# Creating Pathways to Decarbonization

**PATHWAYS TO DECARBONIZATION WORKSHOP REPORT**

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# Executive Summary

On January 10-11, 2013, a distinguished group of practitioners and scholars gathered at the University of Toronto's Munk School of Global Affairs in an attempt to start a new conversation about the politics and governance of climate change. The Post-Kyoto era has now begun, with little fanfare, some anxiety, and considerable, unaddressed challenges. While the failure to negotiate a strong Kyoto successor deserves our attention, it doesn't change the science, global concern, or public demands for action. The scope of the mismatch between what we need to do—get on the path to decarbonization—and what the world has agreed to do—not much—is painfully clear. We simply are not on the path to transformation needed to meet decarbonization goals. This is the challenge we face and the conversation to which this workshop aimed to contribute.

We began with the assumption that it is unnecessary to start from scratch—pieces of the knowledge necessary to build, maintain, and expand pathways to decarbonization abound, but circulate in disparate communities that all too frequently fail to communicate and collaborate. This workshop thus brought together representatives of national and global NGOs (ICLEI Local Governments for Sustainability, The Urban Institute, International Institute for Sustainable Development (IISD)), experts from intergovernmental organizations (World Bank, UNEP), and academics from a variety of disciplines (Political Science, Engineering, Geography, Law, Computer Science) to discuss what we need to create pathways to decarbonization, how we can overcome obstacles to doing so, and the potential for practitioner/academic collaboration to move us forward.

The discussions were wide-ranging, covering both general dynamics of climate governance and the fine-grained challenges of particular climate projects. Scholars and practitioners found the discussion fruitful and the group coalesced around a number of key themes. These serve as lessons for the study and practice of decarbonization and the foundation for further conversations and actions that engage both the academic and practitioner communities.

The starting point for such conversations is found in the collective knowledge generated during the course of the workshop. The key take away points highlight both the opportunities and challenges involved in developing pathways to decarbonization:

- *Awareness is not enough*.
  - Communicating the costs of climate change and the benefits of decarbonization may have a place in planning pathways, but focusing on **individual awareness** is not likely to be an effective strategy unless it is matched with strategies that can alter **larger socio-political-economic structures and processes**.

- *Political coalitions are the linchpin*.
  - They can be found at **many levels** and we need to uncover strategies for how coalitions can form around decarbonization.

- o The goal should be to **decouple** decarbonization from current political polarization, but to **not depoliticize** decarbonization itself. There may be opportunities for "Baptist and Bootlegger coalitions" of actors traditionally seen as in opposition to one another.
- o Building coalitions is about **identifying winners and losers** and developing diverse strategies to **engage both**.
- o Building coalitions is not a static process. There is a need to identify dynamics in policy making that will **lock-in coalitions** and **expand membership** by creating incentives/benefits for new groups to join and to apply knowledge about creating **path dependencies** toward decarbonization policies.|

- *Seek for the sweet spot between design and serendipity.*
  - o **Decarbonization cannot be planned**, but supportive conditions and specific policies that facilitate decarbonization can be imagined and fostered.
  - o Develop policies that **foster innovation** at multiple levels and scales. This innovation needs to be both **technological** and **institutional**.
  - o Become comfortable with **nonlinearity and uncertainty.**

- *There is no single path to decarbonization.*
  - o There was no single path to carbon lock-in, it developed organically as specific initiatives, experiments, policies, and technologies **co-evolved** with and became embedded within larger political and economic structures.
  - o Decarbonization will likely develop in a similar **organic manner**, but it needs to happen more quickly and more consciously to be both effective and ethical

- *Work to change what can be imagined.*
  - o Set **big goals** even if the means for reaching them are uncertain.

# Workshop Participants

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Benjamin Cashore, Yale University

Steve Easterbrook, University of Toronto

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Matthew Paterson, University of Ottawa

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# Acknowledgements

# What do we need to create Paths to Decarbonization?[1]

The workshop first addressed the core question of what we need to create pathways to decarbonization.  As expected, an abundance of diverse answers to this question was evident in both the memos prepared for the workshop and in the discussion itself. Collectively we know what is necessary, from multiple perspectives, governed by different experiences and training.   To sharpen the discussion and use the diversity of opinions to best advantage, workshop participants began by discussing what we need **first**.

## 1.1 Session Summary

Framing the session around what is needed "first," participants discussed how to prioritize certain actions over others and considered matters of sequence, scale, catalytic effects, path dependence, and lock-in. Responses ranged from the abstract (recognizing the political nature of decarbonization) to the concrete (diverting 15% of global military spending towards improving energy efficiency in the building and transportation sectors). The discussion highlighted areas of both commonality and divergence in academic and practitioner approaches to decarbonization.

### *We need increased awareness…or do we?*

Considerable debate arose around the merit of raising awareness as a first step. Some participants stressed that awareness campaigns are integral to increasing individual agency on climate change, reducing public resistance to regulatory responses, and counterbalancing the anti-climate lobby's misinformation campaign. Others pointed out that public awareness about climate change is already high in most countries and that differences in levels of awareness cannot explain variation in policy responses between nations. Indeed, while public support for action on climate change is high in both Canada and the UK, policy responses have been much more pronounced in the UK.  The question of the location of agency was paramount—whether it is created at an individual level, or if it is a cultural or social phenomena with significant limits to what individuals can achieve (e.g. controlling heat in buildings through technology choices made by others).

Though debated, the concept of awareness drew practitioners and academics together. Some of the practitioners noted that their organizations expend enormous amounts of time and money on awareness campaigns, but increasingly recognize that this may not be the most efficient use of their resources. Academics familiar with the burgeoning literature on the limits of awareness raising had a number of possible suggestions, for instance targeting awareness campaigns so that they identify

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[1] A caveat—this workshop focused on the challenge of decarbonization in the Global North.  We do understand that decarbonization is a global process and dynamics in the Global South will have an enormous impact.  However, for this first workshop we kept to a narrower agenda focused on regions where carbon economies are the most locked in.

constituencies that stand to benefit from decarbonization.

### *We need new political coalitions…not depoliticization*

The idea of forging new political coalitions was a recurrent theme. Participants noted the importance of decoupling decarbonization from existing political alliances so that changes to a country's political administration need not affect its overall trajectory towards decarbonization. If, for example, politicians on the right of the political spectrum valued decarbonization as much as those on the left, there would be far greater continuity in political responses to climate change over time.

Yet, the discussion made clear that depolarization or redefining political coalitions is not the same as depoliticization. A consensus developed that decarbonization is a fundamentally political process that will create both 'winners' and 'losers'. Portraying the transition to a carbon-free world as a win-win scenario can be misleading. It could also backfire if and when oppositional forces identify losers or costs. Certain parties (i.e., coal miners) stand to lose their livelihoods and part of their identities in a decarbonized economy. The discussion focused on strategies for compensating or ameliorating losers, for thinking about whether/how to compensate them, to find ways to help affected communities or populations adapt or adjust to a new environment (e.g., through re-training or other employment programs) and to find ways for them to lose more slowly. Specific mechanisms were less discussed than was the need to keep equity high on the agenda. Conversely, we also need strategies for identifying and encouraging winners—to help people and groups imagine themselves as winners in decarbonization as the first step in their political awakening.

### *We need to work at multiple scales…but through what sequences?*

Awareness and political coalition building will naturally take place at multiple scales because of the nature of decarbonization. The problem is likely far too large and complex to be approached holistically with a single, coherent strategy. Instead a series of small, incremental actions may eventually lead to bigger change. This might occur through creating path dependencies that lock-in certain policy choices, create incentives to join winning coalitions, or create knock-on benefits for groups or communities not initially part of a supporting coalition. Energy efficiency, for example, can be metaphorically conceived as a 'gateway drug' that can lead to larger and more impactful actions. However, while a single strategy is likely beyond our ken, big general goals do have their use as guides to move the global community towards the same target and facilitate the development of processes whereby small-scale initiative can reinforce each other. System complexity is thus a key opportunity and challenge and we need to know more, both from academia and practitioners, about how small-scale activities can/should be sequenced, and how they can be catalytic of broader change (or not). We may not be able to plan decarbonization. As one participant astutely observed, the transition to a carbon-intensive economy was not planned, it developed organically through a number of interrelated developments. The challenge is greater now, however, if only because of the urgency of the problem.

The session ended optimistically with participants acknowledging that while we cannot design or control such an immense system, we can attempt to steer it in a particular direction. In this spirit, a number of participants arranged a meeting with a major national retailer to discuss opportunities to decarbonize its business.

## 1.2 Session Lessons

1. Awareness is not a panacea.  While necessary, awareness raising must be targeted and strategic because of the constrained nature of individual agency.  It should be targeted at building specific political coalitions and in the strategy to deal with the winners and losers of decarbonization.

2. Redefine but do not ignore the politics of decarbonization.  Strategies for developing policy pathways to decarbonization must acknowledge there will be winners and losers at every stage of development.

3. We need to understand more about system complexity and how to respond to it and/or work with it. The question is not getting the scale right or the sequence right because there is likely no single right sequence or scale for creating policy pathways to decarbonization.  We do need, however, a better of understanding of processes of scaling up and catalytic impact both from the practical and academic side.

# Overcoming Obstacles to Developing Paths to Decarbonization

Tools to develop pathways to decarbonization as well as obstacles to creating them are obviously closely related to what participants identified as needs. The session asked, "what do we have to work with?" in order to focus on concretely tying together needs, tools, and obstacles. Participants clearly identified two classes of obstacles in the discussion—political and social/cultural. They discussed a broad range of tools that included both specific policy interventions, such as government procurement activities, carbon pricing, and various technological interventions, as well as mechanisms for altering the broader background conditions necessary for transition.

## 2.1 Session Summary

### Multiple Political Obstacles

The political challenges involved in pursuing decarbonization are legion. They run from the specific problem of creating coalitions to the generic problem of political structure. The workshop discussed the entire gamut and tried to get a handle on what obstacles were most significant. At the broadest level, participants identified the political structure in some countries, especially Canada, as detrimental to decarbonization because of how it channels interests. Some participants suggested structural reform to political institutions (i.e. moving toward proportional representation in Canada) to counter these conditions. However, others questioned the need for and feasibility/efficacy of such reforms when it might distract attention from more immediately actionable policies and approaches. As one practitioner noted, we need to "just roll up our sleeves and get something done." Thus, although these reform proposals resonated strongly in discussion, a general consensus emerged that pragmatic approach would be most productive that focused on working with existing political institutions to pursue coalition building.

More concretely, the discussion focused on obstacles to constructing coalitions—building on the first session. A number of political obstacles were seen to augur against the establishment of coalitions supporting decarbonization. Political polarization was seen as particularly pernicious in North America where it prohibits politicians from productively conversing, let alone cooperating, thus inhibiting rational, logical political decision-making. While some participants pointed out that policymaking rarely conforms to a rationalist ideal, the consequences in climate and energy policy were particularly pernicious since political polarization has militated against the ability of science to inform policy and the overlaying – particularly in the United States – of a "cultural" and partisan frame that prevents reasoned and evidence-based discourse or discussion. Moreover, polarization of decarbonization poses a serious challenge to the ability of any policy intervention, however effective, to survive changes in political leadership. This polarization has hampered the development of effective narratives around which political coalition building can take place. The nature of decarbonization itself is an obstacle to coalition

building as well. There are often ready-made coalitions of losers because the costs of decarbonization are clear and present, and therefore vehemently resisted, while potential winners are often less clearly defined and the benefits more broadly dispersed. Moreover, the complexity of the social, economic and political systems with which we are dealing often makes it difficult to anticipate the effects of given policies and therefore to determine in advance who the winners and losers are likely to be.

## *Social and Cultural Obstacles*

Political obstacles are joined by social and cultural faultlines as challenges to overcome. Notably, these faultlines operate differently in Europe and North America. While participants acknowledged that European countries are not without significant political divides, they perceived political polarization in Europe as primarily over *how* to transition towards a more decarbonized society, while in North America it remains a question of *whether* to do so. Thus, European countries were thought to possess certain cultural or normative conditions conducive to successful decarbonization policies; for example, one participant noted that even in the absence of a policy tool such as carbon pricing, it would be very unlikely for a country such as Sweden to build a coal-fired power plant because it 'simply isn't done' there. In social scientific terminology, this observation suggests a "norm" of decarbonization is already institutionalized in parts of Europe, while it remains highly contested in North America.  The more individualistic ethos and resistance to empowering or entrusting collective responses to societal problems through government in the US in particular constitutes a significant obstacle to decarbonization, and one which is unlikely to be changed wholesale through a political or policy process given its deep roots in American political culture.

## *Tools at our disposal*

The obstacles that we face in pursuing policy pathways to decarbonization are not insurmountable.  On the contrary, we have a range of tools and strategies for overcoming the obstacles—though more work and study is needed to hone our ability to effectively do so.  At the most abstract level, we can construct narratives of decarbonization that combine a vision of a possible future that emphasizes the positive aspects of decarbonization with a sober recognition that any transitional policy will produce both winners and losers. Reframing the decarbonization narrative in this way can facilitate a better understanding of the implications of various pathways and policy interventions. In turn, it can help policy-makers anticipate and minimize political opposition and identify opportunities to build political alliances in support of decarbonization (especially between traditionally opposed groups such as businesses and environmental organizations that may share a common interest in a particular decarbonization goal, thus be part of "Baptist-bootlegger" coalitions), as well as the development of more equitable ways of sharing the burden and cost of transition.

Issue-linkage, mainstreaming, and policy designs (e.g., promoting markets for virtue over markets for vice) are specific tools that can be effective in overcoming political obstacles. Mainstreaming, which

entails embedding decarbonization into multiple policy domains, can remove climate change and decarbonization from the polarized political context. Issue-linkage between decarbonization policies and high priority political aims such as job creation is an important tool, both for forging supportive political alliances and for bringing some potential sources of opposition into the realm of 'winners'. Some participants suggested compensation, or at least paying attention to equity, for losers, although the general discussion around this question could be characterized as cautious. There was less discussion around questions of re-training or other adjustment policies that might go hand-in-hand with a transition to decarbonization of a more "green" economy. Cultural change may already be underway, which would make the development of political coalitions less complex. Developments such as the increasing prominence of carbon disclosure amongst businesses are evidence that we are already beginning to change how we conceive of industrial activity. There is, however, more to inspire the kinds of meaningful, positive and sustainable cultural changes that are conducive to decarbonization.

Finally, the consensus was that decarbonization would proceed through varied and non-linear pathways. In such a context, experimental interventions and initiatives taking place across all levels of governance, in the marketplace at multiple scales, and in geographically diverse settings, become a crucial tool for overcoming obstacles to decarbonization. Thus, continued efforts should be made to identify and encourage those political, social and economic structures most conducive to the constant stream of innovation and adaptability from which a transition towards decarbonization might emerge. Identifying what these conditions are, and how they might be achieved, is something to which, participants felt, continued cooperation and dialogue between practitioners and academics could productively contribute.

## 2.2 Session Lessons

1. Political obstacles abound, but we cannot solve all political problems before we pursue decarbonization. A pragmatic approach, working within current political structures, is likely to be more effective in the short and medium term. Political energy and research should focus on overcoming obstacles to building strong political coalitions.

2. Cultural/social change can be the foundation of political change, but requires different tools—popular culture, arts, media—and new narratives.

3. We know how to deploy a number of policies that can build political coalitions, but we need to both know more about sequencing and scaling of such activities and, because of complexity, to continue to foster experimentation to ensure the availability of a steady stream of innovations.

# Specific Insights into three issues

After two sessions of general discussion, the workshop turned to concrete issues of decarbonization. Practitioners led breakout sessions on specific ways they were pursuing decarbonization on the ground and the challenges of addressing those problems.

## 3.1 LED Lighting

Phil Jessup, Director of LightSavers Canada, began the session by outlining the case for increased use of LED lighting. Energy consumption for lighting represents roughly 6% of global GHG emissions. LED technology, which is now a mature technology, can cut energy use for lighting in half. Hence, LED technology holds the potential to revolutionize an important sector if it can reach a tipping point. LightSavers is seeking to expand the 4% of Canadian streetlights that currently use LED to 25% by targeting three cities: Toronto, Vancouver, and Montreal. Montreal is particularly important since it owns the largest number of streetlights in the country. If just one of these cities makes a considerable investment in LED technology, the 's-curve' model of technology innovation suggests that the rest will follow.

There are a number of supportive factors that could help scale-up LED street lighting in Quebec. First, many LED manufacturers are located in Montreal, so a municipal investment would also support local business. Second, the price of LED lighting has dropped significantly since Chinese computer chip manufacturers entered the market. Third, Hydro Quebec has offered rebates to municipalities that replace conventional streetlights with energy efficient LEDs. Fourth, Montreal is in dire need of upgrading its infrastructure more generally. Fifth, the project has the support of a number of committed bureaucrats who would like to see it progress. Finally, the investment would fit well with Montreal's image as an international and 'environmental' city, having played host to the Montreal Protocol and the Convention on Biodiversity.

Considerable barriers also militate against the adoption of LED streetlights in Montreal and elsewhere. Economic barriers create the greatest challenge. The initial investment in an LED streetlight is almost twice as much as a conventional streetlight. This makes LED technology a tough sell in cash-starved municipalities like Montreal where money is urgently needed for other infrastructure projects. Furthermore, the price of electricity in Quebec and British Columbia is already quite low, which makes the payback period on LED technology much longer. Similarly, energy production in Quebec and BC is already relatively clean, thereby diminishing the imperative to use LED lighting for carbon emissions reductions.

Institutional obstacles also must be overcome to scale-up LED street lighting. They vary by jurisdiction. In Quebec, the absence of a professional network of lighting managers makes raising awareness a

challenge. Similarly, Montreal-based LED manufacturers compete against each other and have thus far proven unwilling to form a unified political front. Additionally, the ownership structure of street lighting in Montreal makes large-scale transformation difficult. While the municipality is contractually obligated to maintain the city's streetlights, individual boroughs own the lights themselves. Consequently, any decision to upgrade the city's infrastructure must be approved by each borough's mayor. An equally insurmountable institutional obstacle exists in Toronto, where Toronto Hydro bills the city for each kilowatt-hour of energy used by its streetlights. Under this arrangement, Toronto Hydro actually has a disincentive to reduce its energy consumption since it makes more money by using inefficient lighting.

Participants in the session put forward a number of ideas to help circumvent these obstacles. Foremost amongst these was the idea to position LED street lighting as a carbon-offset project. Doing so would open new avenues of funding and would help build broader coalitions for lighting upgrades. In Montreal, switching to LED lighting would free-up energy to be sold to the Northeastern United States, displacing carbon-intensive coal-fired energy with relatively clean hydroelectric power. The resulting emissions reductions could potentially be sold as offset credits through the Regional Greenhouse Gas Initiative (RGGI). A similar opportunity exists in BC where provincial ministries and crown corporations are required to offset their carbon footprint by purchasing made-in-BC offset credits through the Pacific Carbon Trust. Accessing funds through carbon-offset markets could significantly reduce economic barriers to LED street lighting and expedite scaling-up of the project across Canada. Case studies of using carbon financing to fund LED lighting in North America could subsequently serve as a model for infrastructure development in developing countries.

## 3.2 Fossil Fuel Subsidies

Led by Mark Halle of the International Institute for Sustainable Development (IISD), the afternoon breakaway group focused on fossil fuel subsidies as an example of how perverse incentives can delay or prevent a transition towards decarbonization. Fossil fuel subsidies are a particularly nefarious form of perverse incentive as they not only encourage the continued production and consumption of fossil fuels but also command a staggering amount of public funds – approximately 650 billion dollars per year – that might otherwise be directed towards the development of more sustainable energy sources. The elimination of fossil fuel subsidies would therefore constitute a 'double positive' in that it would put significant amounts of funds back into public coffers while at the same time incentivizing shifts to more sustainable fuel sources.  IISD estimates that ending such subsidies globally could reduce global greenhouse gas emissions by an estimated 10%. Despite the clear logic and rationality behind cutting or eliminating fossil fuel subsidies, and attention to the issue within the G20, UN Conference on Sustainable Development (Rio +20) and other high-level intergovernmental institutions, the slow progress on the issue led participants to focus on why it was being undervalued and obstacles to political uptake.

Initially, several participants found the lack of progress on the elimination fossil fuel subsidies to date (particularly in North America) to be somewhat surprising, as it seems that many of the preconditions for meaningful action are already in place. For example, participants noted the already significant levels of support for fossil fuel subsidy elimination, as evidenced by the outraged Twitter storm following discussion of the issue at Rio+20 and the increasing prevalence of activist groups within Canada. Another participant pointed to some positive preliminary messages coming from international forums such as the G20, which have already been useful in helping developing countries justify domestic subsidy cuts. This suggested to participants that the basis for international cooperation and scaling-up of subsidy elimination initiatives has also already begun to emerge. Finally, participants noted that concern with the costs of fossil fuel subsidies in the context of an ongoing economic crisis seems to have resonated with policy elites such as finance ministers, who were seen as logical champions for spending reductions in this area.

Against these permissive conditions for change, some participants pointed to the lack of broader awareness of the problematic nature of fossil fuel subsidies amongst the general public, both in range and scope, despite some very public examples of vehement support by certain groups. In particular, participants emphasized that the public did not fully understanding the difference between consumption subsidies and production subsidies, nor were they aware of the disproportionate amount of subsidy funding going towards the latter. This lack of awareness allows subsidies to remain cast in their historical light, i.e. as measures implemented in the wake of a global rise in oil prices to mitigate pecuniary pressure on poor consumers, instead of revealing the significant amount of elite capture occurring (as one participant noted, 43% of subsidies go to the top 20%, while only 3% of subsidies reaching the bottom 20%). Participants therefore argued that improving public awareness of the inequity of fossil fuel subsidy practices might be a useful tool to garner more support for their elimination.

Here again, issues of framing and the need to redefine the subsidy debate came up. Specifically, participants asserted that the debate over fossil fuel subsidies should not be framed as a debate over whether to be 'for' or 'against' subsidies in general (as there are many positive subsidies such as feed-in tariffs which should not be discouraged). It also should not problematize government spending as a whole. Rather, participants believed it should be framed as a matter of government funding of public goods versus private goods and should emphasize both the inefficiency of fossil fuel subsidies and the significant opportunity costs associated with their continuation. The success of such reframing strategies in the Ghanaian and Iranian contexts were identified as examples of how an emphasis on opportunity costs and commitment to redistribute recovered revenue into public goods such as education, health, debt reduction and poverty alleviation programs can help to overcome opposition to subsidy elimination. By reframing the fossil fuel subsidy debate to emphasize fundamental issues of inequity, inefficiency and opportunity costs, participants saw significant potential to increase both the quality and quantity of awareness and support for subsidy elimination amongst various societal actors.

However, significant structural barriers to elimination of subsidies remain.  In particular, participants pointed to instances of path dependency, institutional inertia, and significant influence of fossil fuel companies over the political decisions of those government officials whose campaigns they funded (particularly in the United States). Some therefore characterized the persistence of fossil fuel subsidies as a classic collective action problem, wherein a relatively small number of actors that benefit enormously from continued subsidization are well-organized and vehement in their opposition to subsidy cuts while support for subsidy cuts is more dispersed in terms of both benefits and beneficiaries, therefore weaker and less organized. As a possible solution to this problem, participants emphasized the importance of simultaneously creating concentrated benefits for groups of people who can act to counter-act this obstacle and anticipating and mitigating potential political backlash. This latter task, one participant noted, requires moving beyond the traditional emphasis on fossil fuel companies as the main proponents of subsidies to recognize the diversity of coalitions with vested interests in subsidy continuation.

## 3.3 Decarbonization in Cities

Led by Megan Meaney, director of ICLEI Canada (Local Governments for Sustainability), this session explored municipal action as a specific pathways to decarbonization through governance experimentation. It was suggested that *all* climate governance in cities is experimental in that it tends to be ad hoc and unplanned. The idea of urban climate governance is more a narrative means of organizing a disparate and fragmented set of local actions, some new, some in planning, and some already in place, rather than a discrete and planned course of action. Paradoxically, attempts to "control" climate governance in cities, by subjecting it to measurement, management, and integration, may stifle innovation and generate counter-productive effects. As a result, discussion focused mostly on assessing the ability of cities to act as enablers or enactors of local governance experimentation, and those factors that can enable or constrain cities' ability to do so.

Participants raised questions regarding the ability of cities to use jurisdictional tools as a means of encouraging low-carbon activities in cities (non-vehicular transportation, high efficiency buildings). Conversation then shifted to the importance of local culture, values, and norms as enablers. A driving question in this regard is whether cities could intervene in order to inculcate a local culture that places greater value on low-carbon lifestyles: to shift North American cities towards a more European form? Some, however, questioned the valorization of the European city, noting that single passenger vehicle use is on the rise in many compact cities as a result of suburban and exurban development (a challenge equally faced in cities around the world).

Conversation then shifted to focus primarily on the obstacles and challenges related to governance experimentation in cities. Key obstacles mentioned included a lack of financial resources and jurisdictional authority, the need for better coordination with other levels of government to address

regional coordination problems, increased sensitivity to the particularity of local needs and opportunities, and the need to enhance the credibility of city government. In addition, the challenge of taking local interventions to scale through network interaction faces a number of barriers. Key among these is the prevailing emphasis on identifying and supporting local best practices, which creates perverse incentives for cities to compete along parallel paths to become "best in class" in one particular area, detracting from real interaction and inter-city learning. Furthermore, the emphasis on "best practice" generates polarization between those cities who have the capacity to compete for status and those who do not. Lastly, unless connected to real opportunities for inter-personal interaction and local capacity to adapt practices to local conditions, competition of this sort can lead to emulation of practices that are poorly situated to local contexts and generate unintended or negative effects.

An extended discussion then addressed how efforts to gain credibility can take cities off-track and actually get in the way of governance experimentation. For example, early on ICLEI endorsed a strategy to get cities to focus on government operations and house-in-order actions (measuring emissions from local government, creating an inventory, taking actions to reduce emissions) as a means of gaining credibility with local constituents and to create conditions in which community-wide programs could later be developed. A more recent strategy employed by cities is the embrace of the dictum, "measure it to manage it" employed by the C40 group of cities. The emphasis on measurement, and developing standardized metrics (for example the ICLEI/C40 Global Protocol for Community-Scale Emissions) can be seen as a strategy to gain credibility by substantiating the effect of local interventions, linked to the pursuit of financial resources through institutions like the World Bank. While participants understood the impulse of such efforts to enhance credibility, they expressed concern that their possible effect would be to sidetrack local climate governance, diverting attention away from intervention and consuming finite local resources. How to respond to this paradox and mitigate its implications remained an open question.

Participants recognized a number of ways that cities can engender and enact governance experimentation and act as pathways to transition. Cities, as primary service providers with varying degrees of local authority and capacity, can pull on a number of governance levers: regulation, service provision, demonstration, enabling. Some suggested that experimentation itself - the application of regulation, or provision of services, or enabling of actions within discretely bounded spatial or temporal parameters (development of one-off low-carbon housing or public facilities or joint procurement of light bulbs for public purchase for example) - offers a distinct approach to local climate governance. Such interventions are quite often undertaken in partnership as a means of gaining political support and access to financial resources.

More importantly, it was suggested that cities have the ability to influence the interests of individuals through direct, practical intervention. Cities can put experiments in place (creation of bike lanes, pedestrian only zones, pocket parks, alternative transportation services) that create directly felt impact without recourse to changing interests through information, appeal, or persuasion. This capacity for direct intervention provides an opportunity to overcome resistance to change. However, this sort of

direct intervention requires opportunities for public feedback and adaptation in order to ensure legitimacy and sensitivity to local context. Conversation then shifted to the notion that such interventions in cities can play a part in altering local culture and values, signaling normative shifts regarding lifestyle appropriateness. Interventions such as conscience meters, in which individuals are provided with real-time information on the impact of household energy consumption, can serve to engender these normative shifts by linking discrete actions by individuals with their implications.

The session closed out with a discussion of opportunities and open questions. A shift in focus for cities should be pursued, emphasizing the historical strength of cities in enabling economic development, innovation, and productivity. Measures to enhance this capacity can help cities to create conditions in which local governance experimentation can flourish. A second opportunity identified is to shift inter-city learning and coordination from emphasis on what has, and what has not, worked. Creation of a "worst practices" index might actually be more helpful, enabling cities to gain a better understanding of the challenges related to translating objectives into local intervention. Questions then arose regarding the emphasis and evaluation of interventions in cities. Where do we focus attention in terms of enabling local governance intervention, given limited resources and the reality of a large number of small cities, and a small number of large ones? Is it worthwhile worrying about enhancing governance capacity in small cities or focusing primarily on enabling action in large megalopolises? Participants saw these concerns as linked to broader question about the role of cities as a pathway to decarbonization: is experimentation in cities building incrementally towards system-level change, or are such actions merely distracting from asking hard questions about spatial form, energy systems, and mobility? Is the embrace of governance experimentation in cities an expression of the need to do something, or does it have real effect? And how can we know?

# Envisioning to Constructing Pathways to Decarbonization

The final workshop session shifted the focus to a key challenge for ongoing academic/practitioner engagement and future actions. In this light, workshop participants discussed how governance experiments and plural pathways to decarbonization can be conceptualized, and what sorts of interventions flow from this conceptualization. This set the stage for a more explicit discussion of interventions that could be deployed. Although left open-ended, and subject to some important caveats, the conversation concluded with a sense of optimism regarding the opportunity for *networks* of academics and practitioners to contribute in meaningful ways to both the understanding and practice of decarbonization.

## 4.1 Conceptualizing Pathways to Decarbonization and Types of Intervention

### *Pluralism and Possibility*

It is increasingly obvious that the current model of global climate governance is not up to the task and that this requires not a singular "new" model but rather the exploration of multiple models and pathways to the ultimate goal of climate policy: decarbonization. An organizing theme of this discussion, then, was the need to think creatively about various existing and potential pathways, the dynamics of and between pathways, and how pathways can be oriented towards common objectives.  At the most general level, the workshop coalesced around the idea of pathways to decarbonization as a plural enterprise comprising governance experiments that intersect and overlap to varying, and highly unpredictable, degrees. Participants saw this as both a challenge and an opportunity. On the one hand, there needs to be considerably more knowledge about which pathways show more promise, the conditions under which they might scale up or diffuse, and how they might interact.  On the other hand, the workshop identified experimentation as an enormous opportunity to escape from the strictures of existing conceptual and practical confines. Since we don't know for certain what will work, there is opportunity to experiment, to try out a variety of interventions.

Workshop participants suggested that specific governance experiments and projects are embedded in larger processes: particular projects take place not only along specific pathways but also at varying distances down them. As such, interventions at earlier stages in a pathway can have highly enabling/constraining effects on the kinds of projects  ultimately implemented. For example, efforts to get governments to eliminate fossil fuel subsidies establish parameters that serve to delimit the range of viable actions at other scales – they make non-fossil fuel sources of energy more economically appealing, they create incentives to adopt energy efficiency measures, they send symbolic signals regarding the legitimacy of fossil fuel sources.

# Encouraging Experimentation, Evaluating Progress?

Participants suggested the need to avoid over-emphasis on planning and theorization, and suggested that learning-by-doing is an attractive approach. One challenge of governing climate change is the nebulous and all-encompassing nature of the issue; the best approach might be to encourage governance experimentation that focuses specifically on particular and limited interventions – methane from landfill or wastewater, local air quality, and so on – in an attempt to build supportive political coalitions and then work to link interventions that have generated tangible effects or results in multiple arenas.

A second suggestion was to focus on establishing aspirational targets, regardless of whether there is a clear understanding of how to attain them. This approach can help to center organizational focus on innovation and creativity, signal commitment, and provide incentives to take action by shifting discussion from "whether" to do anything to "how" to go about doing it. Aspirational targets can also serve to imagine a possible future state and create space in which to generate ideas regarding how to get there. Some cited the EU position in international negotiations as a prominent example of this phenomenon: although strongly criticized during the Kyoto negotiations for supporting targets that they weren't sure could be met, they created conditions in which innovative actions were more likely to emerge and gain support.

The discussion circled back to raise questions about the general orienting approach, and the need for perhaps a different metaphor altogether. One participant suggested that enabling pathways is akin to surfers waiting to catch the right wave. Surfers, once they paddle out to the break, watch multiple waves go by while waiting for the right moment to expend focused (and limited) energy in order to maximally leverage their resources in concert with the wave itself. The surfer rides the wave as skillfully as possible without ever "controlling" it. But different surfers will "see" and leverage different waves, with different degrees of success, reinforcing the inherently plural nature of such experiments. This is also suggestive of the challenge of trying to coordinate these messy and complex processes. The ongoing challenge, workshop participants repeatedly noted, is to maximize the deployment of limited resources in a context in which it is difficult to know which one "wave", or which combination of "waves", is most likely to generate the desired outcome.

This raised the question of how interventions designed to identify and enable various pathways might be structured and carried out. Put differently, and sticking with the surfing metaphor, workshop discussants raised questions regarding the identification of waves, the picking of waves, and the riding of waves. Traditionally these functions have been performed by different sorts of actors: academics studying the properties of waves, funding organizations emphasizing certain waves over others, and practitioners directly implementing projects and riding the waves in to shore. Some suggested that there is a need to break down these barriers and get more comfortable with multi-tasking and working in different domains. Cautions were raised, however, regarding both the capacity and benefits of doing so

from both sides of the practitioner/academic divide.  In addition, although policy-making can resemble the chaotic and complex motion of waves, political agency and improved understanding of the policy process might also reveal ways of maximally leveraging particular policies rather than simply waiting for the right opportunities or trying every wave that comes along.

The workshop concluded with a discussion of what kind of network and activities the workshop participants hoped to pursue and the organizers discussed how the Environmental Governance Lab at the Munk School of Global Affairs would work to facilitate these activities. Follow up activities will be forthcoming and please check the Munk School of Global Affairs website for updates (munkschool.utoronto.ca)