem of innovation" through the OGCI. In a

video advertising the initiative, Total's CEO suggests that "putting our force together, we can bring pragmatic and concrete solutions."

Leave it to the market with a carbon price

Figure 41: Shell CEO Ben van Beurden: government policies + consumer choices = the energy system - From Shell's Twitter feed.

There was wide agreement across the sample that government policy can profoundly impact the investment climate, which in turn drives innovation and deployment. The right policy landscape could seal the fate of coal, enhance the widespread use of natural gas, and encourage the development and deployment of essential new technologies. The wrong policies, on the other hand, could staunch economic growth, stifle innovation, send business elsewhere, and sabotage climate mitigation efforts. A section on ExxonMobil's website titled Sound Climate Policies, warns that "the ability to pioneer and deploy advanced technologies to address the dual energy challenge will depend on whether or not governments adopt sound and effective policies that enable sustained investment, collaboration, and research."

Both ExxonMobil and Chevron advanced a set of principles for sound, effective government policy as a key element of their approach to climate change. These were uniformly aimed at empowering markets to drive solutions and supplementing investment in research and technology where risk is high and returns are low. Key themes were affordability, equitability, neutrality, and simplicity; both Chevron and ExxonMobil

advised governments to carefully weigh the impacts of climate policy on industry and economic growth.

ExxonMobil prescribes six principles for effective policy making that "minimize overall costs to society and allow markets, not regulators, to determine the technologies that will be most successful." These include promoting global participation, letting market prices drive solutions, ensuring GHG emission costs are predictable and uniform, minimizing complexity and administrative costs, ensuring transparency, and building in flexibility for future adjustment. ExxonMobil also declares that "the goal of climate policies should be to reduce the risks of serious impacts to humanity and ecosystems at minimum societal cost, while recognizing other societal priorities, including the importance of abundant reliable and affordable energy to enable improved global living standards."

Chevron prescribes four principles, beginning first and foremost with global engagement. They announce that "GHGs do not recognize sovereign borders," and project that by 2025, emissions from "the broader developing world" will outstrip those of OECD nations by two thirds. They warn that "unilateral action by any country or jurisdiction could result in unintended consequences that could distort markets, reduce competitiveness of trade-exposed industries and undermine intended environmental objectives – without reducing climate

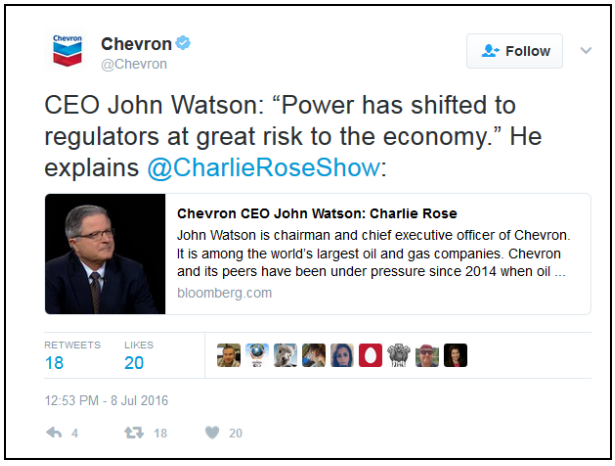

Figure 42: Chevron CEO John Watson on the threat of climate policy to "the economy." - From Chevron's Twitter feed.

change risks to that country or jurisdiction." Second on Chevron's list is a "balanced and measured approach" which considers environmental objectives in the context of their potential economic impacts: "GHG reduction and climate change adaptation objectives must balance the need for economic growth, environmental stewardship, and energy security." This entails, for example, being reasonable about the turnover time of existing infrastructure, ensuring transition costs are equitably shared, and dispensing with large-scale energy subsidies to let the market work. Third on the list is supporting innovation

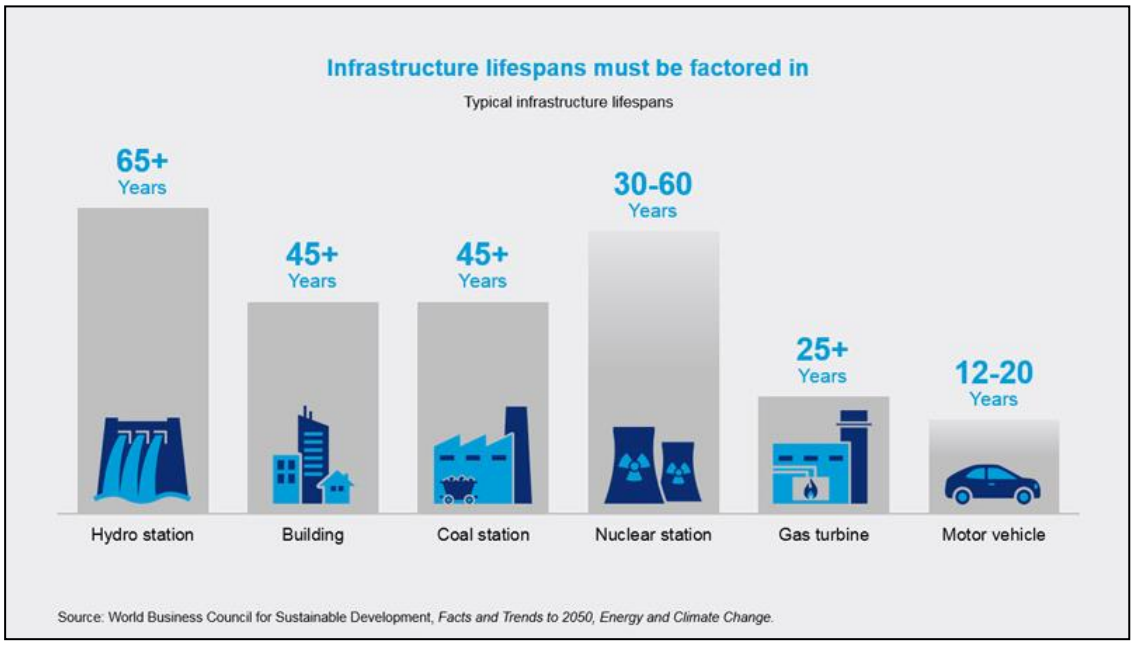

Figure 43: Factoring the "lifespan" of infrastructure into climate policy - From Chevron's website.

and technology, which governments can achieve in two (very specific) ways. First, by reducing regulatory barriers to the widespread deployment of "large-scale, proven, and affordable technologies:" natural gas, energy efficiency, and nuclear power. Second, by enabling innovation in its early, pre-commercial stages, in a "technology neutral" manner that focuses on "cost-effective climate change adaptation measures and breakthroughs needed to deliver affordable, lower-carbon energy solutions that can be adopted globally, at scale, and without subsidies." Chevron also advised that governments should drive

"continued global research on climate science...to further our understanding of the complex relationship between GHG emissions and climate and narrow the uncertainty in predictive models." Last on their list was transparency, which entailed openly communicating the risks and costs of climate mitigation policies to consumers. Overall, Chevron felt that the success of climate policy depends on its ability to manage GHG emissions in "the top emitting countries of the world" equitably, with international coordination.

With those principles in mind, most corporations went a step further to specify the best vehicle for climate change policy. Although some express more enthusiasm than others, every corporation in the sample save Chevron advocated for a globally-consistent carbon price. This ranged from ExxonMobil's lukewarm and heavily qualified endorsement of carbon pricing as the best of the range of policy options on the table, to Shell, BP, and Total's vocal advocacy of carbon pricing as essential to climate mitigation. In ExxonMobil's case McCarron is outspoken about the existing political landscape, which she feels is heavily colonized by laws, policies, and regulations targeting emissions: "this patchwork of policies already represents a hidden and inefficient carbon tax on GHG emissions. A properly designed carbon tax that substitutes for and clears away this thicket of existing emissions regulations would have obvious benefits both for our economy and our effort to minimize climate risks."

Figure 44: Shell's CEO Beurden on carbon pricing - From Shell's Twitter feed.

More congenially, in a move that garnered much press, Shell, BP, and Total signed on to a letter to the Executive Secretary of the UNFCCC and the President of COP21 in support of a carbon pricing framework along with some industry peers. “We need governments across the world to provide us with clear, stable, long-term, ambitious policy frameworks. This would reduce uncertainty and help stimulate investments in the right low carbon technologies and the right resources at the right pace,” they advise. “We believe that a price on carbon should be a key element of these frameworks.” Such a price would provide industry with “a clear roadmap for future investment, a level playing field for all energy sources across geographies and a clear role in securing a more sustainable future.” To that end, they ask to “open direct dialogue with the UN and willing governments,” and provide a resume of qualities they feel make their input essential to creating a policy that will work. Of note is their point on the pragmatism of consulting with business; by first vetting the practicality of policy with the oil and gas industry, governments can ensure it will be implemented.

In much the same vein as Chevron and ExxonMobil's suite of policy prescriptions, carbon pricing was portrayed by Shell, BP, and Total as the fairest, most objective, efficient, and affordable way to address climate change. In a supporting letter to the media, they assert that “market forces will operate to favour the least expensive and most efficient ways of reducing carbon in each country or region.”

Shell’s Chief Climate Change Advisor David Hone writes extensively in support of carbon pricing, with an e-book for download, several blog posts, and a video that walks the public through what it is, why it matters, and what it could look like. “The challenge is to create an economic incentive that controls emissions without limiting the goods and

services that hydrocarbons deliver," Hone explains in the video. "Getting governments to create a price for carbon is the most direct way of changing the existing equation. For example, this approach will stimulate the development of low carbon technologies like carbon capture and storage. Or help lower carbon fuels like natural gas replace higher carbon ones." Hone concludes that "globally connected carbon pricing policies are an essential tool in tackling climate change. They'll kick start a range of measures to shift energy investment worldwide," but cautions that to be truly effective, the price must be globally consistent.

Similarly, BP acknowledges that differing national prices are "a necessary first step" that "should address the impacts of unequal international competition," but supports moving toward a single global price. This is necessary to prevent "carbon leakage," where "energy-intensive industrial activity and investment could just move from one country to a less-regulated part of the world." Total and ExxonMobil made analogous claims.

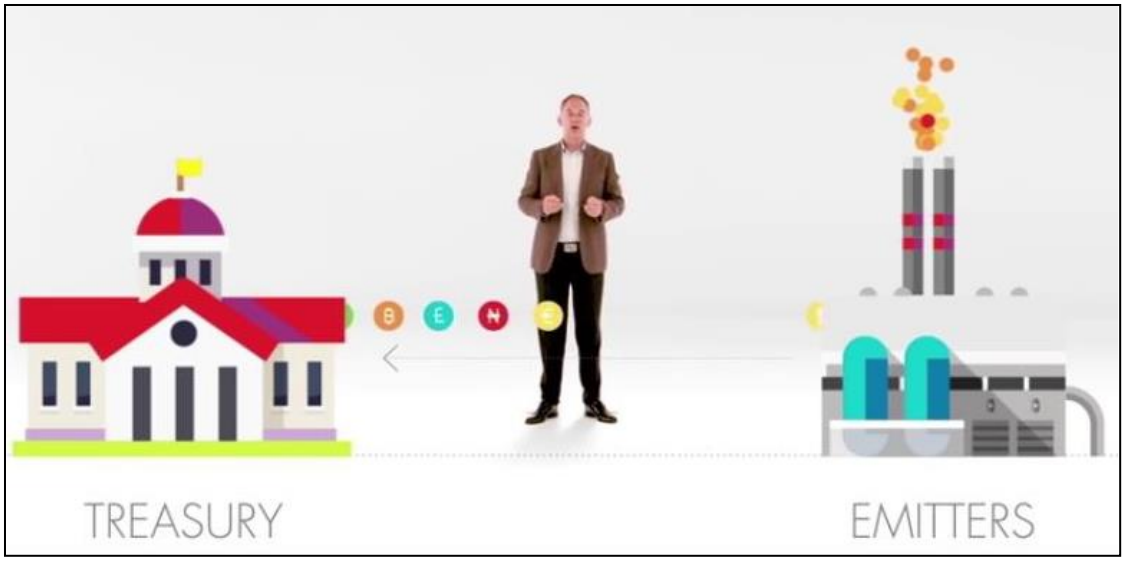

Figure 45: Shell's Chief Climate Change Advisor David Hone explaining that carbon pricing can "create an economic incentive that controls emissions without limiting the goods and services that hydrocarbons deliver" - From Why Carbon Pricing Matters on Shell's YouTube Channel.

Every corporation reported already using a “shadow” or “internal” price to guide investment, and some promoted their endorsement of the U.N. Global Compact’s Business Leadership Criteria of Carbon Pricing initiative, which encourages that practice. Paradoxically, this served both to publicly promote their commitment to addressing climate change and to reassure shareholders that investments would remain viable even in a carbon-restrictive policy landscape. Shell goes so far as to claim that their internal price has yet to prevent project approval (which seems at odds with the U.N. criteria that the price be set high enough to impact investment decisions).

In summary, the sample advanced a compelling, coherent, and largely consistent story about climate change. Although fossil fuel corporations acknowledged that climate change was a real and pressing concern, they presented it as just one dimension of a larger problem: the energy challenge.

The premise of the energy challenge is that the world’s population is rising, global prosperity is booming in industrializing nations, and billions of people still need to be ‘lifted out’ of energy poverty in the developing world, creating an exploding demand for energy. For these reasons, the primary concern of consumers, governments, and industry must be providing more energy – but *better* energy – reliable, affordable, and with fewer emissions. Unfortunately, renewable energies like solar and wind are neither affordable nor reliable, whereas fossil fuels are cheap, abundant, and dependable, the backbone of ‘modern’ economies and integral to the development projects that improve living standards and eradicate poverty. Therefore, fossil fuels must continue to play a critical role in the global economy for the foreseeable future.

Having established increasing demand driven by growing populations and prosperity, the moral obligation to fully supply that demand, and the inevitability of increasing fossil fuel production to do so, corporations in the sample prescribed incremental, market-driven reductions to the carbon intensity of the world's economies to address climate change. In this story, the *real* challenges posed by climate change are *technological* and *economic*: technological innovation to increase efficiency and produce energy or reduce emissions in scalable, profitable ways; tweaking the 'energy mix' to emphasize lower-carbon fossil fuels like natural gas; and providing the necessary market incentives to help these solutions play out efficiently, without undue impact on economic growth or the lifestyles of northwestern consumers.

Narrative Power Analysis

In the previous section I described key themes about *what* fossil fuel corporations in the sample said about climate change; this section examines themes about *how* they said it, the mechanics of their story. The sub-sections move from more descriptive analysis – the characters cast and the futures foreshadowed – to more strategic analysis intended to identify potential vulnerabilities in the way the narrative is structured (framing) and the ideological foundation of those structures (assumptions).

Characters

With the plot of the story laid out, it is worthwhile to scrutinize the characters cast by fossil fuel corporations: responsible energy providers, the world's energy poor, the new middle class, the average consumer, national governments, and anti-oil activists. As Reinsborough and Canning (2010) point out, relatable characters help people see themselves in a story and identify with the values it represents. How do fossil fuel

corporations want us to see them? How do they want us to see ourselves, our fellows, and our governments? Who *isn't* cast – who would they prefer we ignore?

Responsible energy providers

Perhaps unsurprisingly, fossil fuel corporations were the protagonists of their story, proudly bearing the duty to provide the world with more and better energy. The role of responsible energy provider neatly encapsulates a range of presuppositions, from describing their business as *energy* – the fundamental prerequisite for an animated existence – to suggesting both that they *provide* it (rather than enclosing, extracting, and profiting from it) and that they do this in socially, fiscally, and environmentally responsible ways. From lighting our lives, feeding our children, and clothing our bodies, to fuelling industry, creating jobs, and forming the backbone of national economies, as providers of energy they not only enable high-quality modern lifestyles for individuals – they drive progress itself.

As *responsible* providers on a transnational scale, their role involves more than just accomplishing this feat in the safest, cleanest, and most efficient ways. They generously invoked neoliberal mythos with terms and phrases like "progress," "prosperity," "modern life," "development," "lifting people out of poverty," "middle-class boom," and "increasing living standards," characterizing themselves as global citizens on a humanitarian mission to improve lives and create opportunities. They portrayed themselves investing in local communities, educating consumers about the value of energy and its prudent use, improving the lot of the world's energy poor, expanding quality of life for the new global middle class, and protecting the living standards of the average consumer. They also cast themselves as global economic policy advisors with a

clear vision for market-based solutions that dispense with the expensive, redundant bureaucracy of national regulations and standards. Their role included advocating for sound energy policy to safeguard economies while fostering sustainable prosperity.

In addition to this global vision, US-based corporations also strongly asserted their national identity – ExxonMobil and Chevron spoke patriotically about American energy security (for which fracked gas is credited) and their significant contributions to the national economy. Nationalism was an especially strong theme in Chevron's advertising; negotiating the tension between national and global identities, Watson even described Chevron as a force for disseminating US values abroad.

The most prominent faces of responsible energy providers were industry CEOs, scientists, engineers, and technicians, who spoke with authoritative voices from positions of knowledge and expertise that suggested special insight and power. The faces and voices of ExxonMobil, for example, were biochemists, geophysicists, engineers, and other technological magicians, who spoke optimistically about the power of innovation and vigorously showcased nascent research and development projects. In one ad, ExxonMobil scientist Anne Marie Shough takes viewers into a crisp, white lab, confiding that "this is the one place [they] aren't afraid to fail. Some of these experiments may not work, but a few might shape the future…no matter how many tries it takes." The most prominent face and voice of Chevron and Total are their CEOs Watson and Pouyanne, while for BP it is their Chief Economist Dale, all of whom speak with authority and expertise about national policy, the global economy, and the provision of energy. Shell, who had the most prolific web and social media presence in the sample, advanced a diverse mix of television hosts, pop music stars, academics, policy makers, scientists, and

other compelling voices to disseminate their messages. The result was a celebratory tone and cosmopolitan voice that stood out in the sample; but Shell's global vision, expertise, and powerful capacity for innovation remained key themes.

With a few exceptions, corporations in the sample complemented their expert image by adopting a neutral, even-handed tone about climate change. Their frequent use of adjectives such as "thoughtful," "constructive," "sound," "reasonable," "responsible," "practical," "common-sense," and "feasible" situated them as voices of reason on the complex and volatile issue of climate change. This lent their opinions and actions on the matter the semblance of objectivity and judicious wisdom.

In addition to being the protagonists of their story, corporations were often the narrators, speaking most frequently *to* the average consumer (with some content directed to shareholders and investors) but *on behalf of* the new global middle class and the world's energy poor. Although some efforts were made by the sample to suggest diversity – most notably in commercials by ExxonMobil and Shell – their CEOs were universally white and male, along with other prominent messengers constructed as experts or leaders on energy policy and climate change (such as BP's chief economist Dale, or Shell's chief climate change advisor David Hone). This, along with the extreme wealth of their CEOs, undermines the identity of fossil fuel corporations as progressive global citizens and their credibility on matters such as energy poverty in the developing world or the aspirations of the new middle class, which are key pillars of their narrative. More importantly, the groups that are absent from their highest echelons of leadership are those who are suffering the material impacts of the climate crisis – which the sample is silent on – first and worst. The interests represented at those tables, then, are

fundamentally different, as their access to resources for adapting to a changing climate exceeds those of marginalized communities (e.g., safe freedom of movement, police and armed forces protection, priority medical care, etc.) while their lived experiences of climate change are heavily mediated (in sharp contrast to the experiences of indigenous hunters and gatherers, for example, or the women farmers who feed the world and steward its biodiversity).

The World's Energy Poor

Corporations spoke extensively about and on behalf of the world's energy poor, and in Shell's case even used the voices of people in Brazil, Nigeria, and Somalia, creating a spectacle of their living conditions to advertise Shell's corporate citizenship and innovation to consumers in North America and Western Europe. The energy poor were cast as victims of a lack of progress, without reliable electricity and, in some cases, forced to resort to burning unhealthy, unsafe, and inefficient sources of energy like dung, kerosene, or wood. Their role was to live full and productive lives – learning, working, and playing – but to do that, they need access to affordable, reliable, modern sources of energy (fossil fuels).

To reinforce the theme that fossil-fuel-heavy development is integral to industrialization and modernization, which are necessary to raise living standards and lift people out of poverty, images of the world's energy poor focused on the 'developing world.' Absent were scenes of energy poverty from North America or western Europe (e.g., rural and remote populations such as First Nations communities in northern Ontario, or urban homeless populations), where poverty more readily evokes connotations of inequality.

In sharp contrast to the white male faces of powerful responsible energy providers, the faces of the energy poor were black and brown women and children, often working or playing in darkness lit only by innovations sponsored by fossil fuel corporations (such as Shell's kinetic football field or gravity lights, or Total's pay-as-you-go solar lightbulbs).

This outrageous dynamic casts global majority women as the moral imperative for fossil fuel development – the very people who, as the UNFCC (2014) points out, face higher risks and greater burdens from climate change as they are disproportionately poor and reliant on natural resources for their livelihoods, while navigating compound inequalities that exclude their voices from climate-related decision making. Moreover, the construction of these women and their children as passive victims relying on backward energy sources elides their knowledge, expertise, leadership, and the critical roles they play in climate action. Global majority women, for example, "are the primary household energy managers and key actors in the food system," and therefore powerful agents of change in the energy transition and in climate-resilient agriculture (UN Women, 2016).

The New Middle Class

Corporations cast people in rapidly developing nations – most notably China and India – as sympathetic scapegoats for the rising demand at the heart of their story about climate change. The new middle class represented billions of people emerging from poverty on the tide of their industrializing economies. Their role was to achieve their common aspirations – as characterized by fossil fuel corporations, to demand and consume – bringing their potential for a higher quality of life to fruition. Invariably, this involved a

range of products modelled after the lifestyles of the ‘middle class’ in northwestern economies: cars, air conditioning, refrigerators, smart phones.

The Average Consumer

The primary audience for industry messages about climate change were people in northwestern OECD countries, which corporations characterized as the average consumer. While they spoke about the new middle class and the energy poor in the third person, as “them,” corporations often spoke directly to the average consumer as “you,” working to establish a mutual understanding of the importance of fossil fuels.

The faces of the average consumer were frequently white, urban, affluent young adults, portrayed as going about their daily lives unaware of the lengths to which responsible energy providers must go to make that possible. Their needs and dreams were constructed as the source of demand, which must be supplied for them to thrive.

The role of the average consumer involves making small, easy changes to their patterns of consumption that cumulatively impact the carbon intensity of their economies, while getting educated about the key messages of fossil fuel corporations, such as the safety of fracking, the cleanliness of liquid natural gas, and the integral role of responsible energy providers.

Although they weren’t as visible in advertisements, corporations also prescribed roles for national governments (to consult fossil fuel corporations on sound energy policy, collaborate to implement these universally, and promote market-driven solutions) and, in some cases, cast ‘anti-energy activists’ as a small, radical, but well-funded and coordinated group of antagonists in their story on climate change. The absence of images of resistance – e.g., the powerful opposition of Indigenous peoples from courtroom to

pipeline, or public demonstrations against fossil fuels spanning tens of thousands – suggests these are difficult themes to recuperate and corporations would prefer the public ignored them.

Foreshadowing the future

With the plot and cast described, corporations projected the problem, resolution, and the roles they prescribed for various actors into the future. This 'foreshadowing' helps structure the imagination of the reader. How do fossil fuel corporations want us to envision the future, and how we arrive there?

When the sample imagined our energy future, they described clearly the trajectories of different fuel sources and the impact this will have on GHG emissions. They quantified socioeconomic factors such as the world's population (9 billion), evolving living standards (135% increase in income for non-OECD nations and 3 billion newly minted members of the middle class), and the precise global energy needs under those conditions. They even issued clear-cut policy prescriptions to national governments for carving a path to get us there.

In this future, the global majority has unprecedented access to the reliable, affordable, modern energy sources they need to realize their development potential. A thriving global economy creates progress, prosperity, and opportunities worldwide. Meanwhile, OECD nations continue to enjoy stable economic growth, driving technological innovations that improve the efficiency of energy production and consumption, and compensating for the increasing demand by reducing the carbon intensity of their economies. Fossil fuels continue to play a central role in the energy mix well into this century, but future breakthroughs in CCS mitigate much of their impact. Renewable energy gradually

becomes more relevant as innovations in storage and design make it scalable and profitable. In the interim, natural gas use surges to become the mainstay of an orderly, measured transition.

These outcomes, of course, are uncertain – the sample acknowledged many variables, the most prominent of which was government policy. With sound policy that lets the market drive efficient and affordable solutions, we can have our prosperity and lower our emissions too: a win-win. Corporations used qualifications like "where appropriate" and "where technically and economically feasible," and measured verbs such as "avoid," "reduce," "improve," and "move toward" created the impression of momentum without quantifying future commitments in the context of broader political themes like the Paris agreement. In their position statement on climate change, for example, ExxonMobil acknowledges that "the risk of climate change is clear and the risk warrants action," suggesting initiative, but concludes that "there is a broad scientific and policy consensus that action must be taken to further quantify and assess the risks." Even where corporations employed heavier phrases such as "energy transition," "carbon-neutral," or "net-zero," these were carefully qualified. BP, for example, states that "while we cannot be complacent, the world can make an orderly and affordable transition to a low-carbon economy." Shell reports that their New Lens Scenarios "showed that economic growth coupled with near net-zero emissions is a challenging but achievable vision."

Although their tones are mostly upbeat and optimistic, the actual projections of the sample are unilaterally incompatible with limiting warming to 1.5°C. Most corporations acknowledged that their projections were incompatible with the 2°C limit as well. Even the most optimistic scenarios – which most corporations were careful to characterize as

extraordinarily difficult to implement – did not sit comfortably with that goal. For example, the IEA's 450 scenario, embraced by Total to promote their alignment with the 2°C limit, asserts only a 50-50 chance of limiting warming and relies heavily on 'negative-emissions' technologies to get there. Although several corporations invoked the 450 scenario to make the point that fossil fuel use would continue even in a carbon-restricted world, Total was the only one to claim that it informed their strategic planning.

Of the corporations that heavily advertised their visions of the future – ExxonMobil, BP, and Shell – there was a spectrum of optimism about whether we will arrive at a carbon neutral future and how long it will take us to get there. The degree of optimism depended on whether the vision was meant to guide investment. ExxonMobil's Energy Outlook, for example, is explicitly intended for that purpose – their prediction is that, with sound policies, emissions will continue to rise until 2030. BP's Energy Outlook presumes that emissions will increase 13% by 2035 – not what they want to see, Dale explains, but what they feel is likely given the current policy landscape – while their hypothetical "faster" and "even faster" transition pathways (requiring much stricter policy measures) predict 12% and 30% reductions respectively. In short, projections closest to the status quo were constructed as the most realistic and tangible.

Rather than advertising their strategic forecast, Shell promoted what they call Shell Scenarios. Unlike the Energy Outlooks, Shell Scenarios were characterized more as thought experiments than investment tools. In Shell's words, they are intended to imagine "plausible visions of what's ahead" in order to challenge their executive and "allow people to make better choices." Shell reassured readers that despite overwhelming adversity, "net-zero emissions can be envisaged" and offered two pathways to 2100,

"oceans" and "mountains." Neither limit warming below 2°C (despite "major gains in efficiency, substantial deployment of new technologies," and "very high levels of policy action and commitment, far beyond what is seen today"). Shell takes "the most optimistic outcomes described in both scenarios and more" to create a "Goldilocks" pathway – the "accelerated net-zero emissions scenario" – which is short on numbers but suggests that a balance can be struck between emissions and 'sinks' such as CCS and biomass that would allow "an early peak in CO_2 emissions resulting in net zero emissions in the second half of the century." Their supplemental report A Better Life with a Healthy Planet: Pathways to Net Zero Emissions probed this remote possibility.

Figure 46: Shell imagines the future in their "Shell Scenario" for net-zero emissions and their two "New Lenses," Mountains and Oceans - From their website.

Framing the future using this pathway approach accomplishes several feats. First, it establishes a common language and shared premises that guide thinking about the

complex problem of climate change in the face of uncertainty. This structures the imagination of the reader such that the assumptions best serving the oil and gas industry become necessary steps or milestones along the journey. For example, the very slow pace for deploying renewable energy technologies maximizes the return on existing oil and gas infrastructure, which is long-lived and capital intensive, whereas the emphasis on negative emissions technology protects the viability of fossil fuel use both now (we can make up for emissions later) and into the future (CCS will reduce their carbon intensity). Corporations construct the destination: 'net-zero' and 'carbon neutral' are futures that protect the relevance of the oil and gas industry. Corporations also select measures of success. They promoted reductions in the intensity of emissions as meaningful progress even if emissions overall were projected to increase. They projected the percentage share of various energy sources in the overall 'energy mix,' constructing reductions in the relative share of oil or coal as victories even where their production was expected to objectively increase. If we extract and burn more oil, but proportionally increase our use of alternative sources, we have reduced the percentage of oil in the energy mix – but we are still extracting and burning more oil. Likewise, if we replace coal with natural gas but dramatically increase the use of electricity generated in that way, we are reducing the carbon intensity of electricity generation but we are still extracting and burning more natural gas.

Shell is wise to the impact of their framing on the public imagination and climate debate. In their video *The Impact and Influence of Shell's Scenarios,* interviewee Philip Bobbitt claims that scenario planning is about the present rather than the future – in an unpredictable world, these are about decision making today. Dr. Paul Schoemaker

confides that one key role these play is to “create a framework for better dialogue.” “They're not predictions, but rather a vehicle for telling stories,” remarks interviewee Amory Lovins. “But the stories they tell to change the picture of reality in the minds of the leaders reading them are often provocative, fresh; and of course the underlying trick is to choose the axes correctly...once you ask the right questions, the answers become self-evident.” Koosum Kalyan explains that the methodology allowed the government and people of South Africa to “think about the future from the same premise.” Dr. Bjorn Stigson feels that scenario planning is valuable in “complex situations where you need to find a language to talk about things” and claims that “[Shell] has given us a picture, a story about the future world that is highly relevant for our thinking.” And finally, interviewee Pei Minxin confidently explains that, based on the foregone conclusion that living standards are increasing in the developing world and this will exponentially increase demand, “preparing for different futures does not require up-front investment right away – it requires *intellectual preparation*.” By asking the right questions and making the right assumptions, Shell does indeed make certain answers appear self-evident. In the video Shell New Lens Scenarios, Shell asks us: in 2100, “will a fully renewable energy system seem realistic?” and “will natural gas be central to a cleaner energy system?”

A second accomplishment of the pathway framing is the appearance of meaningful engagement on climate change despite the close alignment of actual strategic plans, or 'base cases,' with the status quo. Just by acknowledging the possibility of an 'energy transition' and imagining how that might play out, corporations appear to be agents of that change. Conversely, where their policy prescriptions and ideal conditions aren't met,

corporations can shift culpability to other actors (national governments, a reticent public), having established the course from which we erred. This transforms what might otherwise be considered the ransom demands of an industry under fire into the constructive contributions of a concerned group of citizens whose hands are ultimately tied by the realities of economics and politics. The groundwork for this discursive shift is already laid – corporations in the sample emphasized that they need sound, effective, responsible policy to act effectively on climate change.

A third accomplishment of framing the future is defining the parameters of feasibility. The outcome of COP21 in Paris was the widespread acknowledgement that warming must be kept well below 2°C, and the establishment of a shared commitment to prevent warming over 1.5°C. By providing a spectrum of approaches from more of the same to less of the same, corporations buttress the dangerous illusion that continuing as we have been is a viable (though not ideal) option. By constructing projections that would far overshoot 2°C as progressive, scenarios with only a middling chance of limiting warming to 2°C as scarcely possible, and dispensing with the 1.5°C limit altogether, corporations advance cynicism with optimism. In their futures, the steps that are necessary (e.g., a rapid transition from fossil fuels with the majority of existing reserves left un-extracted) appear impossible, whereas the steps that could be devastating (e.g., increasing the production of fossil fuels) appear necessary and reasonable.

Lastly, corporations frame their futures and the consequences through an economic lens. Lurking outside the margins of that frame are the material realities of climate change, which cannot be reduced to manageable risks. How will the benefits of fossil fuel abundance be realized in the context of a climate-ravaged world? How affordable and

reliable are they when their material impacts are accounted for? The very people vigorously invoked by the oil and gas industry to justify the continued extraction, processing, and sale of fossil fuels as a humanitarian mission will be those most likely to suffer first and worst the impacts of climate change.

A vivid example of this cognitive dissonance appears in ExxonMobil's discussion of managing the physical risks of climate change. In their Energy Outlook, they confidently employ sophisticated modelling techniques to project the future of humanity. They characterize these projections as "credible," quantifying with confidence and clarity. "Our forecast is used as a foundation for the company's business strategies and to help guide multi-billion dollar investment decisions," reports ExxonMobil's VP of Strategic Planning. This conviction in the strategic value of their foresight contrasts markedly with their tone about climate projections, which only offer "limited guidance" on physical risks because their "likelihood, magnitude, or time frame" are difficult to anticipate. Engineering their infrastructure to withstand extreme weather events – in spite of the uncertainty of climate models – is the extent to which ExxonMobil addresses these possibilities. This has the curious effect of giving economic considerations like investment return and portfolio diversity substance and texture while downplaying the significance of irrefutably material crises like "extreme weather, sea-level rise, temperature extremes, and precipitation changes."

Framing

Two important strategies for interrupting the coherence and common sense of a powerful discourse are re-framing and challenging assumptions. Based on the conflict described, the characters cast, and the futures foreshadowed, in this section I've identified

and problematized some of the prominent frames employed by the sample to suggest the interests of the fossil fuel industry are yours and mine, to preserve their relevance and shift the focus of intervention to ‘developing’ economies, to mask the systemic root of climate change and naturalize the project of accumulation at the heart of capitalism, and to reinvent corporations as powerful agents of positive change while circumscribing public agency.

More energy vs. Fewer emissions

Corporations in the sample consistently paired discussion of 'climate change risk' with their assertion that energy production must increase 'to meet global needs.' In this way, the climate crisis is framed as one side of a dual “energy challenge” which presumes there is rising demand that must be met by the oil and gas industry – but responsibly. This heavily structures possible responses, highlighting technologies and approaches that preserve the role of fossil fuels (such as CCS and increased efficiency) and capitalist modes of provisioning, while excluding alternatives to increasing fossil fuel production.

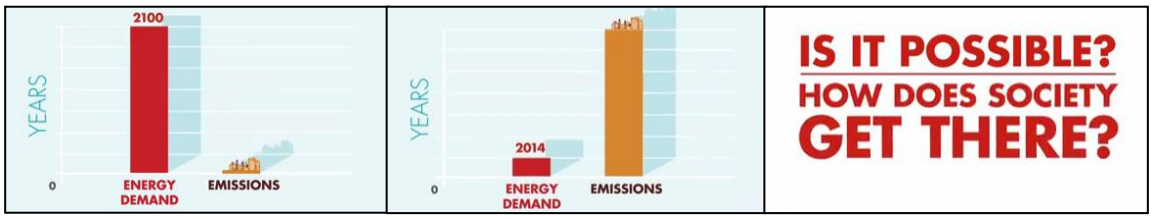

Figure 47: More energy vs. fewer emissions - Still frames from an ad for Shell's free e-book The Colours of Energy

This framing also creates an artificial opposition between human welfare and climate change mitigation that the oil and gas industry then appears poised to resolve with the magic of technological innovation (provided “sound” government policies are in place to let “free markets” work). Corporations stand up for our wellbeing, prioritizing global

energy accessibility and envisioning bountiful prosperity while taking measured, reasonable steps toward addressing GHG emissions.

When climate change is untethered from the dual energy challenge frame, its implications for human welfare come into focus. Rather than being a wellspring of prosperity and opportunity, fossil fuels threaten our safety and wellbeing. Their extraction, processing, and sale – along with the extensive infrastructure that maintains their profitability and centrality to modern life – benefit most that small fraction of people who profit from their private ownership. Through that lens, *it is ExxonMobil's needs – not the needs of the global population and certainly not the needs of the developing world – which conflict with meaningful action to mitigate climate change*.

Alleviating poverty and enabling a thriving, prosperous world are indisputably critical priorities, which is what makes this frame so compelling. But beyond those margins is a wealth of alternatives to capitalist, neoliberal development projects organized to facilitate the accumulation of profit at the expense of those on the wrong side of its metabolic rifts. Outside the pages of the dual energy challenge story stretches a long history of exploitation and mounting inequality, casting doubt on the promise that a flourishing oil and gas industry in an unregulated global energy market will rescue those toiling in darkness and lift billions out of poverty. Climate justice movements around the world are advancing community-led and culturally diverse ways to generate and share energy with fewer emissions, which dispense with the Environment vs. Economy dichotomy that fundamentally structures industry discourse on climate change.

OECD vs. Developing world

Figure 48: "Developing nations will lead gains in GDP and living standards...not coincidentally, also expected to lead the world in energy demand growth" - From ExxonMobil's twitter feed.

When addressing the current and future state of GHG emissions, corporations in the sample organized nations into two broad categories: members of the OECD and 'developing nations' with 'emerging economies.' By contrasting these two groupings, they accomplish two feats: the global majority becomes the climate problem, and OECD nations become the solution. Within this frame, non-OECD populations are growing and their standards of living are evolving. Their economies are expanding and industrializing rapidly. Their GHG emissions are high and will necessarily rise as their economies mature. They need help to meet their needs in responsible ways. They are the key point of intervention for mitigating climate change. On the other hand, OECD populations and their economies are more stable. They have transcended industrialization to arrive at cleaner, technologically advanced economies. Their share of GHG emissions are falling, so the case for regulatory intervention is less compelling.

A different picture emerges when GHG emissions are organized otherwise. For example, calculating emissions per capita reverses this narrative to bring the emissions of OECD nations back into focus. Adding a historical dimension by calculating cumulative emissions paints an even sharper image of inequality. The interdependence of national economies further complicates this tidy division – who is responsible for the industrial

GHG emissions resulting from products manufactured in China but exported to North America, for example? Who is accountable for GHG emissions driven by structural adjustment programs designed to deregulate, reduce public spending, and invite foreign investment – or development policy finance operations that subsidize new fossil fuel infrastructure? Who profits most notably from increasing energy-related GHG emissions in China and India, the two nations highlighted most vigorously in the sample? Lastly, a closer look at the distribution of wealth within nations defies presumptions of homogeneity.

Supply and Demand

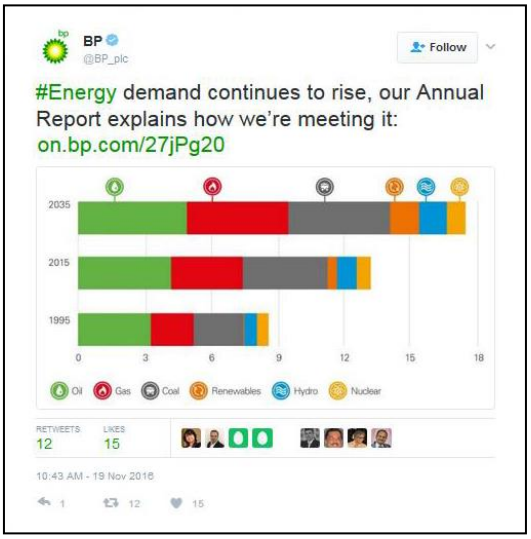

Figure 49: Meeting rising "energy demand" - from BP's Twitter feed

Corporations obscured relations of production under capitalism by framing the extraction, processing, and sale of oil and gas as the natural expression of market relations: 'supply' and 'demand.' Demand comes from consumers and represents the sum of their needs and aspirations. Meeting this demand is essential to ensuring that people survive and thrive, and that nations realize their full potential. A healthy balance between supply and demand enables progress and prosperity, which may be measured by growing GDP. As a key pillar of multiple national economies, oil and gas corporations generate global wealth by astutely forecasting and efficiently supplying demand.

This frame excludes the industry's role in stimulating demand, along with the roles of policy and infrastructure in sustaining it. It constructs consumption as causal, creating a self-justifying cycle. It erases the violence of enclosure and private ownership, portraying oil and gas corporations as benign facilitators of access to energy. Within this frame, the only way to reduce or halt production is by reducing demand – and because demand is the expression of our needs, hopes, and dreams, detractors are characterized as advocating human misery.

The supply and demand frame justifies the impact of industry with the needs and aspirations of individuals. When we create campaigns to shame insatiable consumers or shock the northwestern world into rejecting a consumer culture, we risk adopting and reinforcing this frame, priming the public for competing narratives of industry that promise technology and markets will transform scarcity into abundance, while mitigating ecological impacts. If climate change is a problem of demand, industry is well-suited to solve it, by creating better products in better ways and educating us to consume these responsibly. By shifting the terrain from neoclassical economics to political economy, we can instead foreground the oil and gas industry's part in creating and sustaining a system for accumulating profit, not providing for people.

Corporations as citizens, citizens as consumers

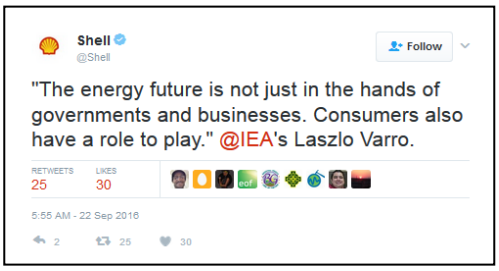

Figure 50: Consumers have a role in the "energy future" - from Shell's Twitter feed.

Corporations framed their own roles in addressing climate change with a sweeping scope – setting the agenda for global energy policy, fuelling progress in the developing world, innovating the energy technologies of the future,

and dramatically improving the efficiency of the global economy. In contrast, the role of the public in addressing climate change was framed by the sharply circumscribed identity of 'consumer.' This entailed making responsible purchasing choices and taking modest, individualized steps like turning down the thermostat when company is coming or using a convection oven. These two roles were often juxtaposed, constructing a blunt differential of power and knowledge.

Figure 51: ExxonMobil's to-do list - still frames from an ad in their Energy Lives Here campaign.

To illustrate, in an ad titled Enabling Everyday Life, one such consumer is shown gazing absently out her apartment window as she cooks an egg, blissfully unaware of the extraordinary lengths to which ExxonMobil goes to make that possible. A voiceover explains: “You don’t have to think about the energy that makes our lives possible, because we do. We are ExxonMobil, and powering the world responsibly is our job.” In Lights Across America, emotive piano music accompanies scenes of everyday people turning on lights in the dark – from a lighthouse to an office to a mother turning on a nightlight for her sleeping infant. The voiceover assures us that although we may not even think about the energy that lights up our

world, ExxonMobil does, and they are “helping to dramatically reduce America’s emissions” while they're at it. While ExxonMobil powers global progress and innovates our energy future, consumers address climate change by being informed and making smart purchasing choices. Corporations help them meet their needs in responsible and sustainable ways both by creating more efficient products for them to consume and by educating them on how they can change their habits to reduce their impact. Consumers need not concern themselves too much with the complexities of responsible energy provision, which the oil and gas industry has well in hand.

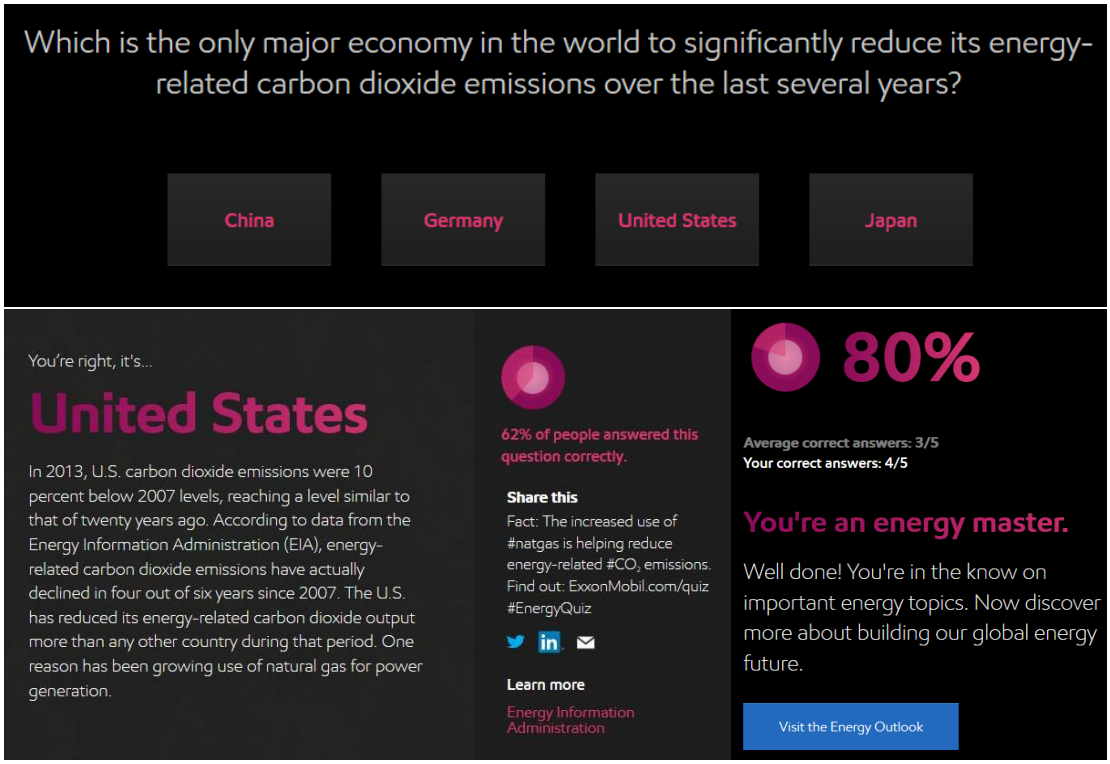

Figure 52: ExxonMobil's Energy Quiz - from their website

The most political act elaborated in the sample for consumers is getting educated about energy and climate change – and corporations in the sample were keen educators. They advertised quizzes to help consumers become energy and climate change savvy, which were in themselves advertisements, dispensing key messages from corporate campaigns

and scoring readers on their absorption. Infographics, gifs, and videos promised to clear up common misconceptions about fossil fuels, provide facts about energy and climate change, and help consumers understand the industry's 'credible projections.' Lengthy articles and interactive reports took consumers on a tour of the sample's powerful contributions to the energy challenge and their 'plausible visions' of the future.

This power dynamic was most stark where corporations framed statements about the potential impact of a given project on emissions, as they used a common syntax. First, reductions or prevention of vast sums of CO_2 – expressed in tons – were advanced, followed by a rough equivalence of cars or homes. For example, ExxonMobil claims that a new molecular technology called organic solvent reverse osmosis "could help reduce industry's annual global carbon emissions by 45 million tons – that's the same carbon footprint as 5 million homes." This equivalence has two important consequences for the reader: first, it evokes a sense of vast power and influence, giving the impression of action on a massive scale. Second, it dwarfs the reader's own agency by employing units at their personal level of impact.

Collective action by the public and actions unmediated by consumption are excluded by this framing. The resulting narrative is depoliticizing and disempowering for citizens, but re-purposes everyday necessities of doing business – such as improving the efficiency of operations to reduce costs and innovating new or improved products to increase their competitiveness or gain market share – into humanitarian missions or phenomenal efforts to mitigate climate change. It leverages the immensely destructive impact of multi-national oil and gas corporations to project relatively modest adjustments to the status quo as remarkable interventions or powerful progress.

Outside this frame is a groundswell of public engagement and action on climate change. Vibrantly political and socially conscious, this diverse movement has mobilized worldwide and continues to gain momentum. The spectrum of solutions advanced and futures prefigured has long and far outgrown the reductive consumer/consumption frame and persistently calls into question the expansive corporate citizen identity.

Although collective public action to address climate change wasn't a solution advanced in the sample narrative, some corporations did address it as a problem. Wherever corporations did address public action, such as shareholder resolutions to force more ambitious climate action or divestment movements encouraging a mass exodus from fossil fuel investment, a curious reversal occurred in the power dynamic. In their discussion about the #ExxonKnew actions, for example, ExxonMobil characterized public intervenors as activists and emphasized their power and cooperation, suggesting a well-funded special interest group of "class action lawyers, extreme environmental activists, and certain politicians" deployed a coordinated "public relations campaign replete with graphics, website, and paid social media support." ExxonMobil concludes that these kinds of actions threaten free speech and distract from the real solution to climate change – innovation. Here the public becomes the powerful force, albeit radical and misguided.

Figure 53: The "coordinated attack on ExxonMobil" - from their Twitter feed.

Underlying Assumptions

Underpinning the oil and gas industry's narrative on climate change are a series of unstated assumptions about human welfare – our needs and aspirations – and economic activity. Although they are unacknowledged, they are critical to the intelligibility of the discourse and, therefore, important points of intervention for the climate movement. In this section I've identified some of these so they can be challenged – not only in this story of climate change, but also in other discourses advanced by the transnational capitalist class, and – most pressingly – in the stories climate movements tell to build purpose and mobilize the broader public.

Economic growth yields progress which improves human welfare

This assumption that the size of a national economy – measured by the flow of its industrial capital, indexed as GDP – strongly determines the welfare of its citizens is nearly ubiquitous. This is the ideological bedrock of globalizing corporate capitalism, a powerful mythos that justifies industrial expansion at any cost. If we want to be healthy, happy, wealthy, and safe – if we want to realize our full potential and live our best possible lives – we must do whatever it takes to ensure economic growth.

Corporations in the sample implicitly invoke this mythos to tell their story of climate change. It is a premise fundamental to the coherence of both their corporate identities and their strategic directions. In the About section of their social media pages, for example, ExxonMobil writes: "the energy we provide helps growing economies and improves living standards around the world." The energy = economic growth = prosperity equation cements their role as a protagonist of global energy provision and projects that role into the foreseeable future.

It also disarms both public criticism and policy intervention. For example, in a brief but telling critique of Bill McKibben's new book, McCarron takes aim at the notion of "a controlled decline" of the economy: "We disagree, and strongly. Our vision of economic growth, societal progress, and improving living standards for billions of people clashes with ideals of controlled decline and no growth." Corporations in the sample frequently cautioned against policy interventions or public action which may staunch economic growth. The implications are clear: if GDP growth creates social progress and improves living standards, then stasis or even decline must represent human misery.

More broadly, this mythos helps center corporate profit under the guise of progress while marginalizing the very real impacts of climate change on human welfare. Corporations invoked the promise of prosperity for all, just around the corner – and the urgency of global poverty and inequality – to justify expanding the production of fossil fuels. If the growth of capitalist economies doesn't make lives better, why should we endure catastrophic climate change to protect it?

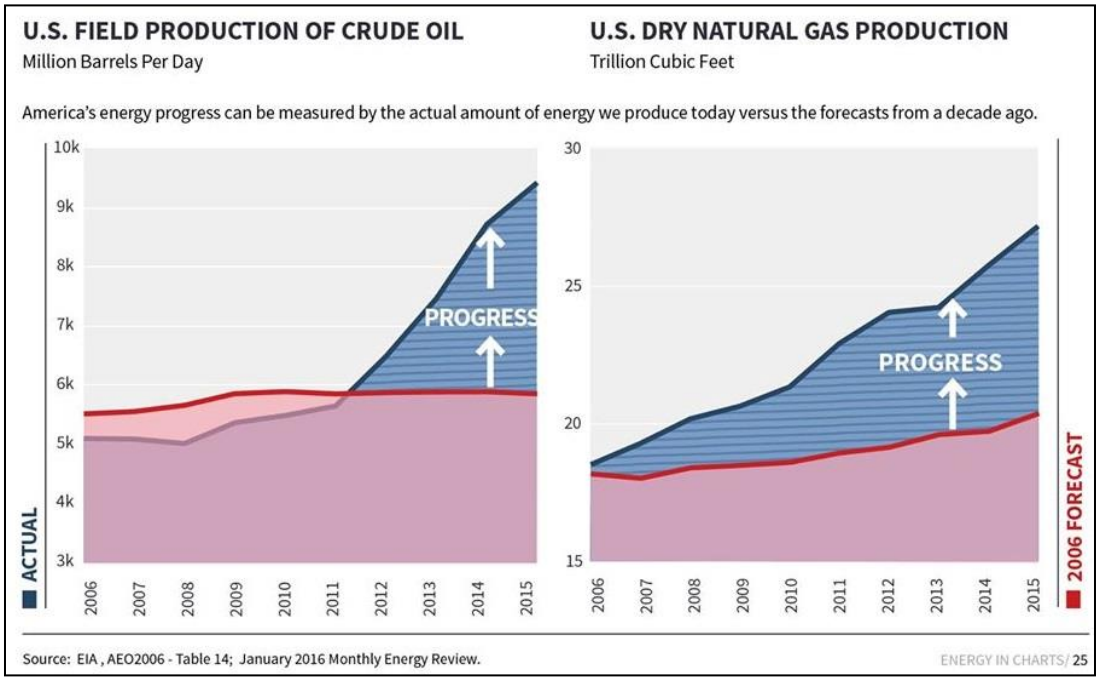

Figure 54: "Energy progress" = amount of fossil fuel produced - a graph from Chevron's website.

The presumption that GDP indicates human welfare, social progress, and even material prosperity has been powerfully interrogated. More accurately, GDP measures the degree to which economic activity has been funnelled through markets. It counts production for profit as wealth, but omits the externalities that make it possible. Rather than accounting for the actual distribution of that wealth, it is aggregated and divided equally across populations to approximate living standards. Para-market and non-monetary interactions – which play a significant role in our ability to survive and thrive, despite the increasing penetration of capitalist relations of production – remain unaccounted for.

Challenging this assumption interrupts a vital support structure in the corporate narrative. For example, the narrative frequently cites economic and population growth in China and India – projecting a massive exodus from poverty to middle class consumption as incomes rise in both nations – to justify increasing the production of oil and gas on humanitarian grounds. But according to a 2016 white paper by the International Monetary Fund, despite prodigious, often double digit GDP growth over the last 30 years, China has both the highest and the fastest-growing level of inequality in Asia. India has the third highest, and has also experienced a marked increase. Are the rising GHG emissions in China truly driven by "people….making their way out of poverty…to lead richer, healthier, and more productive lives marked by improved education and broader opportunities," and their expectations to "gain access to air-conditioned homes, cars, and appliances like refrigerators, dishwashers, and smartphones?" Who has been the key beneficiary of growth? While using fossil fuels to drive global economic growth is sure to be profitable for the oil and gas industry, their vision of prosperity for all depends on the conviction that growing economies are good for everyone.

National economies develop to maturity along a consistent, linear path

The assumption that economies progress through developmental stages from primitive to modern is firmly embedded in neoliberal discourse. From the 'linear stages of growth' model to the Washington Consensus, this premise has multiple permutations, each of which situates the histories of capitalist economies in the global northwest as the map that charts the correct course for the rest of the world. These economies are the ideal state – modern – to which all others presumably aspire. Shell perfectly articulates this position as a self-evident fact in A Better Life with a Healthy Planet: "the economic 'growth escalator' that the US has been on for over a century is the common aspiration of most, if not all, emerging and developing economies."

In environmental circles this mythos manifests most clearly in ecological modernization discourse (see, for example, Spaargaren and Mol, 1992; Huber, 2000; or Mol and Sonnefeld, 2000). Through that lens, economies must industrialize to become modern, at which point they will transcend the material trappings of manufacturing to arrive at an environmentally sustainable service economy propelled primarily by knowledge and capital rather than natural resources. Known as the dematerialization hypothesis, this assertion is often illustrated by the Environmental Kuznet Curve, which proposes rising ecological degradation up to a certain point of development, when those levels fall naturally as a matter of course.

Development and modernization themes are prevalent throughout the sample, and for good reason – they are fundamental to two central elements of the oil and gas discourse on climate change. First, this mythos must be invoked to construct the humanitarian appeal of fossil fuels. If energy poverty among the global majority is caused by a lack of development, and industrialization is a necessary step in this process, then it follows that

development is an urgent project for which blowing our GHG emissions 'budget' might be justified. Second, by constructing national economies as individual entities with pre-determined destinies, opportunities for accumulating profit are 'locked in' – the fuels that were used to establish ‘modern lifestyles’ in OECD nations appear necessary to drive development at the speed and on the scale necessary to bring emerging economies to fruition. This has the effect of both justifying the cumulative emissions of OECD nations and projecting those onto the global majority as the currency of progress. Third, this naturalizes capitalism as the mechanism for development, legitimizing its global expansion as the engine of economic growth[23].

An important criticism of this view is that it obscures the exploitative, global rift-shifting required to give OECD economies the semblance of dematerialization, as pollution-intensive industry is relocated elsewhere but consumption continues increasing. When developing countries have developed, and emerging economies have emerged, who will manufacture the barrage of cars, air conditioners, smartphones, and dishwashers integral to the corporate construction of ‘modern life?’ Who will accommodate the waste?

Interrogating this assumption is essential to imagining alternatives. If we reproduce the status quo in OECD nations worldwide, we cannot expect to change the trajectory of the future – and right now, that future most fundamentally threatens the lives and wellbeing of marginalized and vulnerable communities across the globe.

[23] Thank you to Dr. Kara Shaw for this insight!

Unfettered markets generate fair, effective, and efficient solutions

This theoretical assumption hails from classical economics, which holds that, under ideal conditions, supply and demand will naturally reach the equilibrium that most efficiently produces and allocates resources, resulting in the maximum possible public good. Markets harmonize production with consumer desire, and competition within them drives both efficiency and innovation by making profitability contingent on continually increasing productivity. The appeal is powerful, because a system seemingly autonomous from the self-interest of individuals transforms what might otherwise represent conflict into progress.

This mythos structures the solutions advanced by corporations in the sample, from the role of national governments to the power of innovation. Increasing the efficiency of existing processes and products and innovating new technologies are, in the oil and gas industry's view, the only humane and feasible ways to mitigate and adapt to climate change. But mobilizing the resources to develop and deploy these is contingent on the freedom of the market – poorly designed policy interventions can interrupt this process, stifling investment and innovation. Therefore, corporations advocated for 'sound' policies that allow markets to efficiently select the solutions that best balance public and private interest.

There is a wealth of criticism about the validity of this theoretical economic construct to real life (including the absence of ideal conditions implied by the transnational corporate monopolies, profoundly disparate information access, and the heterogeneous agency that characterizes capitalist markets). There is also compelling evidence – such as the 2008 financial crisis – that the kind of deregulated, laissez-faire approach advocated by the sample generates social harm rather than social good. There is an important

difference between pursuing innovation and efficiency to increase profit, and pursuing innovation and efficiency to address climate change, despite the oil and gas industry's careful conflation: chiefly that improvement in pursuit of the former creates space for increasing production, which negates its environmental benefits.

There are no feasible alternatives to the status quo

A central assertion across the sample is that the oil and gas industry can 'responsibly' extract, process, and sell fossil fuels – and, in fact, they must. The public is invited to take for granted that demand will increase, and it must be supplied, so the key question becomes how to do so sustainably. With the right policy landscape, corporations assure us they can generate innovative technologies that will mitigate perpetually increasing demand by indefinitely increasing efficiency. Any other approach is at best, misguided; at worst, morally reprehensible.

Given their history, the idea that fossil fuels can be 'responsibly' produced at all is suspect. But if demand must increase and must be supplied, there is no other way. The assumption sustaining the oil and gas industry's narrative on climate change is that the only possible approach to the ecological crises wrought by capitalist accumulation is to drive its frontiers forward – liberate markets, 'develop' the world in its image, and continually increase productivity. This approach may have served to obfuscate the systemic roots of more localized crises, but the metabolic rift represented by climate change is not so easily shifted. In a globalizing world, we know better.

Discourse Practice Analysis

In the previous section I examined themes about how corporations constructed their story about climate change; in this section I examine how they shared it, because the way

messages are organized and the format in which they are presented also contribute to their meaning. Each type of media included in the sample – websites, Twitter and Facebook feeds, and commercials – structures messages differently based on its conventions and limitations. Corporations applied different strategies for each media, leveraging their strengths and mitigating their limitations by linking (wherever possible) to additional media. They presented the same messages about climate change in many different ways – this ensured accessibility, promoted engagement from the broadest possible audience, and reinforced the messages as commonly understood facts.

Websites

Each corporation in the sample has a global, or corporate, website on which they outlined their positions on climate change, their actions to address it, and their vision of the future.

A main page on climate change acted as a hub, arranging key messages that linked to supporting information in a series of layers. These tended to present information like an interactive textbook, with an authoritative, educational tone and information organized thematically under headings, sub-headings, and call-out boxes. The location of the climate page differed on each site: ExxonMobil located theirs under a Current Issues tab with other politically volatile headings such as “Arctic,” “Hydraulic Fracturing,” and “US Tax Policy” rather than under their Environment tab. BP and Shell located climate change under Sustainability, with other environmentally and socially themed pages, while Total and Chevron placed theirs under Our Commitment and Corporate Responsibility along with broader corporate citizenship themes. Despite the variety of placement, every corporation gave climate change its own site distinct from other environmental issues,

suggesting a widespread acknowledgement of its prominence in the consciousness of the public and on the agenda of policy-makers.

Some had a broader web presence than others, and featured climate change messaging in a range of styles to maximize engagement. Both Shell and ExxonMobil had news-styled sites (Inside Energy and Energy Factor, respectively) – here key messages about climate change were offered up as news stories in a journalistic tone. Executive blogs provided a platform for more politically fraught messaging, such as opinion pieces on the state of emissions regulation or rebuttals of negative news coverage. ExxonMobil carved out some real estate on their corporate page for an Energy Quiz that presented key messages as facts, posed them as questions, and scored the reader on their energy savviness. Multimedia sections transcended the standard news-release style of engaging media, in some cases presenting entire advertising campaigns. And for the three corporations that produced their own future projections – BP, Shell, and ExxonMobil – videos, infographics, charts, case studies, supplemental reports, and other mediums helped make otherwise dense and complex information easily digestible.

Social Media

What is special about social media vis-a-vis conventional print or television advertising is that it can be structured more like a conversation; it is much more versatile as a voice, and the speaker can be much more prolific. There is total freedom in terms of what is posted and its context (whereas in a magazine, there is limited and costly control over other adverts or articles that may encroach on the messages). And unlike an expensive run of print ads, messaging on social media can be quickly and easily removed or altered should it backfire – provided nobody documents it in the interim.

There was a range of comfort with social media in the sample, but the more prolific corporations sometimes tweeted multiple times per day, nimbly targeting their messages to harness the momentum of high-profile public events like COP21, or responding directly to public criticism as it evolved. They made effective use of #hashtags, which streamline searching on Twitter and Facebook to link posts platform-wide by topic. Many engaged the public in real time on Facebook – Shell, for example, responded to comments even when they were antagonistic and provided helpful links to other content.

Twitter and Facebook both served as amplifying platforms for other content – commercials, articles, blog posts, op-eds, and interviews were posted and re-posted to maximize exposure. But corporations also created content unique to those forums, such as short videos with large-font text to grab the attention of someone scrolling through their news feed, .gifs that visually summarized key climate messaging, live webcasts of events, recurring contests, and graphics that added interest or context to slogans.

Another benefit of social media is the ability to curate messages from a wide range of external sources, creating a community of concurrent voices – an echo chamber – and corporations in the sample took full advantage. They shared posts from industry groups like the US Chamber of Commerce and the American Petroleum Institute, and supporting stories from conservative news sources like the Wall Street Journal, Reuters, and Washington Post.

Commercials

Commercials alluding to climate change in the sample tended to focus on communicating the integral role fossil fuels – and the corporations improving their efficiency – play in our lives. Chevron's "Doers" campaign highlights seemingly

unrelated lives and accomplishments, concluding in each case that doers need energy for doing what doers do. Total takes the viewer on a whirlwind tour of people committed to, and impacted by, "better energy." Shell takes us into the lives of people they impact, like young Brazilian brothers that can fly their kite in clear blue skies thanks to a new factory fuel oil that emits less soot when burned.

Commercials also showcased innovative research or technologies and their potential impact on emissions. These employed imagery and metaphor to help make complicated ideas accessible and intimidating technologies benign, like ExxonMobil's ad portraying CCS technology as a pillowcase for containing feathers (CO_2 molecules) which would otherwise be difficult to catch. Labs, scientists, engineers, and technicians put a human face on this work (and the corporations they represented).

Much like their websites and social media, corporations with a broad public presence were creative with the medium, pushing the boundaries of traditional advertising. Shell's YouTube page, for example, hosts a series of short episodes called Reverse Engineers where three television personalities are tasked with guessing the use for technologies featured in Shell's #MakeTheFuture campaign. Documentaries, executive vlogs, and coverage of events like their Eco-Marathon make for a robust experience that communicates key messages about climate change in myriad engaging ways.

Inter-textual Elements

Figure 55: ExxonMobil tweets in response to #ExxonKnew

Corporations in the sample advertised in dialogue with high-profile political events in 2016, such as COP21. They also responded on their own terms to

criticism and public action, such as lawsuits, collective shareholder resolutions, and divestment movements. They also extensively cited industry partnerships and initiatives, situating themselves in relation to their industry peers and alluding to a community of like-minded business leaders cooperating to address climate change. The OGCI, Carbon Pricing Leadership Coalition, Climate and Clean Air Coalition, and various flaring-reduction partnerships featured prominently in the sample.

Figure 56: BP tweets about the OCCI

By far the most important inter-textual insight in the sample, however, was the outstanding level of concurrence between corporations in their messaging about climate change – in many cases close to verbatim. This homogeneity suggests a high degree of coordination and consensus-building between corporations in the sample, a well-developed sense of shared interests, a political consciousness, and a common agenda.

But for the reader, this congruence across what are culturally considered 'enemy lines' might portend something else altogether. Much as the repetition of key messages across the ocean of styles and media contributes to their appearance of 'facticity,' the ubiquity of these messages (and their underlying assumptions) contributes to their acceptance as common sense.

If one corporation has a disproportionately powerful voice in the auditorium of popular media, an industry singing from the same song sheet – and responding in sync to social and political currents – could be deafening. A critical first step toward imagining

alternatives is identifying and confronting its echoes: in mainstream media, political and public discourse, and within the climate movement itself. How do these themes, clearly and powerfully articulated by a well-organized corporate class, help shape the questions we ask about climate change? How do they shape the futures we believe are possible?

Conclusions

Fossil fuel corporations attributed climate change to increasing greenhouse gas emissions – primarily CO_2 – which they in turn ascribe to rising populations, increasing demand and consumption, and industrialization in developing economies. As we have seen, these familiar attributions preclude meaningful action on climate change by mystifying the metabolic disorder that drives ecological crises, orienting the public instead toward measures that sustain the status quo. They prime the climate debate for oppositional politics that compromise solidarity – quality of life versus the environment, OECD economies versus the global majority – conflating profit with prosperity in a sleight of hand that positions fossil fuel corporations on the side of human welfare and social justice.

They also structure which responses to climate change seem reasonable or possible, privileging approaches corporations are poised to implement while forestalling public or government intervention that might impact profit (such as moratoriums on new fossil fuel development, eliminating fossil fuel industry subsidies, or driving community led, localized energy solutions such as renewable energy micro-grids). Unsurprisingly, corporations were united in their support for market-driven approaches that preserved the central role of fossil fuels by, for example, shifting capital's rift from coal to natural gas. They protected their ownership of the means of production by emphasizing complex and

capital-intensive technological innovations and centralized models of energy provision, with scalability and profitability as pre-requisites for practical solutions.

Fossil fuel corporations cast themselves as the protagonists of their energy challenge, using voices and images from the global majority to construct a moral imperative for oil and gas expansion and a scapegoat for increasing emissions that redirected intervention and structured it in the image of capital. They cast the public according to their purchasing power, dividing them along the linear path of progress in market-mediated roles – from potential consumers still suffering energy poverty, to the 'average' consumer in northwestern economies, with new consumers in India and China between the two, emerging from one and aspiring to the other. Where these caricatures depart from the lived experiences of the people they describe, or replicate patterns of oppression and exploitation that have long characterized social relations under capitalism, they undermine the credibility of the story.

The sample also liberally employed foreshadowing to structure the futures we imagine are plausible or possible, advancing a common language and shared premises that guide public thinking and discourse about climate change in their interests, and applying a risk management lens that downplays the material impact of climate change while foregrounding the economic impacts of mitigation. To meet critical climate commitments that fossil fuel corporations are busy dismissing (such as limiting warming to 1.5°C) we will need stories that foreshadow alternatives and reject the language, premises, and lenses of capital.

Another way to undermine this story is by identifying and problematizing frames, which set the terms for how a narrative is understood. The sample framed climate change

as an energy problem where production needed to increase, while emissions needed to decrease; framed progress in the developing world as the driver of increasing emissions, while constructing the OECD as the solution to which other economies should aspire; framed the project of capital accumulation and its supporting relations as a consumer-driven relationship of supply and demand; and framed corporations as powerful agents of change while reducing public agency to market-mediated consumption. By stepping outside of these frames – for example, by making visible the structures and relations of capital, or by highlighting the powerful agency of public actors – we can interrupt the coherence of the narrative and inoculate ourselves and our fellows.

Finally, by engaging with messages from fossil fuel corporations as a discourse, we can identify underlying assumptions and challenge the common sense character that sustains them. These are an important point of intervention for climate movements, both for engaging corporate narratives and for constructing our own. To believe this story, we must take for granted that economic growth yields human welfare, development happens along a consistent, linear path, unfettered markets generate fair and efficient solutions, and – most importantly – that there are no feasible alternatives to the status quo.

Corporations disseminated these messages broadly, in multiple forums using a variety of mediums, ensuring accessibility, promoting widespread engagement, and reinforcing them as commonly understood facts. They nimbly dialogued with social and political currents (and even, in some cases, individual commenters) and spoke with a common language and agenda. Confronting this narrative, then, is an essential task for climate movements.

More surreptitiously, this story performs a hegemonic function for the transnational capitalist class, attempting to re-negotiate the legitimacy of capitalism as the common-sense worldview in the face of a metabolic rift – climate change – which cannot easily be shifted. As urgency grows and calls for more research and certainty wear thin, capital must re-situate and justify its logic to continue structuring our changing metabolism in its interests. By intervening in discourse in ways that challenge capitalist hegemony, rather than reinforcing it, we can build solidarity and create space for imagining meaningful alternatives.

Chapter 4: Conclusion

"For the master's tools will never dismantle the master's house. They may allow us temporarily to beat him at his own game, but they will never enable us to bring about genuine change" (Audre Lorde, 1983).

"Simply making this threat widely known will not create a social movement broad and deep enough to prevent [it] and open up a path for the end of the rule of capital. The best science should inform our politics, but a political strategy and practice must energize a movement sufficient to overcome obstacles [to] preventing catastrophic climate change" (Schwartzman, 2009).

As Audre Lorde advanced in 1983, we cannot transform a system using the logic on which it has been founded and expect to meaningfully change its outcome. Just as patriarchal tools cannot dismantle patriarchy, confronting climate change through the emerald lens of capitalism merely sustains the metabolic disorder driving climate change in the first place. If an ecosystem created to maximize and accumulate profit isn't in the best interests of the vast majority of life on Earth, we can mobilize our extraordinary creativity and our rich diversity of experience and knowledge in deliberate pursuit of a new metabolic order within which life mutually thrives. But imagining alternatives isn't a straightforward project – raising awareness about the root cause of climate change is only a first step into a complex struggle for hearts and minds in which the TCC is deliberately and emphatically engaged. Identifying and dismantling their discourse on climate change is an important task for both environmental activists and political ecologists.

With that conviction, in this project I have used critical discourse analysis to explore what 5 major transnational fossil fuel corporations want the public to know about climate change, and to consider what ideological barriers those messages might create to imagining post-capitalist alternatives. The consistency of messaging about the key actors, sources, and resolutions of climate change – across different media and between

corporations – suggests common interests and a shared, cohesive strategy for defending them. The political character of their messaging goes beyond conventional understandings of greenwashing to structure engagement with the climate debate itself, articulating a coherent discourse in which the climate crisis and its terrible costs to our lives and wellbeing are reframed into one half of an energy paradox that demands we double down on fossil fuel production. Corporations stepped well beyond 'selling' their fossil fuel brand, ultimately telling the public a compelling and widely accessible story about what is causing climate change and what must be done to address it – with well-defined roles for industry, governments, and consumers. Most powerfully, they painted visions of 'our energy future' and laid 'pathways' for us to follow to their destination.

In the face of the chaos and uncertainty that a terrible crisis like climate change portends, their clear, ubiquitous explanations and prescriptions – offered with the technical authority of scientists and engineers, the moral authority of the energy poor, and the social authority of 'everyday' people living their lives – present a formidable challenge for alternative narratives. The story that fossil fuel corporations are telling about climate change repackages dearly held values central to catalyzing action – social justice, ecological welfare, the quality of our lives and our aspirations for the future – mapping them onto an architecture that sustains profit under the familiar guise of progress.

On the other hand, between the lines of their story rest some fundamental assumptions that have been powerfully interrogated and perennially challenged by change agents worldwide. The promises of prosperity, equitability, and efficiency under capitalism have never fully materialized – *we've already heard this story*. Although this discourse was

about climate change, it was constructed using frames and rooted in mythos that have structured other hegemonic projects to justify and legitimize the interests of capital in the face of public resistance. Consider, for example, how similar stories about a globalized industrial agri-food system – characterized as the only reasonable way to fulfil our moral duty to "feed the world" in the face of growing populations and the "inefficiency" of small-scale, local farms – have been robustly challenged by feminist scholars and activists worldwide (McMahon, 2002).

From a critical distance, these messages and their sophisticated presentation vigorously support the interests of fossil fuel corporations, and in doing so serve a recuperating function for the broader hegemonic project of capital as it negotiates the risks of climate change. As that process plays out, and capital must publically shift its repertoire of stories in an attempt to assimilate resistance sparked by the climate crisis, those same messages present a valuable strategic opportunity. In Tetzlaff's words:

> The fact that cultural contestations are frequently recuperated or otherwise stacked in the favour of capital is no reason to cease struggle altogether…we must choose our struggles wisely, with an eye toward their systemic effects not just their local ones. As such we must constantly look for ways to get around the rules for struggle capitalism has provided. We must learn to cheat the system, and to re-appropriate the recuperated (1991:31).

To that end, the discourse portrait I've sketched in Chapter 3 is intended as a launching point for critical analysis and counter-hegemonic praxis. It's meant to be a 'snapshot' of the dynamic process of discourse in action, from which (as the bird-watcher consults their field guide) researchers and activists might identify how its permutations have infiltrated our political and cultural lives to take root in our identities, agendas, and stories – so

those identities, agendas, and stories cannot be mobilized to maintain the very system we must change.

The Battle of the Story in our War of Position

With the great urgency and high stakes of climate change, the time for a movement of movements is *now*. This calls for a shift in strategy that was thoughtfully anticipated by Gramsci in what he named the "war of position" – the long, complex, participatory struggles over meaning through which cultural hegemony is established and maintained. If we're to overcome the hegemony of capital, we need to put down the master's tools, and generate our own. To make the radical transformations necessary to mitigate climate change before we become an irritating footnote in the Earth's grand history, we need stories that:

(a) Peel back the hegemonic narratives of the transnational capitalist class to reveal the metabolic disorder of capitalism,

(b) Link that disorder with the suffering it causes and the interests it serves, and

(c) Imagine alternatives that reject capitalist social relations and modes of provisioning in favour of social metabolisms that support a healthy, just, and thriving world.

To accomplish this, we can start with the "Battle of the Story," as Reinsborough and Canning have named it: first by understanding the narrative landscape on which we are struggling (including the positions of various groups of actors, the terrain of culture and media, and the messages that are characterizing and justifying business as usual) and then by negotiating counter-hegemonic narratives that deliberately and genuinely transform that landscape. With regard to the story of climate change told by fossil fuel corporations,

I hope this snapshot helps map some of that terrain with an eye toward systemic struggle, by orienting climate change and fossil fuel corporations in the ecosystem of capitalism and suggesting some vulnerabilities in their narrative from that analytical terrain.

The partnership between critical discourse analysis and narrative power analysis to synthesize and analyze an overarching discourse has several strengths. First, combing through the messages and organizing them into a master narrative – stripped of the swelling music, flash cuts, scientists, and pop idols that help us suspend our disbelief – introduces a critical distance that interrupts the immersive character of their messaging to bring the shared interests of industry and the sheer madness of their prescriptions into sharper relief.

Second, articulating that discourse makes it easier to identify (and attribute) themes when they sprout elsewhere in different guises. This is useful for identifying advertising where it has 'gone underground' through so called 'native advertising,' product placement, and other amorphous branding efforts that have crept incognito into public spaces like schools and parks. More critically though, it highlights these themes where they've penetrated public discourse to become naturalized as common sense or unfortunate realities (e.g., through mainstream news stories, political platforms, public policy, national and provincial climate change plans, and even the activism of climate movements).

Third, organizing messages into a storyline primes them for critical analysis on a higher order of magnitude than engaging with individual advertisements, corporations, or themes. In my case that involved two approaches, both intended to interrupt the coherence and common sense of the discourse: identifying and problematizing prominent

frames employed by the sample to organize meaning, and identifying unspoken assumptions that must be taken for granted in order to understand and accept the discourse.

Lastly, by situating the discourse as an expression of a broader hegemonic project, we might start to highlight its commonalities with other powerful discourses, identify mutual vulnerabilities, draw on the critical insights of those resisting on other fronts, and ultimately create powerful linkages between movements.

Limitations and Future Research

One strength of conceptualizing capitalism as a series of metabolisms – an ecosystem – is the foregrounding of its adaptability and dynamism. Capitalism is a constellation of activity and relationships rather than an inert object, and any number of rifts can be shifted to preserve the bottom line on its balance sheet. Discourses too are dynamic and contested – they must constantly evolve in dialogue with history as it unfolds, and with special acuity to maintain a fraught hegemony. As a result, the utility of the themes I've identified may be time-limited; as the discourse of fossil fuel corporations evolves so too must our analysis.

Similarly, expanding the scope of this analysis would enhance its strategic value. Major fossil fuel corporations share a significant stake in the climate debate, and fossil fuel combustion represents a chief obstacle for climate movements, which made this an ideal starting point – but my sample was small, exclusively American and western European, and focused on the extractive and productive facets of a much broader commodity chain. The fossil fuel sector itself is inextricably linked with other sectors of the economy,[24] and

[24] See, for example, Shannon Daub and Bill Carroll's (2016) overview of the Royal Bank of Canada's stake in the fossil fuel sector (and the interlocking directorates that manage those stakes).

that network is further integrated with social and political spheres through institutions like universities, policy/think tanks, and industry groups. Future research could engage a more diverse sample for a wider view.

As I touched on briefly in Chapter 2, critical discourse analysis is a powerful tool for action research, but my reading of these texts is mediated by my own limited experience. This analysis would be greatly enriched by the strength of diverse voices bringing a broader range of experience to bear – for example, the texts could be collectively examined through a series of focus groups with activists across a spectrum of engagement with climate change.

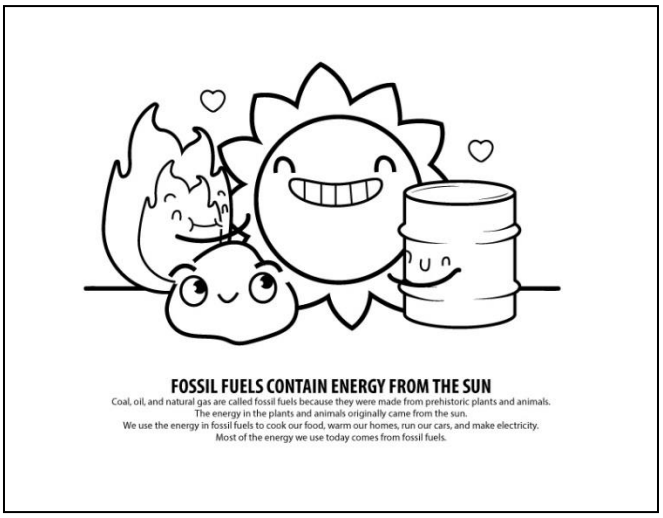

Figure 57: A colouring page for young aspiring energy workers from the National Energy Education Development Project at www.need.org.

Finally, an analysis of the mechanisms through which these messages are negotiated and produced would significantly enhance the utility of this work. For example, the role of organizations like the International Energy Agency in generating scientific and policy analyses that legitimize the optimistic foreshadowing of future markets by fossil fuel corporations; sites for consensus building such as the climate-specific OGCI or the more general IPIECA; and levers for broader dissemination, such as education (for example, STEM initiatives for children and youth or university programs heavily funded by industry) or news outlets

(see, for example, CNBC's Special Report *Sustainable Energy* – presented by Total – which uncritically reproduces several key themes from Total's advertising).

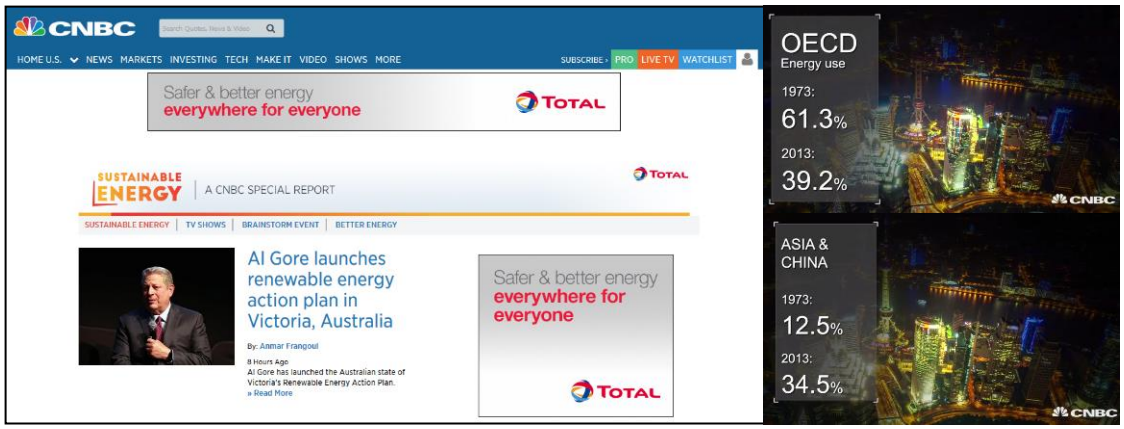

Figure 58: OECD vs. Asia and China (Right) on CNBC's Special Report - Sustainable Energy presented by Total at www.cnbc.com/sustainable-energy/ (left)

In conclusion, critically engaging with advertising as a hegemonic project of the TCC has fundamentally shifted my praxis. When I turned that eye inward, I recognized the common themes from their messages reflected not only in broader public discussion about climate change but also in environmental activism, including my own. Having articulated these themes and their supporting mythos for myself, it became difficult for me to take their many permutations for granted. Reverse-engineering the hegemonic narratives of major fossil fuel corporations can help climate movements to relegate them to the annals of history, opening the creative space to imagine something new.

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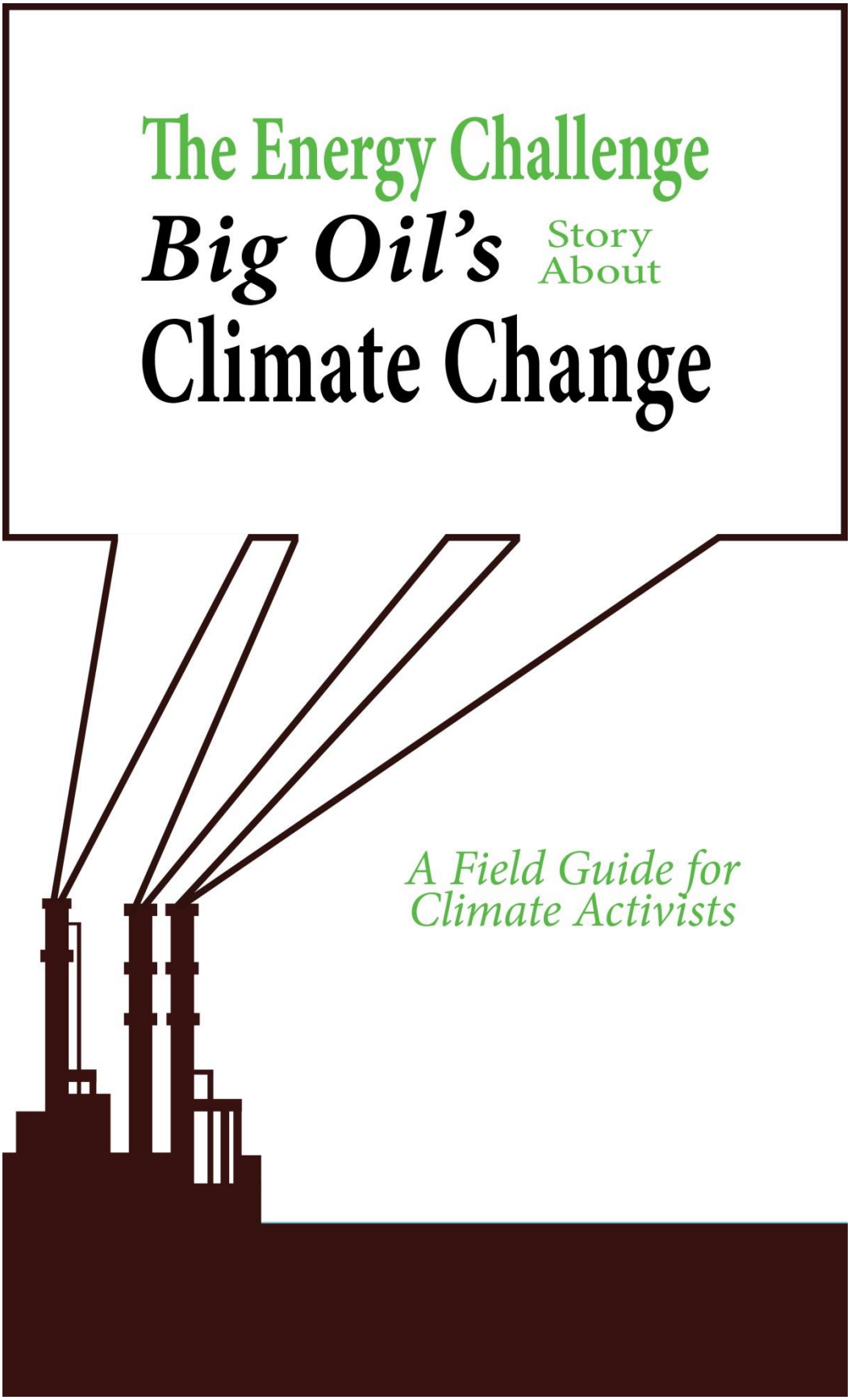
Appendix A: Field Guide



A Little About the Field Guide

The urgency of the climate crisis is undeniable. We are at a crossroad in the history of our world. But if that history holds a lesson, that lesson is a *story.*

Stories are the building blocks of our identities and cultures. They help us organize our collective experiences to create and share meaning. They help us understand where we've come from and decide where we're going. If we want to change our future, we will need stories that depart from the past, build bridges of solidarity, and imagine truly transformative alternatives.

But stories are neither told nor understood in a vacuum; they are bound up in power. Before we can imagine alternatives, we must contend with the powerful stories that keep us working in the interests of the few. If we don't confront these, we risk re-telling them, reproducing the characters and relationships we need to set aside to imagine a just and livable world.

This pamphlet is meant to work like a field guide for identifying the story Big Oil is telling about climate change in the ecosystem of capitalism. Drawing on Patrick Reinsborough and Doyle Canning's story-based strategy (for more on this, check out their book Re:Imagining Change or the Center for Story Based Strategy at www.storybasedstrategy.org/), it summarizes the key themes from a critical discourse analysis of climate-change narratives in the advertising of five major transnational fossil fuel corporations over the course of 2016. This is just a small and static corner of a much larger and continually evolving tapestry...the real work, binoculars to eyes and pencil in hand, is ongoing. You are bound to have crucial insights into Big Oil's story that aren't in here!

The first section covers the plot: the problem, resolution, and common elements of the narrative. The next section covers the characters and their roles in the story. The third section summarizes foreshadowing - Big Oil's vision of the future. The fourth section breaks down some frequently employed frames, and highlights some underlying assumptions that are taken for granted in the story. On the last page is a quick reference for key themes.

There *are* alternatives to the status quo - let's put Big Oil's story behind us.

Conflict

Problem: The Energy Challenge

In a world where energy demand is rising – populations are growing and billions of people are projected to join the middle class over the next few decades – more than a billion people still lack access to electricity. More than 2 billion rely on traditional biomass to cook their food and fuel their lives, to the detriment of their health and safety.

The challenge for today's Responsible Energy Suppliers is to meet that growing demand, bringing energy security to the world, while simultaneously reducing greenhouse gas emissions. Climate change is only one side of the challenge - if we aren't careful, reliable access to modern energy - the foundation of civilization - will be compromised by well-intentioned efforts to address climate change. The key question for our protagonist is how they can produce more energy with fewer emissions.

Resolution: More and Better Energy

Luckily for us, Responsible Energy Suppliers have this well in hand. The solution to this paradox - more with less - is threefold.

First, by making gradual, market-approved adjustments to the energy mix, Responsible Energy Suppliers can reduce the carbon intensity of our economy. This transition can be orderly and reasonable, starting with the phasing out of coal and the aggressive expansion of natural gas. They are are making investments in renewable energies as these become economically feasible, but significant barriers prevent large scale, rapid deployment. All sources of energy will be needed to meet demand over the next 50 years – so fossil fuels will continue to meet the majority of the world's energy needs for decades to come.

Second, driving technological innovations that increase the efficiency of energy while reducing its impact on the climate is paramount. This includes heavy lifting in research and development on carbon capture, utilization, and storage and exploring ways to address methane emissions during natural gas expansion. It also includes increasing the efficiency of their operations, whether by harnessing wind energy for offshore drilling or installing co-generation units in refineries to recover waste heat. Lastly, this includes improving the efficiency of their products and educating consumers on the most efficient ways to use them. From improved lubricants to lightweight plastics, Responsible Energy Suppliers are helping consumers reduce their footprint by improving the performance of commodities. Through education, labelling, and industry-led certification initiatives, they are helping consumers make the right choices.

Third, because their humanitarian and ecological aspirations are bound by the will of the global market, Responsible Energy Suppliers advocate sensible, feasible policy solutions to help governments support the energy transition without unduly impacting the economic growth that assures human welfare and progress. They protect the interests of consumers by striving to keep energy affordable and accessible. They also bring a global perspective to national politics; for example, by advocating for a globally consistent price on carbon to avoid unintended policy outcomes and ensure a level playing field on which corporations can compete.

Narrative Elements

The world needs more energy - so much energy that we must maximize every available source to meet demand (including, of course, fossil fuels).

Renewable energy is expensive and unreliable. We need fossil fuels to make those energy sources viable.

Natural gas is the new coal - switching electricity to natural gas is the cheapest and fastest way to address climate change. Liquid natural gas is a cleaner-burning, portable, and reliable alternative.

Fossil fuels must continue to play an integral role in the global economy for the foreseable future - they are cheap, abundant, and versatile.

Supplying energy is a humanitarian project. To secure energy access for all, and raise living standards for people emerging from poverty, we must double down on fossil fuel production.

Increasing efficiency and innovating new technologies are the only reasonable ways to address climate change without sacrificing human welfare.

The market will choose the most cost-efficient and effective ways to address climate change. A globally consistent price on carbon is needed - without undue regulations and standards stagnating economic growth.

Characters

Responsible Energy Suppliers

The Protagonist of The Energy Challenge is, naturally, Big Oil - the world's Responsible Energy Suppliers. From lighting our lives to feeding our children and clothing our bodies, we have them to thank for every necessity (and luxury) of modern civilization. And it's not just things - energy fuels *progress itself.* Therefore, the better our quality of life gets, and the more of us there are living it, the greater the world's demand for energy becomes. With outstanding innovation, technical knowledge, and scientific expertise, Responsible Energy Suppliers work tirelessly to supply our demand - responsibly, of course. They extract, process, and deliver energy in the safest and most efficient ways; invest in the wellbeing of their communities, nations, and the world; educate consumers about the value of energy and its prudent use; advise governments on energy policy to safeguard our economies and drive prosperity; research the new technologies and processes we need to address climate change without sacrificing human welfare; and forecast future trends to plot a course for tomorrow. Responsible Energy Suppliers know that they must produce *more - but better* - energy to lift the energy poor from grinding poverty, support the booming global middle class, protect the living standards of the average consumer, and address climate change while they're at it.

With national identities and global vision, Responsible Energy Suppliers cooperate with one another to through various high-profile initiatives to confront The Energy Challenge together.

The Energy Poor

The world's Energy Poor are victims on whose behalf Responsible Enery Suppliers must advocate. Their quality of life is at stake in The Energy Challenge - hailing from the 'developing' world and numbering more than 3 billion, they lack reliable access to modern energy sources. They must burn unhealthy, unsafe, and inefficient sources of energy like dung, kerosene, or wood to survive. Responsible Energy Suppliers benevolently transform their communities through innovative technology and local partnerships so they can learn, work, and play.

The Energy Challenge starts from the premise that the world's energy supply must be dramatically increased to secure access for the world's Energy Poor. They serve at once as a powerful foil for Big Oil's glimmering altruism and a moral imperative for sustained fossil fuel development.

The Anti-Energy Activist

A primary antagonist of The Energy Challenge is the Anti-Energy Activist, whose well-funded and coordinated attack on Responsible Energy Suppliers distracts public attention from the 'real' solutions to climate change: reducing emissions through increased efficiencies and technological innovations.

The New Middle Class

Navigating the middle ground between the Energy Poor and the Average Consumer are the populations of non-OECD nations like India and China just reaching the culmination of industrialization. As this process lifts billions from poverty and dramatically increases populations and living standards, an explosion of consumers aspiring to drive cars, use appliances, and otherwise live productive lives. They are the primary scapegoats for the rising demand at the heart of conflict in The Energy Challenge.

With populations booming and economies that haven't dematerialized yet, the contribution of the New Middle Class to climate change far outweighs those of the Average Consumer in OECD nations where economic and population growth are slower, high-quality living standards enable environmental consciousness, innovation drives efficiency, and service-focussed economies have a smaller footprint.

'Modernizing' the economies of non-OECD nations is key to addressing climate change in The Energy Challenge. Interventions in urban development will ensure that the mega-city boom is as efficient as possible, for example, while a strong global liquid natural gas trade will help reduce emissions.

The Average Consumer

The Average Consumer goes about their daily lives mostly unaware of the energy that makes everything possible. Mainly white, urban, affluent young adults, Average Consumers have needs and dreams, which create demand.

The role of the Average Consumer in The Energy Challenge is to make small, easy changes to their patterns of consumption that may cumulatively impact the carbon intensity of the economy – using LED holiday lights, switching to a convection oven, and not accelerating too quickly in their cars, for example. Consumers must also get informed about important energy facts, like the safety of fracking, the cleanliness of natural gas, the important role of Responsible Energy Suppliers, and the pressing issue of energy poverty...lest they be swindled into supporting well-meaning but ill-informed approaches like divestment, degrowth, or heavy-handed policy interventions.

Responsible Energy Suppliers work to establish a shared vision of the future with Average Consumers to support an orderly, reasonable transition that serves their best interests – access to abundant, affordable energy.

The Government

The role of the Government in The Energy Challenge is to ensure that policies are sound and effective. By consulting with Responsible Energy Suppliers, Government can avoid advancing unreasonable or impractical approaches to climate change.

In The Energy Challenge, a free and competitive market selects the most efficient, cost-effective solutions, while providing the necessary incentives for industry to develop the technologies that will fuel the future. Therefore Government policies must let market prices drive solutions, must be flexible enough to adapt in response to changing conditions or economic impacts, and must ensure clear, consistent, predictable terrain for sustained investment.

Government must avoid complex, bureaucratic solutions like regulations, mandates, and standards as these staunch economic growth and progress. Instead, Governments should collaborate across national borders to implement a predictable, globally consistent price on carbon; build infrastructure that supports low-carbon technologies; incentivize low-carbon research and development; and mitigate the negative impacts of the energy transition on the economy.

Voice and Imagery

Scientific Knowledge and Technical Expertise

Big Oil speaks with authority through scientists, economists, engineers, and other expert voices.

The Voice of Reason

On the complex and volatile issue of climate change, Big Oil invokes the judicious, even-handed tone of reason with adjectives like "sound," "responsible," "practical," and "common-sense."

Foreshadowing

In The Energy Challenge, the future is bright for oil and gas, which will continue to provide for the majority of the world's energy needs for the foreseeable future. Natural gas will expand significantly, while oil will decline slightly and coal will decline more notably. Although renewables are projected to grow, their share of the market will remain quite small due to problems with reliability, affordability, and scalability. Nuclear power is also projected to grow, but is subject to social and political controversy that will limit its potential unless government provides strong support.

Responsible Energy Providers forecast a global explosion of prosperity over the next 50 years, with billions emerging from poverty to join the coveted middle class. The world's Energy Poor will gain unprecedented access to modern energy, fuelling their aspirations for a better life and increasing economic growth and productivity. People in non-OECD nations will replicate the path of development tread by the OECD and their rising living standards and growing populations will put pressure on the world's resources. The demand for energy will continue to increase, making it imperative that all feasible energy sources be developed to their fullest potential.

But despite continuously increasing demand, reductions in carbon intensity and increases in efficiency will limit commensurate increases in emissions. Rapid urbanization will drive the proliferation of 'megacities,' which will be designed with efficiency in mind to reduce their environmental impact. Increases in personal transportation and commercial shipping will similarly be offset by improvements in efficiency. Although consumption patterns will change with the gradual uptake of electric vehicles, car sharing, ride pooling, and autonomous vehicles, the impact of this will be slight on both oil demand and the climate – improving the efficiency of existing combustion vehicles play a much larger role in the Energy Challenge.

Electricity use will grow and natural gas will provide much of the world's electricity, supplemented by renewables. Oil (and to a lesser extent, coal) will be especially necessary where Responsible Energy Suppliers see no marketable alternatives – heavy industry like concrete and steel production, heavy freight, air transport, and petrochemicals.

Carbon capture, utilization, and storage will be widespread and biomass use will provide 'negative emissions' to compensate for ongoing fossil fuel use. Responsible Energy Providers will operate at peak efficiency, implementing breakthrough technologies as they become economically viable, reducing and eventually eliminating flaring, and employing creative techniques like co-generation to minimize waste. The Averahe Consumer will have a range of products available that reduce their footprint and they will be better educated about consuming responsibly.

In the best case, Responsible Energy Suppliers will help national governments create sound climate policy that will support market-based solutions, driving a revolution of technological innovation that addresses emissions while allowing unfettered economic growth. The global economy becomes a level playing field where trade and prosperity thrive! But beware - the wrong policies could force Responsible Energy Suppliers to take their formidable resources elsewhere to make ends meet, leaving some nations scrambling to pick up the pieces of their shattered economies. Likewise, a lack of coordination between national governments could put some nations at a major economic disadvantage without truly reducing emissions as carbon 'leaks' from the lower-cost zones.

In terms of the climate, the carbon intensity of energy will fall over the next 20, 50, and 100 years. But in a crowded, prospering world where everyone has access to modern energy sources, rising demand will continue to increase emissions overall. We can make up for this later, when 'negative emissions' technologies like carbon capture and storage become viable at scale. In a perfect world this would result in limiting temperature increases to the ambitious two degree celsius of the Paris Agreement, but Responsible Energy Suppliers want us to know that this outcome depends heavily on policy decisions by national governments. The most important thing to know about the future in this story is that any energy transition must be undertaken rationally, reasonably, with gradual steps that protect us all from the *real* crisis: economic disruption.

Framing

More Energy VS **Fewer Emissions**

Inside this frame climate change is one side of a crisis coin. Energy stands in for prosperity and progress so, naturally, we need more of it; emissions are the unfortunate side effect of a thriving world, and Responsible Energy Suppliers are poised to resolve this paradox with innovative technologies that allow us to have and do more with less. But when Big Oil says 'energy,' they mean *profitable* energy, and for the foreseable future that's fossil fuels. Is it truly our welfare, our quality of life motivating Big Oil's vision of endlessly expanding energy production - or their profit?

Non-OECD VS **OECD**

Inside this frame the global majority inherits responsibility for climate change. Their welfare is used to justify sustaining fossil fuel production in the future, re-inventing the imperative of profitability as an ethical dillema. But what happens when Big Oil's data for GHG emissions are calculated cumulatively, or per capita? How much prosperity and energy security have major fossil fuel projects generated for the global majority, and at what cost? Who suffers the real impacts of climate change, always outside the frame of The Energy Challenge, first and worst?

Corporations as citizens VS **Citizens as consumers**

Big Oil framed their own roles in addressing climate change with a sweeping scope – setting the agenda for global energy policy, fuelling progress in the developing world, innovating the energy technologies of the future, and dramatically improving the efficiency of the global economy. In contrast, the role of the public was singular - to consume. The Energy Poor are potential consumers, the New Middle Class upcoming consumers, and the Average Consumer a veteran of consumption that just needs a little help being responsible. In The Energy Challenge, citizens acting as citizens on climate change are radicals with 'special interests.' But are the interests of Big Oil really ours?

Supply VS **Demand**

Inside this frame demand comes from consumers and represents the sum of their needs and aspirations. Meeting this demand is essential to ensuring that people survive and thrive, and that nations realize their full potential. A healthy balance between supply and demand enables progress and prosperity, which may be measured by growing GDP. As a key pillar of national economies, Responsible Energy Suppliers generate global wealth by astutely forecasting and efficiently supplying demand. But what about the factors that *shape* and *create* demand - do fossil fuel production patterns really reflect our needs and dreams, or are they structured to maximize profit for Big Oil?

Assumptions

Economic growth = human welfare

The fable of capitalism is this: if we want to be healthy, happy, wealthy, and safe; if we want to realize our full potential and live our best possible lives; the economy must grow and grow. But who benefits the most from a growing economy - what growth are we actually measuring?

Development = progress and prosperity

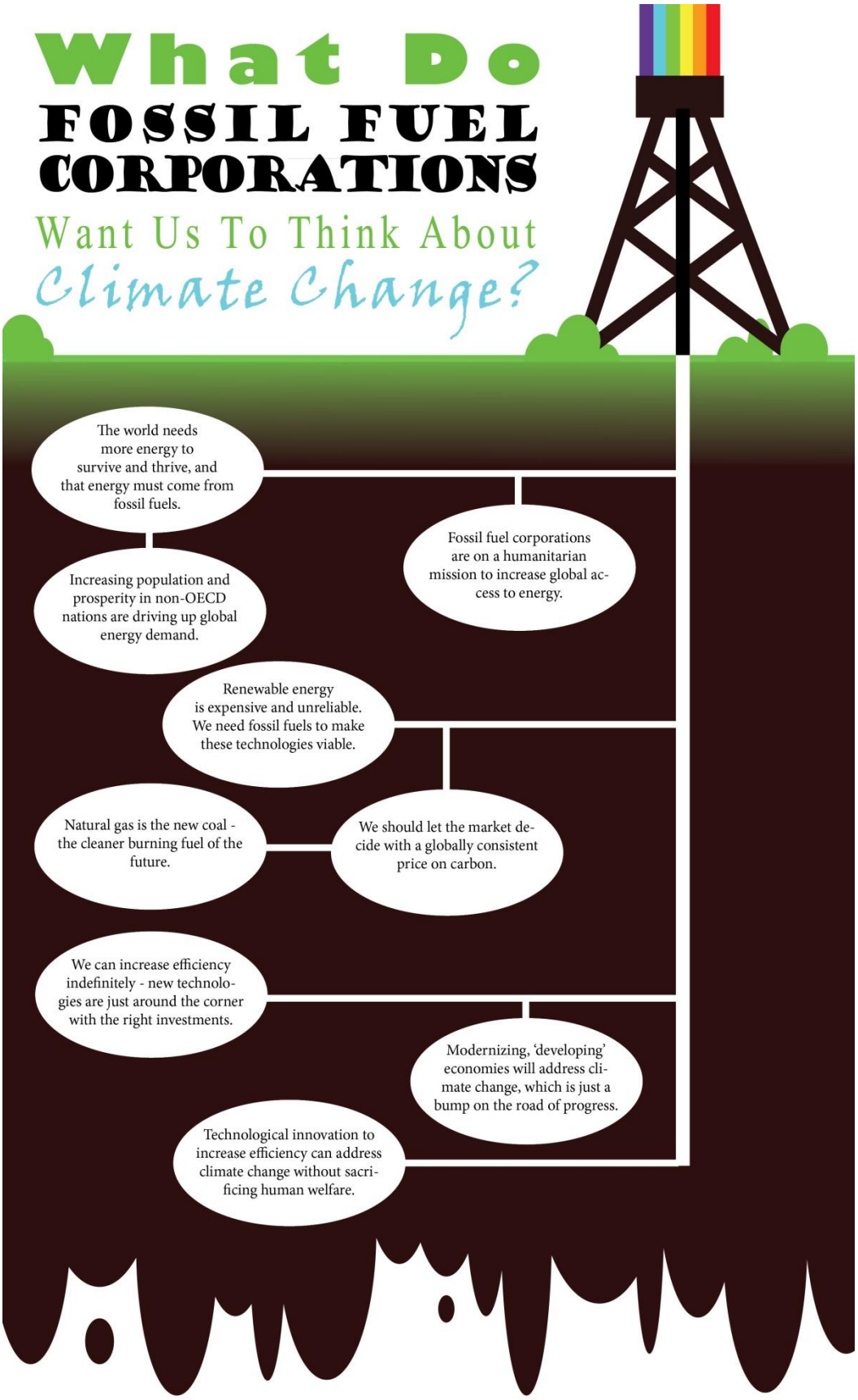
The premise of The Energy Challenge depends on the myth that North American and Western European economies are 'modern' - advanced - and the global majority must follow in their steps to thrive. But at whose expense is that wealth generated? Given their history of emissions, isn't it the OECD that has something to learn from the global majority?

Free markets = fair and efficient solutions

A 'free' market - unencumbered by pesky policy interventions - is supposed to drive innovation and impartially select the most efficient technologies and processes. But when technology and innovation create efficiencies in a system organized to generate profit, does Big Oil produce less, or more?

There is no alternative

The Energy Challenge takes for granted that capitalism is the only way to meet our needs, achieve our dreams, and address climate change. But how can the system and logic that created this problem resolve it? And whose needs - whose dreams - does capitalism actually organize us to achieve? There *are* alternatives, and our world depends on them.


What Do
FOSSIL FUEL
CORPORATIONS
Want Us To Think About
Climate Change?
The world needs more energy to survive and thrive, and that energy must come from fossil fuels.
Fossil fuel corporations are on a humanitarian mission to increase global access to energy.
Increasing population and prosperity in non-OECD nations are driving up global energy demand.
Renewable energy is expensive and unreliable. We need fossil fuels to make these technologies viable.
Natural gas is the new coal - the cleaner burning fuel of the future.
We should let the market decide with a globally consistent price on carbon.
We can increase efficiency indefinitely - new technologies are just around the corner with the right investments.
Modernizing, 'developing' economies will address climate change, which is just a bump on the road of progress.
Technological innovation to increase efficiency can address climate change without sacrificing human welfare.