

THE LONG HAUL: NAVIGATING THE ENERGY TRANSITION TO LIMIT CLIMATE CHANGE

Dunsmuir Lodge (Victoria BC), August 11-13, 2008

AGENDA (as of August 8, 2008)

Monday, August 11:

5:30 – 6:30 PM: Reception, Peninsula Lounge (2nd floor)

6:30 – 8:00 PM: Dinner, Panorama Room (3rd floor)

Welcome: David Rodenhuis

Workshop Introduction and Objectives, charges to the group: Ted Parson

Self-introductions: Participants.

Tuesday, August 12:

8:30 – 10:00 AM: Briefings, Executive Classroom (2nd floor)

These briefings will provide background to help facilitate an effective conversation among the wide range of disciplines and areas of expertise at the workshop. Two briefings will summarize current knowledge on the character of energy-sector changes needed to limit climate change and current policy proposals to pursue these. Two will explore potential analogies to other major, long-term policy challenges that might hold insights for approaching the required energy-climate transition.

David Keith – *The Required Energy/Climate Transition: What we know about it, and what we don't*

Daniel Lashof – *Current greenhouse-gas mitigation proposals, and how they (attempt to) handle the long-term transition*

Daniel Halberstam – *Policy change, institutions, and long-term plans: lessons from the European Union*

Al Carnesale – *Efforts to avoid nuclear war and their implications for avoiding catastrophic climate change*

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Tuesday, August 12 (continued):

10:30 AM - 12:00: Modeling the energy-climate transition: How energy and integrated-assessment models do (and could) treat uncertainty, learning, and adaptation, Executive Classroom (2nd floor)

Models have been used to construct trajectories of greenhouse-gas emissions consistent with various levels of atmospheric or climate stabilization. These scenarios are typically based on a specific set of assumptions regarding the resolution of economic and technological uncertainties, and one of two extreme assumptions regarding decision-making over time – either myopic period-by-period decisions, or full inter-temporal optimization. Modelers are now working to enrich the treatment of inter-temporal decision under uncertainty in these representations. This session will examine how these issues are currently treated, how formal models could improve their representation of adaptive decision-making over time, and what insights these models do (and could) offer for developing practical adaptive strategies to pursue climate stabilization.

Jae Edmonds – *Representing technology and uncertain technological change in integrated-assessment models*

Mort Webster – *Sequential decision under uncertainty in integrated assessment models, and implications for near-term mitigation*

Gary Yohe – *Assuming it works, what do we do with it? Design issues for the connected steering mechanisms*

Mark Jaccard, discussant.

Lunch: 12:00 – 1:30 PM, Panorama Room (3rd floor)

C.S. Holling – *Experience with adaptive management of natural-resource systems, with lessons for the required energy/climate transition*

1:30 -3:00 PM – Policy Instruments and future adaptation, Panorama Room (3rd floor)

There is an extensive literature on alternative policy instruments to pursue environmental goals – e.g., performance targets or other administrative regulations, market-based mechanisms such as emissions taxes, tradable-permit systems, or hybrids of these – and the conditions that favor one instrument type over another. Little of this literature, however, has considered how long-term management of environmental issues will require the character and stringency of policies to be adjusted over time as knowledge and capabilities advance. The possibility of future adjustment weakens the classic argument about prices versus quantities based on relative uncertainty of costs and benefits, but raises new questions that this session will examine. For example, do particular policy instruments create greater or lesser barriers to future adjustment, or biases that favor future adjustment in one direction over the other? Alternatively, are some instruments more compatible with near-term attempts to generate information to

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guide future adjustments? Are there any other bases on which some forms of instrument are more compatible with an adaptive approach than others? Etc.

Larry Goulder – *Incorporating adaptability in the design and choice of climate-policy instruments*

Austin Nichols – *Hotelling credits*

Rob Lempert – *Near-Term Policy Instruments and Long-Term Goals: A Robust Decision Making Approach*

3:00 – 6:30 PM: Free time for recreation (A few options will be available, depending on weather and participant interest – e.g., sea kayaking, hiking, trip to a nearby island).

6:30 – 7:30 PM: Dinner, Dining Room (1st floor)

7:45 – 9:15 PM: Binding (or guiding) the Future: Legal, Political, and Social Instruments, Panorama Room (3rd floor)

Achieving the required energy transition may require current actions that impose some form of constraint or influence on future decisions. There are many institutional and legal forms for exercising (or attempting to exercise) such influence over the future – e.g., hierarchical structures of constitution/statute/regulation or Convention/Protocol; procedural hurdles such as super-majority decision rules to amend statutes, treaties, and constitutions; or requiring decisions subject to specified findings and conditions, as in US administrative law. Current actors may also seek to extend influence into the future by framing choices or default rules to encourage preferred choices, or promoting formation of political interest-groups with a continued interest in advancing desired values. But what if future actors will have better knowledge to guide preferred choices? In this case – quite likely for climate/energy choices – today’s interest in binding future actors may be offset by an interest in letting them adapt and adjust based on their superior knowledge. This session will examine alternative legal, institutional, and socio-political mechanisms to advance these potentially opposing interests, in constraining future choices and helping future decision-makers adapt based on their (perhaps) greater knowledge and capabilities: what mechanisms are available to advance these interests and balance the tension between them; how (and how well) do they work, with what costs and pitfalls?

Gary Marchant, *Making regulatory decisions more adaptive*

Johanna Wolf, *Motivating transitions: Possibilities and pitfalls of modifying behaviour*

Richard York, *Climate change and social structure*

John Dernbach, *Challenges in Navigating a Long-Term Legislative Course on Climate Change*

Adam Henry, discussant

Wednesday, August 13:

8:30 –10:00 AM Strategic problems of inter-temporal choice in climate/energy, Panorama Room (3rd floor)

Any strategy to pursue the climate-energy transition, including any trajectory for future emissions, will imply a distribution of costs and efforts between present and future actors at different times. In addition to its strong implications for equity, this distribution of burdens has certain strategic, game-like elements, in that current actors may prefer to leave burdens (more than is optimal or fair) to future actors. Some degree of leaving the burden for the future is justified by standard analyses of climate change, which assume that future actors will be richer, more technologically advanced, and have more knowledge to identify preferred choices. But current actors may exaggerate these trends and so leave too much burden to the future – in the extreme, relying so much on some future breakthrough that they foreclose attractive alternative paths that require early action and so gamble all on the implementation of the anticipated breakthrough. Alternatively, current actors may assume – also reasonably – that political capacity for global action varies over time, and opportunities for major initiatives recur only infrequently. For example, even moderately pessimistic assumptions of large-scale 21st-century trends suggest the risk of a decline in capacity for coordinated global action. In this case, the next few years may represent a non-recurring opportunity, a “constitutional moment” for global environmental governance. Just as happy scenarios of growing knowledge and wealth shift more burden to the future, bleaker scenarios imply a heightened responsibility for today’s actors to contribute to solving the problem. Under uncertainty, today’s actors are at risk of both types of error: leaving too much burden to the future (or constraining them too little); and bearing too much burden today (or constraining future actors too tightly). This session will present some preliminary examination of these inter-temporal decision questions, and the current view of the economic, technological, and energy-resource uncertainties that make them challenging.

Ged Davis – *Key 21st-century energy uncertainties, and their implications for near-term decisions*

Juan Moreno-Cruz – *"I'm so misunderstood!" - Geoengineering and its role in achieving sustainable economic growth.*

David Keith – *How uncertainty, inertia and non-linearities make controlling the climate-carbon system tough – Even for an omniscient unitary actor*

Session: 10:30 AM –12:00: *But it's a Global Problem: Multi-level decision-making, diversity, and learning, Panorama Room (3rd floor)*

Climate change is a global problem, in which multiple levels of decision authority and negotiations interact. Consequently, the problems of learning and adaptation under uncertainty must be addressed in this complex, global setting. This session will examine how questions and insights concerned with adaptation, learning, and uncertainty must be

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revised in view of multi-level decision-making, both internationally and in federal structures within each nation. How must approaches and mechanisms for adaptation be modified to operate across multiple levels of decision-making? In what ways does the international nature of the problem obstruct, or perhaps facilitate, the required adaptation and learning over time?

Marco Janssen – *Crafting local opportunities to meet global challenges*

Richard Moss – *Governance challenges for managing the unavoidable: linking global and national institutions to local needs*

Lance Pierce – *(Title to be confirmed)*

Joule Bergerson, discussant

Lunch: 12:00 – 1:30 PM, Dining Room (1st floor).

Session: 1:30 – 3:00 PM – Wrapup and next steps, Panorama Room (3rd floor)

Warren Bell

Rosina Bierbaum

Ted Parson

Workshop ends, 3:00 PM