

**The Northern Gateway Pipeline Panel and the Public Interest:
The shaping influence of Canada's 'plausibility structure' and 'symbolic universe'**

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Abstract:

The Northern Gateway Pipeline Joint Review Panel was commissioned by the Federal Government to hold hearings and determine the "public interest" in constructing this pipeline. In the classic study, *The Social Construction of Reality*, Berger and Luckmann (1966) argue that societies create 'plausibility structures' to shape/legitimate their members' understanding of reality. A 'plausibility structure' is "a social structure of ideas and practices that create the conditions determining what beliefs are plausible within the society in question." I argue that the 'plausibility structure' built into the decision-making process for the Northern Gateway is of such a character that it rules out consideration of a variety of important questions and beliefs. It ends up shaping a narrow conception of the 'public interest.' This makes the pipeline's approval almost inevitable. This 'plausibility structure,' however, does not fully explain the narrow view of the public interest reflected in the Panel process. I use Berger and Luckmann's other key legitimating idea of 'symbolic universe' to show a modernist narrative and set of assumptions is also shaping the decision-making process. These assumptions result in a number of the important dimensions of the Enbridge Northern Gateway Pipeline project (NGP) remaining unexamined by the Panel. This paper concludes that Canada needs to create an alternative decision-making framework and process, based on a plurality of narratives, that reflect a broader multidimensional understanding of reality and of the public interest.

Introduction:

Canada is currently (2013) embroiled in widespread public debate concerning whether or not to build two major pipeline systems, the Northern Gateway Pipeline (Canadian regulators) and the Keystone XL line to the United States (US State Department is the regulator, Canada has already approved it). Across the country, other major resource developments are also going through similar public interest decision-making processes—from diamond mines in the North to open pit tar/oilsands mines in Alberta.¹ Neither the Review Panels nor the Governments appointing them, appear to be interested or willing to launch deep and widespread public dialogues to debate whether these increasingly large, intrusive and damaging development projects are truly in the public interest. Is this form of development healthy for our society, the global economic system, and the earth's eco-systems?

This paper focuses on the case of the Northern Gateway Pipeline Joint Review Panel [Panel] in order to identify the deep assumptions of this decision-making processes. My thesis is that the narrow focus of the NGP Panel's public interest decision-making is shaped by a widely accepted, but taken-for-granted 'plausibility structure,' and further constrained by a deeper, and equally taken-for-granted, 'symbolic universe' that is essentially composed of the Enlightenment narrative of progress.

In the first section, I argue that the Northern Gateway Pipeline [NGP] Panel's public decision-making focus and terms of reference are very narrow. The Panel focuses almost exclusively on the technical facts of the NGP project itself, overlooking other over-arching and interrelated questions. The Panel's process is also narrow in the sense that it intends to work with objective facts and science, to rationally calculate the costs and benefits, to use 'scientific knowledge' almost exclusively, and to focus generally on the technical 'remediation' of problems. In public discussions surrounding the Panel, this narrowed approach is defended as the best way to determine the 'public interest' of this case. I argue that the Panel's constricted focus is the result of Canada's assumed, but largely hidden, 'plausibility structure.' It guides us to believe that decision-making in the public realm is legitimate if done according to objective science and facts, to the exclusion of private subjective values and beliefs.

In the second section, I begin by analyzing two additional features of the NGP Panel process—e.g. the assumption that the pipeline is a progressive means, and the implication that 'There Is No Alternative' (TINA)—in order to show they too are belief assumptions. This suggests, I argue, that something even deeper than the Canadian 'plausibility structure' is at work shaping the Panel's decision-making. I turn to Berger and Luckmann's companion idea of 'symbolic universe' to explore the way that another set of deeper values, gathered in a narrative, shape the NGP Panel's work. The bulk of this second section of the paper probes for the content of the 'symbolic universe' embedded in the NGP Panel process. I conclude that some matters that are addressed by the Panel are not purely factual and scientific, while other matters excluded from the Panel review are more than simply private beliefs and values. While the Panel's process and operation are shaped by the Canadian plausibility structure—public science, private beliefs—more is occurring. An automatically and uncritically accepted "symbolic universe" that is composed by the Enlightenment narrative of progress is also significantly shaping the Panel's operation and outcomes. If this analysis is correct, then there is strong reason to redesign Canadian public interest decision-making processes to openly include input from, and dialogue between, the various belief-based narratives held by Canadians.

Finally, a precautionary caveat: this paper examines the reasons for the narrow focus of the Northern Gateway Pipeline Panel's public interest decision-making processes. One obvious answer to the question concerning why the Panel was not given a broader mandate, is that the legislation governing the National Energy Board (NEB) does not authorize government to mandate Panels to examine broader questions. This is partially true, but government is free to amend this legislation. A second answer might be that government itself is the proper location for asking and addressing these sweeping questions. The appointed Panels should simply make technical decisions within the resulting framework. This may also be true, but it seldom if ever happens. The central aim of this paper is to ask

why Canadians continue to accept as legitimate a narrowly construed Panel decision-making process on key projects like the NGP.

Part I: Analyzing the key features of NGP Panel focus and process

This section identifies four key features of the current Northern Gateway Pipeline Joint Review Panel [Panel] and decision-making process. I argue that the focus and terms of reference of the NGP Panel are very narrow, and thus, the notion of ‘public interest’ with which it operates is also too narrow. Each of these four features is analyzed for the deeper thinking and assumptions on which they are constructed. Part I concludes that the decision-making process of the Panel reflects the dominant “plausibility structure” of our society. I argue that this ‘plausibility structure,’ that is widely and implicitly accepted by Canadian society, ‘artificially’ narrows the Panel’s mandate, process, and conception of public interest. This ‘plausibility structure’ informs us that public dialogue and debate should only be conducted on a factual, scientific basis, while values and beliefs should be confined to private life. The ‘plausibility structure’ tells us that since all rational individuals can agree to making factual and scientific public decisions, NGP Panel decision-making is ‘properly’ restricted to the consideration of science and facts.

The Joint Review Panel’s focus and process

The “Northern Gateway Pipelines Limited Partnership” [the proponent, referred to as Enbridge], proposes to build two 1,170 km pipelines from Bruderheim, Alberta to Kitimat, BC. The larger pipeline will carry bitumen thinned with diluent from Alberta to the Pacific coast, and the smaller line returns extracted diluent back to Bruderheim for reuse in shipping more bitumen down the larger pipeline. The diluent makes the bitumen flow more easily. At room temperature bitumen has such high viscosity that it barely flows at all. The Enbridge project also includes construction of a Marine Terminal in Kitimat, where bitumen will be loaded on oil tankers for export. The cost of the overall project is about \$6 billion. The Northern Gateway is actually a “pipeline system.” It is a “giant machine,” stretching thousands of kilometres, made up of pipes, valves, pumping units, metering stations, delivery stations, breakout tanks, “pipe cleaning and inspection-pig launching and recovery yards, corrosion-preventing cathodic protection sites and pressure sensors to warn of problems.”²

Why was Northern Gateway Pipeline Joint Review Panel appointed? To begin with, the overall process was initiated by Enbridge, a private company, when it decided to build this pipeline. They saw a market opportunity for making profit by linking Alberta’s increasing capacity to produce bitumen to the growing demand in Asian markets. Since the pipeline project is so large, posing such wide ranging impacts, Canadian law requires government to ascertain whether the pipeline is truly in the ‘public interest.’ Enbridge prepared a detailed application addressing the economic, technical and environmental issues and submitted it to the Federal Government.

The Minister of the Environment, empowered by the Canadian Environmental Assessment Act, along with the Chair of the National Energy Board (NEB), established the “Enbridge Northern Gateway Project Joint Review Panel” (hereinafter referred to as the Panel). They provided specific terms of reference for, among other things, *conducting an “environmental assessment” of the project.*³ Thus, the Joint Review Panel is at the heart of a decision-making process that considers whether or not to build the pipeline, and if so, under what conditions.

The Panel works with the original application and documents submitted by Enbridge and goes through a process which includes conducting public hearings and gathering input and reactions from

the public and First Nations. While the Panel's chief focus is *the environmental effects* of the proposed project, it also examines other dimensions, such as, is there need for the project? Is it economically feasible? What will be *the potential impacts on Aboriginal interests; commercial interests; and landowners and land use, and if any, will they be acceptable? What will be the environmental impacts? Does the proponent have acceptable plans for financing, design, construction and operation of the pipeline? Can the company complete the project? Has the proponent chosen an acceptable route, and are the safety, prevention and mitigation measures acceptable?*⁴

In conducting its review of the proposed project, the Panel considers the Enbridge application and studies, as well as the submissions and input from the public and interested parties. It then submits its 'public interest' recommendation to the Federal Cabinet, along with a supporting report. The Cabinet decides whether or not to issue a "Certificate of Public Convenience and Necessity," allowing Enbridge to proceed with construction of the NGP pipeline system.⁵

A curiously narrow focus?

The first feature of the Panel's assigned decision-making task that stands out is how narrow and project-oriented it is. The terms of reference strikingly restrict the Panel's consideration to what impacts the pipeline might have on direct stakeholders and interests, what threats and risks it poses to people and the environment, and what benefits it holds for the economy. While the 'public interest' is central to its decision-making, oddly the Panel is not asked to consider whether a series of larger, interlinked problems and questions might impact on whether the pipeline is in the 'public interest.'⁶ The Panel might have included in its consideration of the public interest, for example, the following five larger, interlinked problems and questions.

First, there is nothing in the Panel's terms of reference that invites public discussion or debate on whether it is in the public interest to continue our society's high levels of consumption and wasteful consumer practices that drive the 'need' for more oil. Growing 'need' for fossil fuels is the largest reason driving Enbridge to build the pipeline. If the Panel hears evidence on whether the pipeline causes or risks ecological or social damage, should it not also reflect on whether 'need' might instead be reduced through reduced fossil fuel use or reduced consumerism. Does much of our fossil-fuel based consumption reflect genuine 'need' or merely 'wants' and entitlements?

Second, while the Panel addresses some aspects of First Nation's concerns, why does it not directly ask: should the NGP be built if First Nations along the route are not yet full and equal partners in the decision-making about developments that run through their ancestral lands?

Third, the Panel duties do not include a mandate to consider the full costs of the production increases in the Alberta oilsands developments which the NGP invites. If building the NGP increases capacity to exploit the oilsands, should not the incremental costs of doing so be discussed in the pipeline approval process?

Fourth, the NGP Panel does not directly address whether the Northern Gateway Pipeline's added capacity to use bitumen, with its higher GHG emissions, will adversely affect climate change. More importantly, if the global community puts in place measures to keep the rise in temperature below 2 degrees Celsius, as they promised, and thus only 1/5 to 1/3 of known fossil fuel reserves can be used, will nations still want to buy bitumen with its high GHG emissions?

Fifth, the Panel is not asked to address whether the NGP should proceed, if building this extra capacity to export oil will likely worsen the global 'ecological question.' Humanity's ecological footprint has already exceeded the capacity of the earth to produce many renewal resources, as well as to absorb waste in water, land and air systems. If building the NGP means we increase humanity's capacity to consume more natural resources and to dump more waste, and thus to diminish the 'capital' of nature, should the Panel not discuss this 'ecological question' when considering whether the pipeline should proceed?

Why are larger problems and questions, such as these, not explicitly included in the Panel's mandate? Why was the Panel given such a narrow focus? One possible answer might be that the Government gave the NGP Panel a narrow decision-making framework, because these broader questions have been adequately debated and answered in larger political settings such as Parliament. Clearly, however, these questions have not been widely debated by the public, by Royal Commissions, or in national or provincial parliaments. Yet, governments continue to create, and the public generally accepts, narrowly focused decision-making Panels on developments such as the NGP.

Why this public complacency in debating and addressing these sorts of larger questions? Is the NGP pipeline and Panel approval process so buried within the 'normal' and 'self-evident' way of seeing things, that we miss what is really going on? Is the accepted view too simplistic? In situations like this, French philosopher Michel Foucault argues, we need to take "the view from outside."⁷ In order to escape the tyranny of the normal, he suggests, we need to ask fundamental questions outside of normal parameters, regular assumptions, or the accepted framework. Therefore, to answer the original question—why do governments create, and the public accept, narrowly focused decision-making Panels for developments?—we need to analyze the largely un-debated assumptions and thinking that underlie and surround the NGP Panel process. I identify and analyze four of these assumptions.

Assumption One: Public decision-making should be based on science

A key feature of the Northern Gateway Pipeline Panel is that there seems to operate within a broad consensus, [largely unspoken], that public decision-making ought to be science-based. This is clearly evident in public debate that surrounds the Panel, the day-to-day hearings and operations of the Panel, as well as in scientific literature on public decision-making.

In the public debate

Since the NGP Panel was created, controversy and debate have surrounded questions, such as, who may legitimately participate in the hearing, on what basis should this decision be made—values, politics and ideology or facts and science—and, who should finally decide the Panel or politicians? In the early days of the Panel process, for example, controversy arose over whether politicians were or would be interfering in the Panel's work. At first, Prime Minister Stephen Harper declared his government already believed the pipeline was in the 'public interest,' but this was the Panel's task to determine. He went so far as to declare that the federal Cabinet would make the final decision, thus suggesting it would be a political or value decision, regardless of what the just-appointed Joint Review Panel recommended.⁸ After intense public debate, however, the Prime Minister changed his public messaging, indicating that he and the Cabinet really wanted a science-based decision on the pipeline. He stated:

"I've been very clear that decisions on these kinds of projects are made through an independent evaluation conducted by scientists into the economic costs and risks that are associated with the project, and that's how we conduct our business."⁹

He continued:

"...the only way that government can handle controversial projects of this manner is to ensure that things are evaluated on an independent basis, scientifically, and not simply on political criteria."¹⁰

Faced with growing controversy around the NGP Panel's hearings, the Prime Minister appealed to a longstanding societal assumption, namely, that decisions based on science and fact are objective, while decisions based on values and beliefs are subjective. Harper could assume his appeal to science would pacify this controversy because it showed his government was determined to make this public decision according to the only discourse that is widely accepted in Canadian society as common,

objective and thus foundational in the public sphere, namely science. That's why the Prime Minister firmly underlined that "science, not politics, will decide the fate of a controversial pipeline."¹¹

Environment Minister Peter Kent echoed the Prime Minister's appeal to public decision-making based on science. In response to the release of a federal government document (FOIP, Jan. 2012) that "...labelled First Nations and environmentalists as 'adversaries,' while describing the National Energy Board, an independent industry regulator, as an 'ally,'" Kent noted:

"I think that any of our messaging, whether in Canada, elsewhere on the continent, in Europe or in Asia is based on facts and science. We do recognize there are some groups characterized by my colleague as 'radical' and they are very narrowly focused on certain areas they perceive to be unacceptable in a variety of ways. We intend to fully push back and to counter that but again respectfully and with facts and with science."¹²

Many corporate leaders also appeal to this assumption. Al Monaco, President of Enbridge [the NGP proponent], for example, published a letter (Aug. 3, 2012) printed in full page ads in major Canadian newspapers that claimed to set straight "The facts about pipelines."¹³ In a later Enbridge response to church opposition to the NGP, it said it accepts the churches' right to express opinions on NGP, but expressed concern whether "people are basing their opinions on facts."¹⁴

Opinion leaders in the mass media also support this assumption. Responding to the same United Church of Canada, General Assembly, resolution opposing the Northern Gateway Pipeline, the *Edmonton Journal* Editor pointed out that this does not advance "the vitally important goal of a rational, science-based decision on this project..."¹⁵ The underlying assumption is clear; churches deal with private **values** and **beliefs**, but public decisions can only rely on common **facts** and **science**.

Overall analysis of the NGP hearings, submissions and debates, shows opinion shapers—from politicians, editors, industry leaders, and lobby groups—share this common assumption, namely, values and beliefs are subjective and controvertible and should stay private, but scientific and facts are objective and common and thus properly public. If public decisions are to be neutral, objective and accepted by all, they must be based on science and facts.

In the scholarly literature

The view that public decision-making should be based on facts and science is also firmly rooted in the social science literature. Without belabouring the point, the Weberian argument that as a society modernizes it undergoes a process of differentiation and rationalization, still dominates mainstream social science literature. This has produced the assumption that "policy making is a rational, logical process of making decisions..."¹⁶

The American social scientist, Herbert A. Simon, has profoundly shaped the field of decision making, public policy and administration over the course of the second half of the twentieth century.¹⁷ Simon argued that "decision making as well as decision administration can follow the scientific method."¹⁸ From this assumption flowed the "rational model," which saw policy decision-making as "a search for maximizing solutions to complex problems in which policy-relevant information was gathered and then used in a scientific mode of assessing policy options."¹⁹ This approach would produce "maximum results."

Randy S. Clemons and Mark K. McBeth argue that Simon's emphasis on separating facts from values and using rationality and science in the administration of decisions was influenced by logical positivism.

Logical positivism is a scientific system that recognises only nonmetaphysical and observable phenomena. The impact of this philosophy in many areas, including public policy analysis, has been extensive. It suggests training analysts to be value neutral, to objectively observe facts, and to let these empirical realities tell their own stories. Positivism has dominated policy analysis... Within this still dominant worldview, the job of the analyst is to specify procedures

to gather facts about the world as it is, to present those facts without error or prejudice, to formulate rational policy alternatives, and then to allow the politicians to make purposeful policy that will help solve the policy problem. An ice-cold, impartial review and evaluation of the policy should follow.²⁰

Since the rational model makes such extreme demands on levels of knowledge and comprehensiveness of analysis, social scientists (including Simon) backed off from this model and created other, less demanding models, such as, the incremental model, mixed-scanning model, irrational models e.g. “garbage can model of decision making,” and “decision accretion model decision-making.”²¹

Nevertheless, the policy analysis and other social science fields continued to assume that optimal public decisions must be rational and scientific. In *Pursuing Truth, Exercising Power: Social Science and Public Policy in the Twenty-First Century*, for example, Lisa Anderson argues that during the course of the 20th century, social scientists expected “that social science expertise would easily and instantly be translated into policy.” Their “expert advice” could be used as “*technocratic* expertise” to improve society.²² In the 1960’s, Harold Lasswell’s optimism about using science in politics led him to coin the term “policy science.”²³ Donald E. Polkinghorne argues that the widespread use of “positivist methodology” by mainstream social scientists was supposed to allow social science “to guarantee progress through *technical* means applied to the social realm.”²⁴

Mainstream policy making and decision literature continues to hold facts and science in a privileged place. Their emphasis still falls strongly on quantifiable data as the expression of exact facts, which are seen as the means to more accurate and reliable public decisions. Policy analysis still “assumes a mastery of certain quantitative and qualitative techniques...”²⁵ Furthermore, contemporary public decision-making still relies heavily on scientific tools, such as, environmental impact assessments and risk analysis.²⁶ All of this is so, even in the ‘two-stage model,’ where first the ‘objective’ facts are discovered, then the ‘subjective’ policy context is added to make a decision.²⁷

This all-to-brief sketch of the literature, underlines the fact that the assumption is alive and well, that optimal public decisions ought to be based on facts and science while values and beliefs should be cherished, but kept private.

Assumption two: optimal public decision-making involves ‘cost – benefit analyses’

A second feature of the Northern Gateway Pipeline Panel process, closely related to the previous point, is that the process seems to assume that a decision is optimal if it is based on exhaustive rational identification and calculation of all costs and benefits. A rational decision, according to a leading American policy academic Thomas R. Dye, “is one that “achieves ‘maximum social gain’; that is, governments should choose policies resulting in gains to society that exceed costs by the greatest amount, and governments should refrain from policies if costs exceed gains.”²⁸ Whether the NGP Panel is hearing input on ecological impacts, economic growth scenarios, risk of pipeline leaks, new jobs, First Nations impacts, social costs, risks of tanker spills, and so on, the Panel’s task is construed to clearly and factually identify and quantify all these relevant costs, risks and benefits.

In the Panel hearings, experts and witnesses, proponents and opponents, engage in cross-examining witnesses in a process of factually identifying and quantifying costs and benefits, so they can be computed. Costs and benefits are measured and quantified, by qualified scientific experts. Often intense cross examination focuses on whether the witness, or source of a fact or study, is truly qualified as a genuine scientific or technical expert or not. The process guided by the Panel is about establishing the facts of the NGP case, whether positive or negative. The assumption of this activity and process is that a public decision is optimal if it is based on rational identification and calculation of all costs and benefits and if the benefits ultimately exceed costs.

A significant feature of cost-benefit analyses is that they require facts to be quantified in order to be compared and calculated. A great deal of evidence submitted by the proponent, Enbridge, and most interveners is factual data presented in quantitative form. For example, risks are addressed by scientists and engineers in probabilities and percentages. This is necessary in order to enter them into “risk-cost-benefit analysis.” If intangibles like the value of human life, value of an ecosystem, or so on, need to be included in cost-benefit analyses, it may be necessary to monetize how much we ‘value’ them. This allows quantitative treatment of these considerations in a cost-benefit calculus. Claudia Mills and Douglas MacLean argue:

If all our values are to be compared and assessed on one single scale, what is that scale? Most risk-analysts have taken the common currency to be money, the amount we as individual or as a society are willing to pay to satisfy our preferences and promotes our values.²⁹

A final feature of the Panel’s process is to ask whether any of the costs can be addressed, or mitigated to some degree, by having the Panel require the proponent to implement technical adjustments to the overall pipeline system. The aim of the Panel in so doing is to achieve the **greatest** or **optimal** benefit over cost that is reasonably possible in the circumstances.

Thus, the process of identifying facts objectively, quantifying them, subtracting costs from benefits, quantify risks to include them, making the calculation, and coming to a decision are the ingredients of public decision-making. This is assumed to be a rational, factual & scientific method of public decision-making that is acceptable to all normal citizens.³⁰ This is so, once again, because science and facts are assumed to be objective and free of the subjective biases of beliefs and values.

Assumption three: scientific knowledge is key for public decision-making

The form of knowledge deemed acceptable in a decision-making process like the NGP Panel is a critical question. The above discussion shows we assume scientific knowledge is objective and factual and thus free of bias. The nature of scientific knowledge, however, is that it is analytical and abstract knowledge. It is prized because it can be replicated by similar scientific studies, and thus has a universal and objective character. This makes it a form of knowledge that appears to be beyond dispute, since all rational people who care to check it out, will discover the same facts. Thus, it is presumed to be a neutral, foundational form of knowledge that is ideal for dispassionate, rational discourse in the public realm. This is largely true, so far as it goes. The Enbridge Report and many of the intervener submissions are based on scientific knowledge. They are, or draw upon, scientific studies, technical reports, engineering reports, and so on. They utilize scientists, engineers, & technicians to provide the ‘facts’ and data.

Scientific knowledge is produced by a ‘journey of investigation,’ based on the scientific method, that disaggregates the phenomena to be studied into disciplinary, sub-disciplinary, and ever smaller expert subject areas. Through the use of careful methods, studies produce factual outcomes. These outcomes, consequently, are generally narrowly focused, expert, highly technical, forms of disciplinary knowledge. This type of scientific knowledge, as valuable as it is, loses sight of the integrality of reality, that is, the interrelatedness of things, which cannot be captured in the factual scientific form of knowledge.

The exception to the rule of depending on scientific knowledge is Traditional Aboriginal Knowledge,³¹ which may be brought into this decision process by First Nations. Several Supreme Court decisions require government, and Canadians in general, to take into account a Constitutional “duty to consult” First Nations, when their ancestral lands are being altered or developed. The NGP Panel was specifically mandated to include aboriginal concerns and the process was somewhat adjusted to allow First Nations to share Traditional Aboriginal Knowledge.

Significantly, however, recent studies suggest the nature of the type of process used by the Panel has the effect of privileging scientific knowledge over other forms of knowledge. When the

testimony and input of First Nations' Traditional Aboriginal Knowledge is integrated into the Panel's approach—in testimony, reporting sheets, and detailed impact studies—it is transformed into fragmented, fact-based, knowledge and loses its normative, narrative content and thrust. It is essentially coopted by the process.

Assumption four: the Panel process ought to focus on remediation

A great deal of activity within the Panel's process—e.g. studies, interventions and discussions—concern whether and how to remediate the identified problems. This is precisely what one would expect with a cost-benefit approach that aims at an optimal outcome. Thus, a good deal of the Panel's work is of a technical in character. It spends a great deal of time hearing detailed analyses and arguments about technical issues of remediation, such as, what is a safe thickness for a pipeline wall that is crossing a stream. The Editor of the *Edmonton Journal* captured this aspect of the NGP Panel nicely when s/he points out “sessions have been a thorough, at times painstakingly so, dissection of the \$6-billion project...”³² The Editor also counselled those engaged in heated debate “on both sides of the debate (and both sides of the Alberta-B.C. border), [that] we need to judge this project calmly and coolly. That's what the joint review panel is offering us: a dispassionate examination of whether the Northern Gateway pipeline is indeed in the “vital interest” of Canada.”³³

The technical and remediation foci of the Panel's work were clearly manifest in its April 12, 2013 release of “199 Joint Panel conditions.” The Panel released them in advance of its ultimate decision on the NGP, so the proponent and interveners could respond before the Panel actually included any of them in its final decision. These conditions are clearly “technical adjustments” to the proposed project. They include measures requiring, for example, the pipeline operators to have one billion dollars of liability coverage for a catastrophic oil spill; rigorous pipeline inspections every 2 years in order to check for cracks; specially equipped tugboats to accompany tankers out of Kitimat Harbour; the creation of a plan to monitor the pipeline's effect on the environment; and submission of plans for monitoring species at risk, including caribou habitat restoration.³⁴

Making sense of these assumptions: “plausibility structure”

According to the above analysis, the pattern of assumptions in the NGP Panel decision-making process runs something like this: public decision-making ought to be done according to objective science and facts, and should exclude subjective values and beliefs. Consideration of the costs and benefits of the NGP is best treated as a technical and quantitative exercise, utilizing scientific knowledge and facts. For the problems that are identified, the Panel should identify appropriate technical adjustment steps which will optimize the final benefits of the project. I turn to Peter L. Berger and Thomas Luckmann's idea of ‘plausibility structure’ to help understand this pattern of assumptions.

In their classic (1966) study, *The Social Construction of Reality*,³⁵ Berger and Luckmann argue that social reality—order, roles, institutions—is constructed. By this, they mean that “social order is a human product” (49) that is constructed over time, and habituated (internalized) within people, as they “institutionalize social order” (50f). In the process of creating society, the outcome is transformed into “reality” through ‘plausibility structures’ that are simultaneously created. Thus, Berger and Luckmann are explaining how “subjective meanings become objective facticities” (17). Plausibility structures legitimate a society's members' understanding and acceptance of their socially constructed reality. As it is increasingly legitimated, it becomes “factual.” A plausibility structure, therefore, concerns the believability and acceptability of “subjective reality; reality as apprehended in individual consciousness” (142).

The idea of a plausibility structure, in summary, is “a social structure of ideas and practices that create the conditions **determining what beliefs are plausible** within the society in question” [my

emphasis]. Acceptance of a plausibility structure “is normally taken for granted without argument, and **dissent from which is regarded as heresy**” [my emphasis].³⁶

Berger and Luckmann use various illustrations of the idea of the plausibility structure of which one is the pre-modern Christian era. As the social institutions and overall society were constructed, a plausibility structure was also shaped to clarify which beliefs were legitimate or made sense in this world. To think or act outside of this Christian milieu was heretical (144-5).

The modernist plausibility structure

This idea of ‘plausibility structure’ suggests that perhaps the NGP Panel’s decision-making appears legitimate and plausible because most participants and observers share a contemporary plausibility structure. But what is the contemporary plausibility structure? In fact, Peter Berger identifies one in a later book, *The Heretical Imperative*.³⁷ Unfortunately, I think Berger is at least partially wrong.

Berger argues that modernity no longer has a single, dominant “plausibility structure,” as in former societies e.g. Roman Catholic medieval Europe. Instead, modern societies have immensely enlarged the sphere of individual private choice and freedom. They are marked by freedom of faith, shopping, lifestyle, speech, sexual conduct, and much more. Instead of a single plausibility structure, according to Berger, modernist society operates with radical pluralism; no single plausibility structure determines what beliefs are plausible or not. Each individual decides on his/her own, in the vastly expanded private realm of autonomous individual choice. Leslie Newbigin characterizes Berger’s position as follows: “We are free to follow our own preference regarding personal conduct and lifestyle, provided it does not prevent others from having the same freedom. There are no ‘right’ and ‘wrong’ styles of life.”³⁸ Outside of this expansive realm of private freedom, Berger argues, public questions are determined by reason and science. These involve little or no beliefs or values, I would add, because modernity constructs public institutions—e.g. the market and democracy—as neutral mechanisms in which rational individuals can fully participate without restricting any private expression of values and preferences. Thus, for Berger, contemporary society has become a reality governed by the “heretical imperative,” or multiple plausibility structures, instead of one.

Newbigin correctly argues that Berger misses the mark here. Newbigin’s alternative interpretation is that modern society does indeed have an operative plausibility structure, which is: “the public world of what our culture calls facts, in distinction from the private world of beliefs, opinions, and values.”³⁹ This determines what beliefs are plausible within what part of social life. Modernity has constructed a dual world of public and private spheres, each with its own distinctive mode of knowing. Thus, to be truly heretical (using Berger’s title) in a modern society, is not to have your own private convictions, but to doubt or challenge this operative plausibility structure!⁴⁰

The modernist plausibility structure identified by Newbigin, matches the pattern of assumptions surrounding the NGP panel process much better than Berger’s radical individual pluralism. The Panel focuses on factual, scientific argument and evidence around the pipeline, with experts testifying and pulling in scientific evidence. The ethos surrounding the Panel suggests all rational people should be able to agree on this evidence and method. Private values and beliefs are for the most part resisted and excluded from the process.

Why depend on reason and science for public deliberation and decision-making? A certain view of scientific progress suggests science can discover the truth of reality,⁴¹ and thus provide the objective facts required as a common foundation for deliberating on public matters. “Scientific progress will in the end dissolve the disputes” (Mills and MacLean, 104) over problems and policy choices. Religion, beliefs, opinions and values, however, are subjective, potentially divisive and best kept private. The historic European religious wars were evidence enough of this.

A potential dilemma with the modernist plausibility structure—which divides life into public and private realms, locating science and values in each respectively—is that this is not itself a self-evident position. Why, I argue, would the use of the norm of ‘reason’ to exclude consideration of any other values and norms in the public realm, be a neutral choice? Neither the division of life into two zones, nor the privileging of facts/science or values/beliefs in each zone, can be scientifically demonstrated. Yet, this plausibility structure seems to be built into the very structure and operation of the NGP Panel and process. Given the ferocity of public statements from politicians, industry and media, defending the Panel process as scientific, it also seems likely that to question this plausibility structure may make one a ‘heretic’ in mainstream Canadian society.

I leave further analysis and elaboration of this line of critique to another time, and shift to pursue a line of critique that arises *internal* to the current Panel process.

Part II: Interrogating the NGP Panel decision-making process for ‘values’ and ‘beliefs’

If we look *within* the Northern Gateway Pipeline Panel’s factual/scientific decision-making process, we discover two other assumptions, echoed in the discussion surrounding the Panel. Recollect that the Panel process involves: government received a private proposal from Enbridge to construct a pipeline and it appointed a Panel to conduct a public review, check the cost-benefit scenarios, to determine if there is a net gain for society, and if so, has Enbridge optimized this benefit. This, we further recollect, is to be done on a rational scientific basis. In this process, and in public commentary on the Panel, two assumptions are repeated, namely, *the pipeline is automatically a progressive measure* and *thus it will almost certainly be built*.

These two assumptions reappear in various discussions of the Panel’s work. Listen to three examples. Columnist for the *Vancouver Sun*, Barbara Yaffe, characterizes the pipeline as follows: Northern Gateway looks to be a huge freight train barreling down the tracks simply because it is such a fundamental strategic economic imperative for Canada. This country has bountiful resources, much needed by fast-developing Asian countries. There really is no stopping this train.⁴²

Mike Holden, senior economist at the prominent Canada West Foundation, and author of *From Dead Ducks to Dutch Disease*, frames the pipeline process as follows:

Our hope [as CWF]... wasn’t to advocate for “environmental groups” over “oilsands proponents”, but rather to say this is economically important, even if there are environmental costs, so the question is, how can we develop it responsibly?”⁴³

The Editor of the *Edmonton Journal* most clearly states the deeper assumptions at play, in an editorial analysis of the NGP Panel. The Editor characterizes four ways the public sees the Panel: First, “ordinary Canadians” simply see the Panel and decision-making process as a way to examine the “environmental impacts of constructing and operating a pipeline” and “the engineering solutions Enbridge has come up with to minimize them.”⁴⁴

Since opinions have become deeply polarized, however, the Editor suggests many now hold one of two polarized positions: the Panel hearings are (1) “an opportunity to delay the project, score propaganda points about global warming and reduce the social acceptance of the wider oilsands industry” or (2) “a ritual — a bit like praying at a shrine before war — for legitimizing a conclusion settled for all intents and purposes in advance.” In contrast to these wrongly polarized positions, the Editor identifies “the real goal of any public inquiry of this sort.”

The truth is, *the real goal of any public inquiry of this sort is...to reach a political consensus about the best way to proceed* — or at least agreement by the vast majority of those affected that the matter has been dealt with in good faith, that the engineers have done their best to minimize risk, and that the benefits clearly outweigh potential costs.

In some sense, you could argue that by forcing Enbridge to prepare for these hearings, *the most important goal has already been achieved*. In the old days when these matters were dealt with quickly behind closed doors, dangerous shortcuts were a lot more likely to happen. And, what is “the most important goal” of the hearings process?

As we [the editor] have argued in the past, *this project and the oilsands industry that stands behind it are vital to Alberta’s and Canada’s future prosperity*. But it is just as vital that they be developed in *the best possible way*, and that Canadians across the country and foreigners alike are convinced that’s what we Albertans are doing.⁴⁵

In summary, when the editor identifies the “real goal” of the process, s/he essentially says *the pipeline is automatically a progressive measure* because it is “vital to Alberta’s and Canada’s future prosperity.” So the real debate is over “the best possible way” to develop them, that is, what technical adjustments need to be made to the Enbridge project to optimize the benefit and minimize costs. Doing this, will ensure we “reach a political consensus about the best way to proceed.” Thus, the editors think the pipeline will *certainly be built*. It is almost as though building the pipeline is *fate*.

This brings to mind the famous Royal Dutch/ Shell scenario “TINA: There Is No Alternative!” (1995). This Shell’s scenario planning, the TINA scenario took the forces of “globalization, liberalization, technology” in the 1990s as given, and designed a scenario around Shell succeeding within this given environment. The Panel hearings on the NGP have a similar aura around them, ‘this pipeline is going to happen, therefore we need to ask what must to be known and done to make it successful.’ Or, ‘the pipeline is a means to progress and will be built, so which technical adjustments [*remediation* of problems] must be applied to the NGP project in order to ensure optimal benefit for society?’⁴⁶

Smuggling beliefs and values into the public realm

The nature of these two assumptions are puzzling because, as we showed in the above analysis, the Canadian plausibility structure legitimates the pipeline decision because it is based on objective and universally accepted facts and science, and excludes beliefs and values. But now, we discover that an assumption that the pipeline is *prima facie* a progressive measure, lies at the heart of the Panel process. This raises a number of questions. Why might a pipeline be considered a progressive means? What is progress exactly, and why would this pipeline be considered a means to progress? Is reason or science able to tell us? Isn’t progress a belief, since we can’t empirically or scientifically demonstrate that in the future, society will improve, that is, that history is progress? Is science able to demonstrate this factually, according to its norm of rationality, which our plausibility structure declares is the sole norm in the public realm? Is it not a violation of the plausibility structure to smuggle beliefs and values into the public realm? Recognizing these two puzzling assumptions suggests perhaps other beliefs and values are at work in the public realm and in the Panel process, which go beyond those in the plausibility structure which we identified above.

“Symbolic universe”

To assist in this analysis, I use a second key idea from Berger and Luckmann’s *The Social Construction of Reality*,⁴⁷ the idea of a “symbolic universe.” Recollect that the authors argue that social reality is constructed. The idea of “plausibility structure” (142) concerns the “maintenance and transformation of subjective reality” (135), in so far as it concerns what beliefs are plausible within the society, but taken for granted. Berger and Luckman emphasize that plausibility structure is about “the

defense of subjective rather than objective reality; reality as apprehended in individual consciousness rather than on reality as institutionally defined” (142). A “symbolic universe,” in contrast, concerns reality as institutionally defined, which they refer to as objective reality.

“Symbolic universes,” according to Berger and Luckman, are “bodies of theoretical tradition that integrate different provinces of meaning and encompass the institutional order in a symbolic totality” (88). They are created by expert theoreticians who “provide the highest level of integration for discrepant meanings actualized within everyday life in society” (91). Symbolic universes “present themselves as full-blown and inevitable totalities.” They are an “all-embracing frame of reference” (89) for a particular society. Since a symbolic universe concerns objective rather than subjective reality, it will often deal with “things not expressed in everyday life” (89). Since symbolic universes are the “social products with a history,” (90) they can be changed.⁴⁸

Probing for the ‘Symbolic Universe’ embedded in the NGP Panel process

In this section, I again follow Michel Foucault’s advice to take “the view from outside,” in order to ask deeper questions about the NGP Panel. The idea of ‘symbolic universe’ directs us to explore the implicit narrative used, the story told, to create a legitimating narrative for the NGP Panel decision-making. I use six scenarios to set up basic questions about the NGP and the Panel. As this interrogation proceeds, various key contents of our society’s “symbolic universe” are identified. It becomes clear that the Panel’s decision-making process, although assumed to be public, neutral and scientific, is in fact riddled with values and beliefs. In so doing, the outline of our society’s “symbolic universe” is gradually identified. The idea of “symbolic universe” also helps explain why society uncritically accepts these deeper values—constituted as a fuller justifying narrative—as real.

Scenario 1: Should the Northern Gateway Pipeline be built if we are confusing fossil fuel “needs” with “wants”?

The central justification for current expansions of oilsands projects, including enhanced pipeline systems, is need. We need more oil. An article on water use in the oilsands industry, for example, written for the official publication of “the world’s largest scientific society,” the American Chemical Society, opens with this assertion:

Whether or not anyone likes the idea of ripping up the landscape of northern Alberta or poking lots of well holes into it to access oil-rich sand deposits, the world—and more specifically the U.S. and China—*needs* the oil. Because of this *need* for petroleum, and the billions of dollars and nearly 140,000 jobs that already go with oil sands development, *the process is going to continue* [my emphases].⁴⁹

Significantly, ‘need’ is not argued here, simply asserted. Though often stated emphatically and unambiguously, both in popular and scientific periodicals, this declaration of need typically lacks a critical empirical or scientific justification. For what precisely do we need ever-increasing amounts of fossil fuel? Are these genuine needs? Since about 70% of bitumen—the product to be shipped in the NGP—is refined into gasoline, diesel, and jet fuel, we examine the ‘need’ more fossil fuels in terms of our transportation systems, global trade, suburban living, industrial agriculture, and consumerism.

Personal transportation:

We use transportation fuel to power our many automobiles, often in multiple-car families, including over-sized trucks, gas-guzzling SUVs, and massive vacation vehicles. Jet fuel also transports us on vacations to warm winter locations and on exotic summer vacations. Although never before in history has the bulk of any population enjoyed such trips as “normal,” today these luxuries are seen as needs and entitlements. Linked to this dependence on automobiles is the startling fact that, “of the ten largest corporations on earth, nine are either oil companies or automobile manufacturers.”⁵⁰

An common response to this analysis of our fossil fuel need, is that ‘need’ can be reduced technologically by increasing fuel efficiency. Ironically, however, a “fuel-efficiency paradox” has emerged. During the first and second oil crises (in the 1970s) Canada and the USA adopted the solution of reducing fuel need, by increasing vehicle energy efficiency. This reduced the intensity of fuel consumption e.g. cars use less gas per kilometre, but paradoxically, we ended up buying bigger and heavier vehicles, and since we could drive cheaply, we increased urban sprawl and drove further! Paradoxically, instead of falling, “total energy use in North America grew 31% between 1972 and 1997.”⁵¹ The solution, paradoxically, backfired. Our “need” is growing in spite of increased technological efficiency.

The fuel efficiency paradox signals that our need for fossil fuels may not be a straightforward factual problem which science and technology can solve. Transportation “needs” are swallowed up in a spiral of rising expectations that transforms wants into needs. Access to cheap fossil fuels has given birth to a host of new needs and entitlements each of which require more oil. However, do these types of needs warrant building a risky NGP through B.C. and using bitumen tankers on the West Coast?

Industrialized agriculture:

Our society has transformed farming into an industrial agriculture system that requires massive inputs of fossil fuels at all levels. Not only do equipment, barns, transportation, and extensive food processing industries require petroleum, but actual farm operations are now addicted to fossil fuels. They require massive inputs of fuel for tractors and equipment, as well as for making the fertilizer, pesticides and herbicides they use.

Do we genuinely need more fossil fuels to run our industrialized agriculture system, or could we develop a food system in ways that require less fossil fuel? Many wonder if remaking the food system might even generate healthier food.

Urban/suburban living:

The structure of the urban and suburban sectors of our cities suggests we have a distorted sense of fuel need. We use transportation fuels to move around in, and service, massive suburban sprawl, to shop in box stores, and to navigate between far-flung friends, family, offices, and more. If we continue to design our cities and suburbs in these ways, we will ‘need’ higher inputs of transportation fuel. But are these genuine needs or artifacts of mal-structured city life?

Globalized trade:

Most of the goods, and even some services, now travel great distances to arrive at our homes. On average, the food in a normal meal travels 1500 km. Most of our cloths are manufactured in Asian or African factories and sweat shops. Many consumer goods are made in China and India. Fossil fuels are used to provide fresh flowers during our winters, and to truck fresh fruit and vegetables north for three of four seasons. Almost everything we consume travels great distances powered by fossil fuels in the current global trade system.

If this sort of consumption—e.g. fresh flowers in the winter flown from Mexico or the Netherlands—are genuinely needs, then we must build the NGP. But, perhaps, cheap fossil fuels have created a trade system that allows us to imagine them as ‘needs’ and to turn them into entitlements?

Consumerism:

The production, distribution and consumption of goods require a great deal of resources and energy. Fossil fuels are used to mine resources and to manufacture, transport, and assemble a huge variety of consumer goods, e.g. I-phones, computers, fashion purchases, new trinkets, and furniture. The fashion cycle moves on, advertising creates new ‘needs,’ and we feel entitled to replace slightly

worn consumer goods with newer versions. Consumerism requires more fossil fuels, but is this a genuine need for which we should accept the risks of the NGP?

Probing for elements of a ‘symbolic universe’ behind ‘need’

This all too brief summary of fossil fuel needs suggests that it is empirically quite possible to make reductions in fossil fuels use, if rich societies and individuals revalued our sense of ‘need’ and changed social and economic structures accordingly.

Why are we so reluctant to ask the NGP Panel to entertain these sorts of questions in public hearings? In Part I, we argued that the nature of the Canadian ‘plausibility structure’ prevents us from addressing these fundamental belief/value questions in a public forum. It tells us that legitimate public decisions ought to be scientific and avoid private values. Values and beliefs are individual, subjective and thus will likely cause conflict, while facts and science are universal and objective and thus acceptable to all rational persons. But there is a deeper reason we do not want to ask the question of need. A leading belief of our society is that *all individuals are autonomous—we are laws unto ourselves, literally—and thus free to rationally determine our own needs and wants. No external authority may impose any limit on individual freedom by defining or limiting our pursuit of needs.* Now, perhaps this is a true or good belief but it is nevertheless still a belief! It has not, nor cannot, be critically or scientifically demonstrated (as empirically true). So, why do we allow it to covertly influence decision-making in the public realm?

By failing to overtly recognize the role of this belief—autonomous individuals—in our “symbolic universe,” the Panel ends up covertly ruling out genuine public discussion on other deep questions, such as: why do we design modern societies to structurally demand more and more fossil fuels? Why do we assume that economic growth can go on forever? Why do we assume resources are infinite; or at least endlessly substitution-able? Why do we trust that science and technology will always discover new technical solutions for all of the side-effects of developments? And so on. But, genuine public discussion also requires addressing these sorts of core values or beliefs in public decision-making. If the Panel and most interveners exclude and ignore these questions and options, we allow a sense of fate to settle over the public decision-making process. TINA, there is no alternative. We must build the NGP to provide energy for human need, fire progress, and increase wealth. This *a priori* rules out other options, such as, more fossil fuels are not genuinely needed at this point, so the pipeline could be delayed or denied construction, and policies to change in consumption patterns [carbon tax] could be implemented [the tax revenue could be used to create other types of jobs]. This would open up new ‘degrees of freedom’ for society to think and act differently!

Scenario 2: Should the Northern Gateway Pipeline be built if First Nations are not yet full and equal partners in decision-making about developments located on their ancestral lands?

To begin with, recollect that the Canadian ‘plausibility structure’ dictates that a ‘good’ public decision on the NGP requires the Panel to consider factual and scientific input. Issues of value and belief must be excluded as private. This means, however, that the Panel must accept the status quo as normal and make its decision on the pipeline in that context. The current relationship with First Nations would be taken as given, although the Panel does recognize a limited sense of the government’s “duty to consult” First Nations, and incorporates “Traditional Aboriginal Knowledge” in the hearing process. Even so, the current plausibility structure has had the effect of allowing this Traditional Aboriginal Knowledge into the process primarily as fragmented, repackaged and “factual” information.⁵²

A quick overview of First Nations’ response to the NGP Panel, however, reveals a deep dispute over the justice of this process. They believe they have not re-asserted their right to full and equal partnership in the decision-making on developments in their ancestral lands.

First, briefing notes to former Aboriginal Affairs Minister, John Duncan, show that “as many as 100 aboriginal groups in northern Alberta and British Columbia could be affected by the pipeline.”⁵³ Furthermore, the briefing notes tell the Minister that “adequacy of consultation will be a key issue” for First Nations.

Second, the briefing notes also indicate that the Government, through Indian and Northern Affairs Canada, “does not have the capacity to meet such demands [for consultation] as it does not have the regulatory framework, authorities, and resourcing in place south of 60 to address these concerns.” Instead, the briefing note says Government “... expects Enbridge to fulfil some of the Crown’s duty to consult with First Nations and Métis groups,” and, furthermore, “most consultation will be carried out by the public hearings of a joint Canadian Environmental Assessment Agency-national Energy Board review panel.”⁵⁴ In other words, the Government expects Enbridge to consult First Nations, and for First Nations to participate in the NGP Panel process, much like any other stakeholder, and these actions sufficiently carry out the government’s duty to consult First Nations.

Third, aboriginal groups, however, deeply disagree and “say the joint panel’s public consultation process does not meet aboriginal needs or the federal government’s duties.”⁵⁵ In fact, many First Nations along the NGP route have not even signed treaties or ceded their territories.

Fourth, the First Nations believe, in the words of Assembly of First Nations National Chief Shawn Atleo, that “aboriginal communities have a right to “free, prior and informed consent,” and must be treated as *equal partners in any decision*.” He argues that “*True partners* would design a way forward together and would form a *shared vision* of how resources development occur in this country. ... indigenous people have a vision of sustainability when it comes to our relationship with the environment and the living world around us. That’s something that we can now bring to bear. [my emphasis]”⁵⁶

Fifth, as implied in the previous point, when First Nations’ partnership is acknowledged, they will pursue forms of development if and when they fit their vision of creation. Allan Adam, chief of the Athabasca Chipewyan First Nation, states:

From a First Nations perspective, it doesn’t matter whether we stand on the coast of B.C. or in the heart of the oilsands — our struggle is largely one and the same. We don’t want our lands, our rights, or our people to be sidelined and destroyed by irresponsible development.

The proposed Enbridge pipelines would cross 1,000 rivers, three major salmon-bearing rivers and unceded territories of many First Nations. A spill would devastate the lives and economies of these communities and the fragile rivers and ecosystems they rely on.⁵⁷

Probing for elements of a ‘symbolic universe’

So what should the NGP Panel do? They were told to consult First Nations and incorporate “Traditional Aboriginal Knowledge” into their hearing process and calculations. But, testimony from First Nations suggests this relationship is considered unfair and that a “true partnership” in decision-making must still be forged. This conflict interpretation clearly reflects a *value* difference over the *facts* of the status quo. Directly tackling this reality, however, would violate the Canadian plausibility structure because it sees good and legitimate public decisions as strictly based on factual and scientific grounds. Issues of value and belief are to be excluded as private. Even forceful critic of aboriginal sovereignty, Thomas Flanagan, concedes that this situation may be one of the biggest impediments to building the NGP.⁵⁸

But why has society persisted in making major development decisions within this contested status quo approach to First Nations’ land and rights? This is even more acute in Northwestern BC, where most First Nations’ ancestral lands have never been ceded by treaty. Are deeper beliefs at play? The narrative that is often told to justify this approach is that Western, capitalist, democratic societies are at the vanguard of progress. They use science and technology to master nature, engineer economic

growth, and produce material prosperity. Aboriginal societies must eventually join us on this inevitable historical track of progress. Dominant society can make gestures to include and accommodate First Nations in the NGP process, but eventually they will have to join the mainstream on this trajectory of progress. The NGP Panel can proceed in good conscience, in spite of these deep disagreements over the proper place of First Nations in the process, because this progress narrative is part of Canada's widely accepted 'symbolic universe.' But, once again, why assume history is progress? Can this be scientifically demonstrated, namely, that the future will indeed be an improvement over the present, that history is progress?

Perhaps, if we acknowledged this historical injustice in the dominant society's relationship with First Nations, we could then structure a Panel process that welcomes a fuller variety of values and narratives into public debate in the NGP decision-making process.⁵⁹

Scenario 3: Should the Northern Gateway Pipeline be built without simultaneously considering the full costs of *expanding* the Alberta oilsands developments as part of the costs of the pipeline project?

The Federal Government is clearly aware of the unprecedented scale of the oilsands developments, as Natural Resources Minister Joe Oliver states: "We have in the oilsands the largest industrial project in the entire world."⁶⁰ Building the NGP pipeline will greatly increase our capacity to export bitumen, virtually guaranteeing a major increase in production of bitumen in the oilsands. Ironically, however, the terms of reference of the NGP Panel exclude any real consideration of the social, economic, cultural and ecological costs of expanding the oilsands developments.

An extensive literature considers the costs of oilsands developments.⁶¹ It would require another paper to adequately identify and summarize these costs (and benefits). I simply note several of the more striking costs here, for purposes of illustration. What is certain, at this moment, is that corporations can currently sell bitumen and make a profit, and they do. What is less well understood, is that not all of the true costs of production are included in the price of bitumen. If they were, we might ask, would it still be profitable to extract and sell bitumen? A wide range of development costs are being either 'socialized' (borne by the taxpayer), or 'ecologized' (shifted onto ecological systems to bear), or 'futurized' (shifted to future generations).

The following are some of the more egregious costs of bitumen mining and in situ extraction. Costs range from damage to ground water and the McKenzie River watershed, air pollution, huge subsidies through the current low royalty rate [Albertans own the resource and defer most of the royalties until the initial capital investment is paid off], health, social and cultural costs borne by nearby First Nations, social and health costs borne by commuting workers and their families, reclamation costs for land and wetland ecosystems, reclamation costs for massive toxic tailings ponds (170 sq km of ponds, and one pond is held in by the 2nd largest dam in the world, by volume of fill), low Energy Return on Investment(EROI) and Energy Return on Energy Investment (ERO(E)I), high rates of GHG emissions from using bitumen (and also from burning fossil fuels needed to extract it), open pit mines, in situ operations fragment the Boreal Forest, impacts on endangered species, and more. The NGP Panel should be asked to consider whether, if all direct costs of exploiting the oilsands were incorporated (not externalized) in bitumen price, would we still develop the oilsands at this point?

Although we can scientifically and factually show these costs are real, a common critical response to the above argument, is that society externalizes costs for good reasons, e.g. to stimulate economic growth, create jobs, and increase tax revenues (to pay for government services). Society believes the NGP is a progressive measure (see above) that will spur economic growth which is needed for material prosperity and to increase human happiness. Or, we externalize these costs in the hope that we will discover new technologies to solve these problems, or at least do so at a cheaper rate than now (toxic ponds).

While a case may be made for these justifications, they clearly are not simply factual assertions, as the Canadian “plausibility structure” says they ought to be. Rather, they are premised on hopes, beliefs, and sometimes even dreams. Belief in the automatic benefit of economic growth, science and technology are parts of our ‘symbolic universe,’ weaving the narrative that holds our institutions and way of life together. But, even so, they are still beliefs; beliefs which our plausibility structure says should not play a role in the public realm.

Scenario 4: Should the Northern Gateway Pipeline be built if it expands the use of bitumen, a type of fossil fuel that has higher-than-average GHG emissions, and thus a fuel that will likely be boycotted by states once they begin to seriously reduce their carbon emissions?

This scenario raises a critical factual question, but one that is integrally entangled with a number of value and belief choices that states will soon have to face concerning their future GHG emissions. The issue here goes beyond the direct GHG emissions of oilsands. The scenario involves various steps, many of which invoke human value judgements and decisions.

First, climate scientists warn us that “the overwhelming scientific consensus [is] that while any increase in average global temperatures from pre-industrial levels is dangerous, increases above 2 °C will likely have cataclysmic effects for the ecosystems on which we depend.”⁶² While the effects of climate change come slowly, over decades, former NASA climate scientist Jim Hansen argues, “The last time the world was 2 °C warmer, the sea level was 6 meters higher, for example... scientists guarantee a whole series of major changes...”⁶³

Second, Canada and most states on earth have signed onto the Copenhagen Accord which aims to keep global warming under a 2 °C limit.⁶⁴

Third, several studies now show that “the global fossil fuel reserves that are already on the corporate books, for which development capital has largely been sunk, greatly exceed, by a factor of five, what we can safely burn to be assured of keeping warming below 2° C.”⁶⁵ That means we can only burn 1/5 of known reserves, [other reports suggest 1/3 of known reserves] or we doom our grandchildren to a future of more than 2° C rise. A recent (2013) study by Lord (Nicholas) Stern puts it another way: “at least two-thirds of the world's estimated coal, oil and gas reserves have to remain underground if the international community hopes to keep global warming beneath the 2 °C goal and avoid the threshold for ‘dangerous’ climate change.”⁶⁶

Fourth, burning high GHG-emitting fossil fuels will likely be greatly reduced once states begin to be serious about tackling climate change.

Fifth, bitumen, the product to be shipped through the NGP, has a significantly higher carbon impact than many fossil fuels. The USA Environmental Protection Agency recently wrote a public letter to the USA State Department on the Keystone Pipeline (April 22, 2013) stating “...oil sands crude is significantly more GHG intensive than other crudes, and therefore has potentially large climate impacts. The [Department of State's draft Supplemental Environmental Impact Statement] reports that lifecycle GHG emissions from oil sands crude could be 81% greater than emissions from the average crude refined in the U.S. in 2005 on a well-to-tank basis, and 17% greater on a well-to-wheels basis.”⁶⁷

Sixth, should Canadians lock into building costly NGP infrastructure when it will ship a high GHG producing product for decades? The Canadian Government and the NGP Panel should publicly consider whether, in the near future, world states may no longer want to buy bitumen since it, along with coal and shale oil, has far higher GHG impacts. If countries are restricted to using only 1/5 to 1/3 of known fossil fuel reserves, won't they go after the ones with the lowest GHG emissions?

Has Canada become so obsessed with economic growth and increased consumption, that we would proceed to build the NGP pipeline as a ‘means’ to achieve “jobs and economic growth,” even

though bitumen produces disproportionately high levels of GHGs? Is not the commitment to economic growth and increased consumption a value within the Canadian ‘symbolic universe’?

The Government should have commissioned the NGP Panel to consider this scenario seriously, as it considers the pipeline? The science on climate change is well-established and nearly unanimous in the scientific community.⁶⁸ The NGP could end up becoming an empty, failed investment (as the world suddenly shifts away from high GHG fuels). Or, the NGP could structurally lock us into commitments to continue shipping of high-GHG product abroad, when our national policy aims to fight climate change by lowering GHGs.

Since the current NGP Panel deliberations include beliefs and values, as do the above positions considering whether state will use or reject bitumen in the future, we are left asking not whether or not to include values in public decision-making, but *how* to include them.

Scenario 5: Should the Northern Gateway Pipeline be built if it is likely to worsen the ‘ecological question,’ that is, if it increases the human ecological footprint in such a way that it diminishes the earth’s renewable resource producing capital as well as its capacity to absorb waste?

The ‘ecological question’ is one of the leading challenge of our times. The ‘ecological question’ concerns human over-use of many of the earth’s finite renewable (and some non-renewable) resources. The human population has recently surpassed the 7 billion mark, having reached 1 billion only around the American Revolution! As human societies grow, economic systems designed to provide for our needs, also grow. But now we are surpassing the limits of creation. On one side, we annually over-consume the products of topsoil, water, and air, such as, forests, fish stocks and so on, beyond the earth’s ability to provide them. On the other side, humanity is also over-using the waste absorption capacity of the earth’s ecological systems, dumping too much waste in air, water, and soil. This overuse of natural resources and the earth’s pollution absorbing capacities is now necessarily damaging and diminishing the productive and waste absorption capacities of natural cycles. Humanity is destroying the ‘capital’ of nature, metaphorically speaking. Finally, the rate at which we are destroying the capital of creation, is now moving at exponential rates.⁶⁹ Together, this constitutes the ‘ecological question’ that humanity is causing, especially rich people and societies.

Building the Northern Gateway Pipeline will increase structural capacity to deliver increased supplies of energy to consumers—whether in USA, Canada or Asia—and thus speed up the rate at which humanity’s ecological footprint grows. In a sense, the ecological question is the culmination of all scenarios facing the NGP. Building the NGP pipeline will provide increased fossil fuel for continued growth of the Western way of life, which mounting empirical and scientific evidence shows, is now generating the potentially disastrous ‘ecological question.’ Our ‘plausibility structure’ certainly condones entertaining this sort of science in public decisions. Admittedly, this scenario is also permeated with values, beliefs and deep philosophical considerations. But, so is the current Panel scenario.

We showed that the NGP is deemed an automatically progressive measure. Why? Because it fuels economic growth which produces material prosperity, which is *believed* to be a critical *means* to human happiness. But does it truly increase happiness? This cannot be demonstrated scientifically. Furthermore, some recognize that over-using energy to spur more economic growth in already rich societies worsens the problems involved with the ‘ecological question.’ But then believe that scientific and technological progress will solve all of these problems. They will discover ways of producing goods that do not require extracting more resources from, and dumping more pollutants into, land, water, and air. Here again, however, we run into another belief in our “symbolic universe” that lacks a factual, scientific basis.

Scenario 6: Should the Northern Gateway Pipeline be built if the ecological and social costs and risks of building it, and creating oil tanker traffic on the BC coast, are too high?

This final scenario returns to the mandated focus of the Northern Gateway Pipeline Panel process! It focuses on what the Panel is currently considering around the construction of the pipeline and the tanker terminal. It addresses a set of questions that focus on whether the NGP pipeline should be built, in view of very important direct challenges, such as, its impact on the environment (wetlands, lakes, streams, fish, animals and plants, fish habitat, wild salmon watersheds and spawning grounds), land owners, Aboriginal peoples' social wellbeing and health, local jobs and business participation, the overall economic effects [e.g. number of permanent jobs, economic growth, and so on], the chance of a tanker spill, and so on. In spite of the Panel's narrow terms of reference, (which compose its essential definition of the public interest), these are still serious and important questions to debate and address.

Given the analysis in the above 5 scenarios, we recognize that the NGP Panel process implicitly includes a variety of values and beliefs, and so it cannot [pretend to] transcend them, as demanded by the Canadian plausibility structure. Importantly, we need to also recognition that even this narrower mandate does not evade values and beliefs. Indeed, value and normative concerns influence every aspect of the assessment required in this scenario six, including how humans value life, ecological systems, define and assign risk, evaluate tradition, and so on.⁷⁰ In *Pursuing Truth, Exercising Power*, Lisa Anderson concludes that social and policy sciences have “been shaped by our values: even as we have denied any such influence, our truths have been shaped by how we have understood power.”⁷¹ She continues:

The social sciences' organization of knowledge, choices of problems, selection of analytical tools, definitions of solutions all represent commitments to politically inflected values. For most social scientists, these are the values of American liberalism...⁷²

‘Symbolic universe’: the narrative of ‘faith in progress’

This analysis of the NGP Panel process revealed, not only Canada's operative ‘plausibility structure’—i.e. public decisions are legitimate when based on fact and science and not on private values and beliefs—but also Canada's ‘symbolic universe.’ To recap, a ‘symbolic universe’ is an “all-embracing frame of reference,” that is, a narrative and theories constructed to integrate and legitimate social reality. Discussion of the above six scenarios reveals various beliefs and values. Together, they function as a narrative of ‘faith in progress.’ This narrative effectively functions as Canada's ‘symbolic universe.’ It runs as follows: *rational humans can fully understand nature through science. We can use this knowledge in our technology to fully master and exploit nature, thereby spurring ever-increasing economic growth and continually rising material prosperity. This ultimately guarantees human happiness and freedom.*⁷³

In the above analysis, we found parts of these values and beliefs inspiring and shaping various aspects of the NGP Panel's process and debates. Canada's operative ‘plausibility structure,’ together with the narrative of progress in our ‘symbolic universe,’ account for the narrow focus of the Panel's mandate and work. They also account for why most Canadians accept this narrowly Panel decision-making process as legitimate. Finally, the analysis of the six scenarios shows that values and beliefs permeate much of the current NGP Panel process. As such, we should feel free to study how public interest panels might be reconstituted so they more openly and deliberately consider the competing narratives at work within Canadian society. This would simply be an honest expansion of the current value-laden reality of the Panel.

What difference might bringing various competing narratives together in the public debate over the NGP make? Putting the dominant Canadian ‘symbolic universe’ into conversation with alternative narratives, could allow the Panel to consider different angles on, solutions for, and alternatives to, the

NGP. We currently assume the NGP is a progressive measure, for example, because we believe striving for “ever higher levels of consumption” brings increased happiness. With multiple narratives within the NGP discussions, we might be led to ask whether this makes sense in very rich societies such as ours.⁷⁴ Building the pipeline is not fate! Rather, we could explore whether our society’s understandings of ‘goals’ and ‘means’ have been seriously distorted by economic greed. This would create ‘degrees of freedom’ for the Panel to consider a wider range of options on the NGP, e.g. placing a moratorium on new pipelines or on new oilsands developments. Or, the Panel could conclude that it should request government impose a carbon tax to reduce fuel use and to curb our distorted sense of ‘need.’

Saying no to the NGP pipeline could help restrain the growth in material consumption, thus reducing stress on ecological systems and resources. If we do this through a carbon tax, we could use the revenue generated to invest in creating labour-intensive jobs—e.g. care of ecological systems, care of elderly, care of sick and marginalized, education and youth work—which would both create jobs for unemployed and provide care for the threatened environment and weak and marginalized sectors of society. The Panel would not need to restrict its thinking to “pipeline jobs” or “no jobs,” but could reformulate this as “what kind of jobs do we want to create” (alternative energies, conservation, retrofitting).

Endnotes:

¹ On the question of the use of terminology, the material mined in Northern Alberta is neither ‘oilsands’ nor ‘tarsands,’ but ‘bitumen.’ While clearly there is significant rhetorical value in labelling the product of these developments as either ‘tarsands’ or ‘oilsands,’ I chose to use ‘oilsands,’ generally, in order to invite dialogue and generate significant and imperative public debate with those engaged in developing this resource. It is critical, at this point in history, to shift attention away from debate over a labelling effort, towards deeper, more substantive analysis and discussion of the real challenges of the oilsands developments.

² Michael Callan, “Pipeline Emergencies,” Chapter 2, “Pipeline Regulations and Safety Programs,” accessed April 13, 2013, at <http://www.pipelineemergencies.com/pdf/InstructorGuide2.pdf>. The full guide is at <http://pipelineemergencies.com/program.html>. The additional characterization is drawn from Jarrett Huebner, Letter to editor, “Pipeline hearings waste time, money,” *Edmonton Journal*, 15 Jan 2012.

³ See “Agreement between The National Energy Board and the Minister of the Environment concerning the joint review of The northern gateway pipeline project,” accessed May 10, 2013, at https://www.neb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/384008/591959/A1R4D5_-_Joint_Review_Panel_Agreement.pdf?nodeid=591960&vernum=0.

⁴ See “Agreement between the National Energy Board and the Minister of the Environment concerning the joint review of The northern gateway pipeline project.”

⁵ This section is drawn from “Enbridge Northern Gateway Project Joint Review Panel,” accessed May 15, 2013, at <http://gatewaypanel.review-examen.gc.ca/clf-nsi/bts/jntrvwpanl-eng.html>.

⁶ This is due to the liberal theory of government that assumes the ‘public interest’ only emerges when private individuals in free interaction in society and the market might act in such a way as to cause a ‘market flaw.’ Government then has the public interest role of ensuring the effects of these market flaws are prevented or mitigated.

⁷ See Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences*, [original French publication, 1966], English, Pantheon Books, 1970, and Michel Foucault, *The Archaeology of Knowledge*, [original French publication 1969], trans. A. M. Sheridan Smith, London and New York: Routledge, 2002.

⁸ The Federal Omnibus Budget legislation would later formally allow the Cabinet could make its own determination. [SOURCE]

⁹ Dene Moore, “Harper says independent panel, not political criteria will decide pipeline fate,” The Canadian Press, *Ottawa Citizen* mobile, Tuesday, August 7, 2012.

¹⁰ Dene Moore, “Data to assess pipeline won’t come in time, critics say,” *Edmonton Journal*, The Canadian Press, 20 Aug 2012, A1. See Jason Fekete and Peter O’Neil, “Science will decide pipeline: PM,” *Edmonton Journal*, 8 Aug 2012.

¹¹ Dene Moore, “Harper says independent panel, not political criteria will decide pipeline fate,” The Canadian Press, *Ottawa Citizen*, Tuesday, August 7, 2012. Ironically this appeal to science is not confirmed by government action on its science policy. Furthermore, since making this statement, the Government has adopted the Omnibus budget bill that will now refer all Panel recommendations, not just positive ones, to the Cabinet for their own deliberation and decision.

¹² Mike De Souza, with files from James Wood, *Calgary Herald*, Ottawa, 27 Jan 2012, and published in the *Edmonton Journal*.

¹³ Al Monaco, President Enbridge, published Aug 03, 2012, accessed 8-18-2012 at <http://www.northerngateway.ca/news-and-media/what-s-new-at-northern-gateway/statement-from-al-monaco-enbridge-president/>.

¹⁴ John Cotter, “Churches speak out on Northern Gateway oil sands pipeline,” *Financial Post*, The Canadian Press | Aug 7, 2012 8:46 AM ET | Last Updated: Aug 7, 2012 11:07 AM ET, accessed 2012-08-07 at <http://business.financialpost.com/2012/08/07/pulpits-and-the-pipeline-more-churches-speaking-out-on-northern-gateway-project/>.

¹⁵ Editor, “On pipeline, some input is not helpful,” 17 Aug 2012, *Edmonton Journal*, A24.

¹⁶ Gregory J. Inwood, *Understanding Canadian Public Administration: An introduction to theory and practice*, 3rd edition, Toronto: Pearson, Prentice Hall, 2009, p. 215.

¹⁷ Herbert Simon, *Administrative Behavior*, 3rd edition, (1976) originally published in the late 40’s

¹⁸ Randy S. Clemons and Mark K. McBeth, *Public Policy Praxis: A Case Approach for Understanding Policy and Analysis*, 1st Edition, Upper saddle River, NJ, Prentice Hall, 2001, p. 45.

¹⁹ Michael Howlett, M. Ramesh, Anthony Perl, *Studying Public Policy: Policy Cycles and Policy Subsystems*, Oxford University Press; Third Edition, Jan 26 2009, p. 143.

²⁰ Randy S. Clemons and Mark K. McBeth, *Public Policy Praxis*, 45-6.

²¹ Michael Howlett, M. Ramesh, and Anthony Perl, *Studying Public Policy*, pp. 143-154. Also see Charles E. Lindblom, “The Science of Muddling Through,” *Public Administration Review*, 19 (Spring 1959), 79-88.

²² Lisa Anderson, *Pursuing Truth, Exercising Power: Social Science and Public Policy in the Twenty-First Century*, Columbia U. Press, 2003, p. 31.

²³ Lisa Anderson, *Pursuing Truth, Exercising Power*, p. 30.

²⁴ Polkinghorne, *Methodology for the Human Sciences*: 19, my emphasis.

²⁵ Leslie A. Pal, *Beyond Policy Analysis: Public Issue Management in Turbulent Times*. 4th ed., Toronto: Nelson, 2010, pp. 306.

²⁶ Michael Howlett, M. Ramesh, Anthony Perl, *Studying Public Policy*, p. 179.

²⁷ See Claudia Mills and Douglas MacLean, “Faith in Science,” in Claudia Mills, *Values and Public Policy*, Harcourt Brace Jovanovich, 1992, 106-7.

²⁸ Thomas R. Dye, *Understanding Public Policy*, 12th ed., Prentice Hall, 2008, p. 15.

²⁹ Claudia Mills and Douglas MacLean, “Risk Analysis and the Value of life,” in Claudia Mills, *Values and Public Policy*, Harcourt Brace Jovanovich, 1992, 95.

³⁰ See Claudia Mills, *Values and Public Policy*, Harcourt Brace Jovanovich, 1992.

³¹ There are also, in addition to TAK, local knowledge, traditional knowledge, engaged knowledge, and so on. An interesting perspective on the role of various languages and knowledges in human societies, see Wade Davis, *The Wayfinders: Why Ancient Wisdom Matters in the Modern World*, Toronto: Anansi, 2009.

³² Editors, “A calm, cool look at pipeline bid,” *Edmonton Journal*, 13 Sep 2012.

³³ Editors, “A calm, cool look at pipeline bid.”

³⁴ “Attachment B: Collection of potential conditions–Northern Gateway Pipelines Inc. (Northern Gateway) – Enbridge Northern Gateway Project–Hearing Order OH – 4 – 2011,” accessed May 1, 2013 at

<https://www.neb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624909/942629/A346-5 - Panel-Commission - Attachment B - Collection of potential conditions - A3G7X1.pdf?nodeid=942306&vernum=0>. Notably, on December 30, 2009, Joint Panel NEB on “Mackenzie Gas Project recommended 176 conditions, Cabinet adopted 11” from “Enbridge must set aside close to \$1-billion to cover potential Northern Gateway spill costs,” Jeff Lewis | 13/04/12 | Last Updated: 13/04/12 5:46 PM ET, Financial Post, accessed April 24, 2013 at <http://business.financialpost.com/2013/04/12/northern-gateway-panel-issues-draft-conditions-for-pipeline/>.

³⁵ Peter L. Berger and Thomas Luckmann, *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*, NY: Doubleday, 1966.

³⁶ Here I am using Leslie Newbigin’s excellent summary, from *Foolishness to the Greeks: The Gospel and Western Culture*, Grand Rapids, Mi.: Eerdmans, 1986, p. 10, n. 1, and also p. 10.

³⁷ Peter L. Berger, *The Heretical Imperative: Contemporary Possibilities of Religious Affirmation*. Garden City, NY: Anchor, 1979.

³⁸ Leslie Newbigin, *Foolishness to the Greeks*, p. ?

³⁹ Leslie Newbigin, *Foolishness to the Greeks*, p. 14.

⁴⁰ Newbigin also argues that Berger harbours an implicit, hidden “criteria for assessing” faith, theology, beliefs, or “true and false religious experience,” which is reason. Ultimately, reason is the criteria for judging and assessing any contribution from the private realm, whether values, faith, or beliefs. See Leslie Newbigin, *Foolishness to the Greeks*, p. 148.

⁴¹ Claudia Mills and Douglas MacLean, “Faith in Science,” in Claudia Mills, *Values and Public Policy*, Harcourt Brace Jovanovich, 1992, 103-110. Thus we have, and need, Mills and MacLean argue, a “faith in the objectivity of science and the ultimate emergence of truth ...” (104). This involves a picture of scientists “as detached from the world of conflicting values and competing interests” (103).

⁴² Barbara Yaffe, “Let the battle over pipelines, west-coast ports and tankers begin,” *Edmonton Journal*, 31 Jul 2011 from *Vancouver Sun* Postmedia News.

⁴³ From Jodie Sinnema, “Oilsands needs PR makeover: report,” *Edmonton Journal*, 31 Jan 2013

⁴⁴ Editor, “Both sides should treat hearings with more respect,” *Edmonton Journal*, 12 Jan 2012.

⁴⁵ Editor, “Both sides should treat hearings with more respect,” *Edmonton Journal*, 12 Jan 2012; all highlighted sections are my emphasis.

⁴⁶ The TINA scenario took the forces of “globalization, liberalization, technology” in the 1990s as given, and designed the Shell scenario around the company succeeding in this given environment. See Ian Wylie, “There Is No Alternative,” accessed May 22, 2013, at <http://www.fastcompany.com/45027/there-no-alternative>. See “Forty Years of Shell Scenarios,” accessed May 22, 2013, at <http://s03.static-shell.com/content/dam/shell-new/local/corporate/corporate/downloads/pdf/shell-scenarios-40yearsbook080213.pdf>.

⁴⁷ Peter L. Berger and Thomas Luckmann, *The Social Construction of Reality*.

⁴⁸ Berger and Luckmann argue that “...theories are concocted in order to legitimate already existing institutions. But it also happens that social institutions are changed in order to bring them into conformity with already existing theories, that is, to make them more ‘legitimate’.” (118) Thus, “social change must always be seen as standing in dialectical relationship to the ‘history of ideas’.” In this, the authors reject both the idealistic and materialistic understanding of change, and argue for a dialectical understanding (118). In their view, “the same dialectic prevails in the overall transformations of symbolic universes...” (117).

⁴⁹ Stephen K. Ritter, “Water for Oil,” *Chemical & Engineering News*, Sept. 5, 2011, Vol. 89, No. 36, pp. 56-59.

⁵⁰ *Fortune Magazine's* “2006 Global 500,” accessed May 25, 2013, at http://money.cnn.com/magazines/fortune/global500/2006/full_list/.

⁵¹ United Nations Environment Program, “North America’s Environment: A Thirty-year State of the Environment and Policy Retrospective,” 2002.

⁵² Thanks to Jason Horlings for this insight.

⁵³ Trish Audette, “Aboriginals left out, pipeline hearing told,” *Edmonton Journal*, 27 Jan 2012.

⁵⁴ Trish Audette, “First Nations not part of pipeline plan: report,” *Edmonton Journal*, 29 Feb 2012.

⁵⁵ Trish Audette, “First Nations not part of pipeline plan: report,” *Edmonton Journal*, 29 Feb 2012.

⁵⁶ Mike De Souza, “First Nations deserve equal say on pipeline: chief,” *Postmedia News*, Ottawa, *Edmonton Journal*, 26 Jan 2012. And see Peter O’Neil, “Experts doubt First Nations could stop pipeline,” 28 Jan 2012, *Edmonton Journal*. Peter O’Neil, “PM vows to consult natives on pipeline project,” 31 Jan 2012, *Edmonton Journal*.

⁵⁷ Allan Adam [opinion piece], “Pipeline threatens a way of life,” *Edmonton Journal*, 5 May 2012, Allan Adam is chief of the Athabasca Chipewyan First Nation.

⁵⁸ Thomas Flanagan, former advisor to Stephen Harper, Professor of political science at the University of Calgary, and a critic of aboriginal sovereignty, concedes that “[It is] difficult to foresee a quick completion of this pipeline...” “The difficulties are very real and they’re large.” Jen Gerson, “First Nations showdown could be Northern Gateway pipeline’s biggest obstacle,” *National Post*, Jul 31, 2012 – 9:12 PM ET. See Flanagan’s comments in this article, detailed viewpoint.

⁵⁹ Berger Commission is an example of a public hearings process on the McKenzie Valley Pipeline, for which a broader, normative, narrative, factual decision framework was in fact used. Thomas Berger, *Northern Frontier, Northern Homeland: the Report of the Mackenzie Valley Pipeline Inquiry* (1977).

⁶⁰ “Interview with Evan Solomon of Natural Resources Minister Joe Oliver,” *CBC News* “The House,” Aired on 4 February 2012.

⁶¹ Some of the popular and scholarly literature is: Debra J. Davidson and Mike Gismondi, *Challenging Legitimacy at the Precipice of Energy Calamity*, Springer, 2011; Dan Woynillowicz, Chris Severson-Baker, Marlo Reynolds *Oil Sands Fever: The Environmental Implications of Canada’s Oil Sands Rush*, Pembina Institute, 2005; Andrew Nikiforuk, *Tar Sands: Dirty Oil and the Future of a Continent*, Greystone Books, 2008; Paul Chastko, *Developing Alberta’s Oil sands: From Karl Clark to Kyoto*, Calgary: U of Calgary Press, 2004; William Marsden, *Stupid to the Last Drop: How Alberta Is Bringing Environmental Armageddon to Canada (and doesn’t seem to care)*, Toronto: Alfred A. Knopf, 2007; Jennifer Grant, Simon Dyer, Danielle Droitsch, Marc Huot, *Solving the Puzzle: Environmental Responsibility in Oilsands Development* (Drayton Valley: The Pembina Institute, 2011); Robert Kunzig, “The Canadian Oil Boom,” *National Geographic*, March, 2009; and many more.

⁶² Mark Jaccard, “Pipeline itself not the only problem we should worry about: Continued development of the oilsands will increase Canada’s CO2 emissions,” *The Vancouver Sun*, January 25 2012, also available at Mark Jaccard, accessed May 24, 2013, at <http://markjaccard.blogspot.ca/2013/02/pipeline-itself-not-only-problem-we.html>. Jaccard is Professor in the School of Resource and Environmental Management at Simon Fraser University, Vancouver, see (accessed May 24, 2013, at) <http://www.rem.sfu.ca/people/faculty/jaccard/>.

⁶³ Jim Hansen, former NASA scientist, cited in Meagan Fitzpatrick, (27 April 2013). “Top U.S. climate expert calls Conservatives ‘Neanderthal’ Former NASA scientist James Hansen fires back at Natural Resources Minister Joe Oliver”. *CBC News*. Accessed May 24, 2013 at <http://www.cbc.ca/news/politics/story/2013/04/26/pol-hansen-oliver.html?cmp=rss>.

⁶⁴ “Copenhagen Accord,” U.N. Framework Convention on Climate Change, United Nations, 18 December 2009. Accessed May 24, 2013, at <http://unfccc.int/resource/docs/2009/cop15/eng/107.pdf>.

⁶⁵ Bill McKibben, Tuesday, July 24, 2012, *Rolling Stone*, “Global Warming’s Terrifying New Math,” accessed 2012-08-14 at <http://www.rollingstone.com/politics/news/global-warmings-terrifying-new-math-20120719>. This position was confirmed by a New report by Nicolas Stern—author of the *Stern Review* on the *Economics of Climate Change*, a 700-page report released for the UK government (October 30, 2006)—recently co-authored a report echoing McKibben’s point, see Damian Carrington, “Carbon bubble will plunge the world into another financial crisis – report,” *The Guardian*, Friday 19 April 2013, accessed April 19, 2013 at <http://www.guardian.co.uk/environment/2013/apr/19/carbon-bubble-financial-crash-crisis>. Another Canadian report recently suggested the same point, but focused on the financial impacts for Canada. See Marc Lee, Brock Ellis, “Canada’s Carbon Liabilities: The Implications of Stranded Fossil Fuel Assets for Financial Markets and Pension Funds,” March 26, 2013, accessed May 12, 2013, at <http://www.policyalternatives.ca/publications/reports/canadas-carbon-liabilities>.

⁶⁶ Lord (Nicholas) Stern, et al (April 2013 study) see above.

⁶⁷ USA – EPA, “Letter,” (April 22, 2013) accessed May 25, 2013 at <http://www.epa.gov/compliance/nepa/keystone-xl-project-epa-comment-letter-20130056.pdf>.

⁶⁸ On May 16, 2013, President Obama tweeted the now widely accepted fact that “Ninety-seven percent of scientists agree: #climate change is real,” accessed May 25, 2013 at <https://twitter.com/BarackObama/status/335089477296988160>.

⁶⁹ There are many sources, here is one: Paul Gilding, *The Great Disruption: Why the climate crisis will bring on the end to shopping and the birth of a new world*, NY: Bloomsbury, 2011, p. 44.

⁷⁰ Claudia Mills and Douglas MacLean, “Faith in Science,” 103-110, [see the authors’ use Richard Rorty] and in the same volume, Mark Sagoff, “The limits of cost-benefit analysis,” both in Claudia Mills, *Values and Public Policy*, Harcourt Brace Jovanovich, 1992, pp. 76-79. For a critique of the separation of facts and values, also see Herman Dooyeweerd, *Roots of Western Culture: Pagan, Secular and Christian Options*, Toronto: Wedge, 1979 and *A New Critique of Theoretical Thought*, 4 vol., Amsterdam: H.J. Paris/Philadelphia: The Presbyterian and Reformed Publishing Company, 1953-1958.

⁷¹ Lisa Anderson, *Pursuing Truth, Exercising Power: Social Science and Public Policy in the Twenty-First Century*, Columbia U. Press, 2003, p. 108.

⁷² Lisa Anderson, *Pursuing Truth, Exercising Power*, p. 107. She identifies these values as a view that “privileges the individual, relies on freedom of belief and association, and challenges authority. Although these values were up held as universal, they were not, of course, really so.” p. 88.

⁷³ See the discussion of this ‘faith in progress’ in Bob Goudzwaard, *Capitalism and Progress: A Diagnosis of Western Society*, Eerdmans, 1979, Paternoster Press, 1997.

⁷⁴ Bob Goudzwaard, Mark Vander Vennen, David Van Heemst, Foreword by Desmond Tutu, *Hope in Troubled Times: A New Vision for Confronting Global Crises*, Grand Rapids: Baker, 2007.