Earth Common Journal
Vol. 1, No. 1, September 2011

Climate Change Policy 101

Donald E. MacDonald*
Grant MacEwan University, Canada

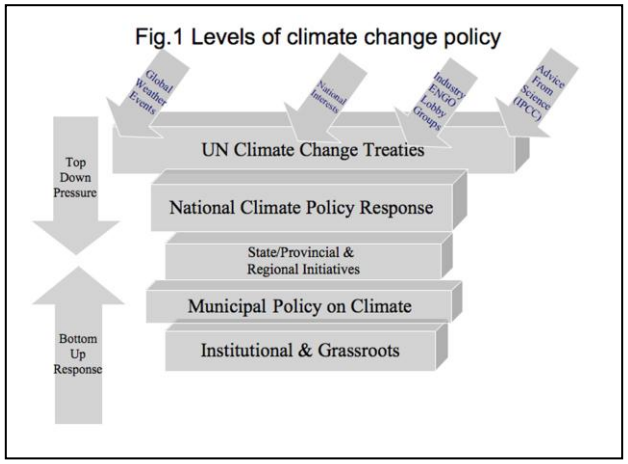
ABSTRACT

Similar to other policy issues, climate change policy proceeds in a cyclical fashion that proceeds from agenda setting, to policy development, to implementation, and finally to monitoring and review. Agenda setting involves politicians becoming convinced, usually by the science but also by politics and public opinion, that the climate issue deserves a policy response. Policy development involves a great deal of economic and policy option assessments that are winnowed down to a few options that may have "political traction" (i.e. those politicians think might succeed). Policy implementation involves turning policies into law and regulations that industry and individuals will act upon. Policy review, especially monitoring outcomes, is perhaps the most important phase, and for the climate change issue, the ongoing conclusion to date seems to be that more needs to be done, leading to the policy cycle starting over again. But there are also disturbing signs that this "top-down" approach is no longer working, and more "bottom-up" approaches, linked to the energy sector and clean technology, may become important new forces in forging action on climate change.

Introduction

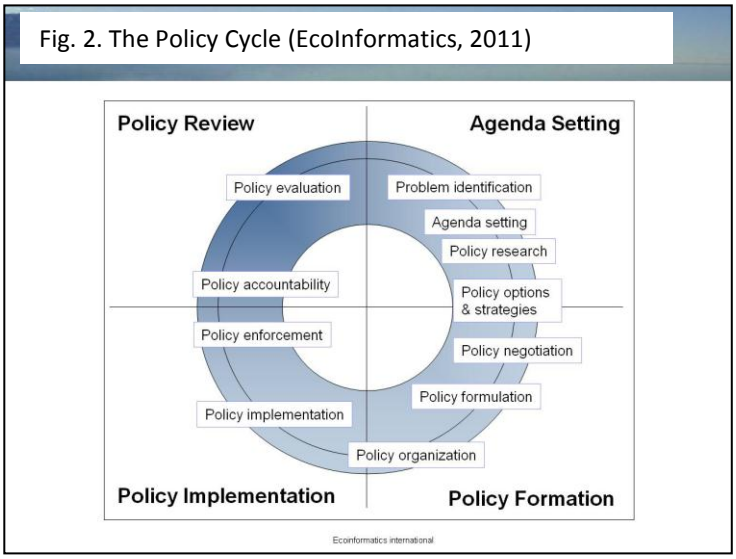
Policies can be political, financial, and administrative; by their nature, they are arranged to reach explicit or specific goals. Public policy can be generally defined as" . . . *the broad framework of ideas and values within which decisions are taken and action, or inaction, is pursued by governments in relation to some issue or problem* (Brooks, 1989). Public policy is

commonly embodied in constitutions, legislative acts, and judicial decisions. More specifically, climate change policy is simply the result of governments', private sector operations', or institutions' responses to an issue like climate change. Climate policies have been adopted by governments at the international (UN), national, provincial/state, municipal, and institutional levels (e.g. Universities, Fig. 1). The climate change issue has become highly politicized and policy approaches are almost always a derivative of politics. Private sector corporations have internal operational policies, but in the past at least, they have tended to have "positional" stances on government climate change policy (i.e. what they think of them). Climate policies are often set out in high-level political strategic documents, while details concerning their actual implementation tend to be found in action plans or similar documents. However, most critically, policy implementation is often expressed as legislation, regulations, or the announcement of approved funding for various incentive schemes. Serious action on the climate change issue does not begin until this policy implementation commitment is put in place



Results: The Climate Change Policy Cycle

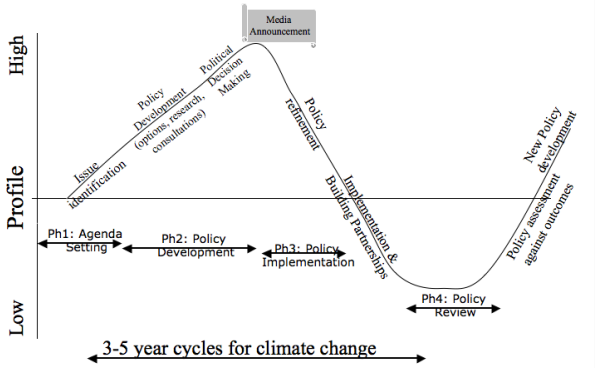
The last 20 years have demonstrated that climate change policy is an ongoing exercise and, similar to other policy issues, often follows a cyclical pattern (Fig.2) or a "wave function" over time (Fig. 3). Policy tends to start with "Agenda Setting" and moves clock-wise around this diagram through roughly four



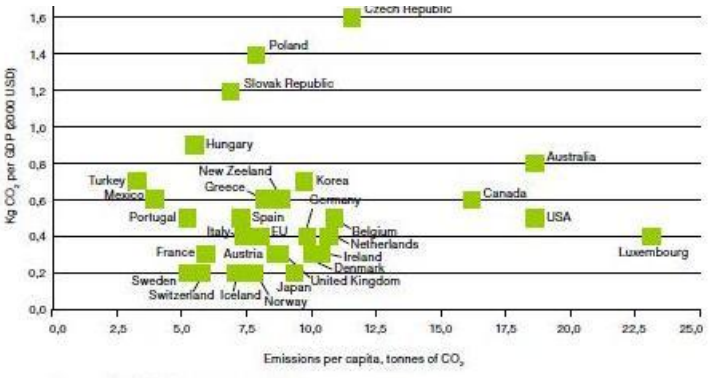
phases, including a number of sub-phases.

Agenda Setting – at the problem identification sub-phase of Agenda Setting, governing bodies need to be convinced that climate change represents a real threat or risk and that they should do something about, or will be expected by the public, shareholders or stakeholders to do something about it (i.e. adopt a climate policy). Being convinced of the seriousness of the issue usually starts with the basic science of climate change as periodically summarized by the Intergovernmental Panel on Climate Change (IPCC, 2007) since 1990. The Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and the UN Environment Program in 1988 and is charged with summarizing the science of climate change for policy makers on a regular basis. Thousands of IPCC scientists are drawn from the leading scientific experts from around the world and their publications go through extensive peer review prior to publication. Although not all jurisdictions were convinced of the science during the 1990s, it can safely be stated that, at least at the national level, no countries today question the basic scientific conclusion that human burning of fossil fuels and land-use changes, related to commercial logging and expanding agricultural areas, are changing the climate.

Fig. 3. The policy cycle over time



Fig, 4, GDP per capita and carbon emissions, all countries (OECD, 2009)



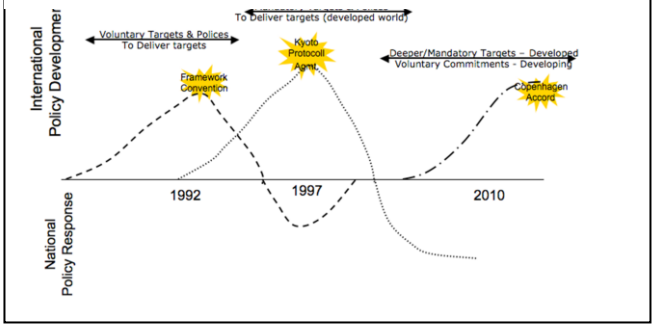
However, since 1992 when the first UN climate treaty was agreed to, the United Nations Framework Convention on Climate Change (UNFCCC, 1992), the agenda and pace of policy development at the national level tends to be

driven by the international United Nations initiatives. Agenda-setting also includes a strong measure of politics and, in some cases is the main driver, irrespective of the scientific evidence. Governments need to seek internal agreement within their caucuses that having been convinced of the science, or that the politics is pressing and seeing that international movements are in play, that the time is ripe to take some climate policy action. Governments need to weigh the climate issue against numerous other policy issues clamouring for attention and make a timing decision.

Policy Formation – is without question one of the most difficult parts of the policy cycle. For most western governments, it is also accompanied by considerable stakeholder engagement and input (not indicated in Fig. 2). Because most developed world economies are tightly linked with economic growth, a key part of policy formation is economic assessment of targets and options under consideration and their potential impact to a country's Gross Domestic Product (GDP, see Fig. 4, OECD, 2009). In the 1990s, western governments mostly elected to undertake "no-regrets" voluntary actions that would not hinder their economies (i.e. actions with positive economic benefits). However, at least for most developed countries in 2010, this kind of voluntary action is no longer credible and binding targets backed up by domestic legislation are now the norm. At this point in the policy cycle in Western governments, both industry and non-governmental groups play a strong role in lobbying for their preferred policy approaches and options.

Policy formation during the past two decades has been driven "top-down" internationally by the UNFCCC. Broad agreement is generally reached on an international framework, protocol or accord in which countries agree to both common and increasingly individual policies they will undertake. Current examples include the Framework Convention on Climate Change (1992), the Kyoto Protocol (1997), and the still incomplete, Copenhagen Accord (2010). These international commitments usually lead to national or sub-national policy development to demonstrate that the member countries (or "parties" as they are called) are taking serious action to meet their international obligations. This has led to an international/national policy cycle that can be likened to a physics sine wave function analogy (Fig. 5). At the beginning of this climate cycle, policy makers are

Fig. 5. International and National climate policy cycles



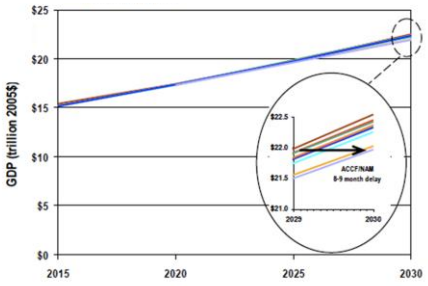
pressured to do something about climate change, often driven by the latest scientific reports from the IPCC. The sine wave of policy action is also driven by public concerns over climate changes, which tend to wax and wane over time, but are often driven by the release of scientific reports and/or lobbying efforts by the environmental community. Some have called public interest in climate change a "submarine issue" – it comes up every now and then, creates some panic and then sinks below the ocean of issues (McDermott, 2009). At this point, policymakers' attention is focused on top-down international negotiations until an agreement is reached and then attention shifts to domestic/national climate policy development that effectively implements these international commitments. The centerpiece of these international agreements is usually a schedule of greenhouse gas (GHG) reduction targets that countries pledge to meet.

At the national or sub-national level, climate policy usually begins with a media announcement that the government in question is planning on taking some action on climate change, which may include any international commitment they have made. This announcement may also include a consultation schedule and possibly a few options that the government is considering. The announcement provides an early warning to industry and environmental groups that the government is serious about developing policy on climate. At this time, industry usually begins a lobby effort to resist this direction or diminish its scope and/or depth while the environmental non-governmental (ENGO) community does the opposite. Prior to, or in step with these announcements, an internal government policy analysis exercise gets underway. The focal point of climate policy in the 21st century is the development of international and domestic GHG reduction targets. The first step is usually to quantify the jurisdiction's emissions over time and, if possible, to forecast where emission trends may be headed in the next 10-20 years assuming continued economic growth. This is an absolute must before attempting to develop a GHG reduction target, which often becomes the main policy outcome.

Developing a suite of potential GHG mitigation actions and their related costs is often the next step (e.g. incentives for new green technologies, consumer grants, regulating industrial emissions, etc.). This is usually followed by macro and micro economic analysis that compares various combinations of mitigation options to economic growth and hopefully a reduced GHG emissions trajectory. Broadly speaking, the deeper and more aggressive a GHG target, the greater reduction in GDP a jurisdiction can expect. Important metrics for assessing the potential impact of a proposed GHG reduction target include: overall reduction (or improvement) in GDP, economic impact to key industrial sectors (microeconomics), and impact to key commodities important to consumers/voters (price of gasoline, home heating, etc.). This analysis is then usually discussed internally at the political level. The analysis usually

indicates or assumes a variety of levels of carbon pricing that must be put in place to drive a suite of GHG reduction curves (Fig. 6). This almost invariably means developing a policy option that puts a price on carbon emissions, with emissions trading and carbon taxes being the most touted options. A carbon pricing mechanism often becomes a "center-piece" of a climate strategy or policy package.

Fig. 6. Carbon price & impact to GDP (USCAP, 2009) Climate policy cycles



Some governments may choose to present these initial findings to stakeholders (industry, environmentalists, civil society in general) for feedback and input. Typically, industry tends to argue for reduced targets, pointing out how their corporate or sector profitability may be impacted, while ENGO groups tend to argue for more stringent targets. A second round of internal-to-government deliberations must in the end decide on what kind of policy trade-offs are to be made between depth of GHG target, economic impacts, political considerations, and views of stakeholders. Climate change impacts and adaptation are usually a secondary consideration for most western governments in the development of their climate policies, but are front and centre for developing countries. The final climate strategy or plan usually does not make anyone happy. At this point, government officials put together a draft climate change strategy that outlines what targets and policy actions the government intends to take. A back–and-forth iteration between politicians and officials continues to refine the draft document before its final approval by a cabinet or legislative branch. In jurisdictions with strong political views on climate, the political arm will take the lead on this refinement. Some governments may let officials lead on policy refinement. In either case, most importantly, Ministers championing the climate strategy must undertake a great deal of internal lobbying to convince their colleagues of the merit of the plan. If funding is part of the plan for private sector or public carbon reduction incentives, finance ministries must also approve a budget for the plan. Once approved internally, the timing and venue for public release of the climate change strategy is given careful consideration to optimize its political impact. A recent example of this is the City of Wellington, New Zealand and its announced Climate Change Action Plan (City of Wellington, 2010).

Policy Implementation is the point where either a climate strategy is really made to work towards the promised GHG emission reductions or remains an ineffectual political document that gathers dust. This is the point where a government must pass a

law or regulations or make a firm budget commitment to some program or research effort. Strategically, some governments (or corporations) may have no intention of actually moving to the implementation phase and might only wish to have a climate strategy for "optics" purposes. For example, Simpson et al. (2007) describe how Canada has had multiple (>5) climate change strategies since the early 1990s and how only small portions of these plans have actually been implemented. However, for governments serious about moving to implementation, this represents another significant amount of work. Any legislative and/or regulatory requirements in the strategy need to be worked out in detail and this can take 2-5 years in itself. In particular, legislation related to the introduction of carbon taxes or carbon trading can involve lengthy detailed discussions with industry on a myriad of technical details. Strategically, it is often in industry's best interest to drag these detailed discussions out for as long as possible, as every financial quarter that does not have a regulatory carbon constraint on it, improves or maintains the company's bottom-line. This is what essentially happened in Canada in the mid-2000s. The Liberal government at the time held up to 5 years of detailed technical discussions with provinces and industry on a "cap and trade" program, which eventually was dropped as a policy option when the new Conservative government came into power in 2006. "The new government started all over with their own policy development cycle" (MacDonald, 2009). Some progressive companies that are genuinely committed to climate change in the context of sustainable development have made considerable voluntary efforts beyond what government policy has dictated. Consequently, these progressive companies are often called upon by government to provide assistance and advice during policy formation stages. The private sector usually wants some kind of policy certainty so that they can make prudent future investments.

Details surrounding climate friendly incentive programs also need to be worked out at this stage and this can also take many years to ensure that "cheaters" or "defectors" cannot exploit weaknesses and thereby take unfair advantage of these programs.

Policy Review - constitutes the last stage of the policy cycle and for really serious efforts, is perhaps the most crucial. This stage assesses whether or not a policy that has been developed and implemented is actually achieving the anticipated outcomes it was designed around. Ongoing measuring and monitoring of emissions trends is a key sub-component of a policy review. This stage may also determine that policies need to be adjusted, re-crafted, or in some cases, scrapped altogether. Compliance with climate regulations and mitigation mechanisms such as emissions trading is an important aspect of policy review. The EU cap and trade system has tough compliance measures and penalties for non-compliance and this is likely a key reason as to why this emissions trading system seems to be working. However, in the early phase of the EU's cap and

trade system it was found to contain policy weaknesses that allowed some companies to obtain windfall profits by gaming the system (PEW Center, 2009). Alberta's "cap and technology" program has a provision for industry to pay into a green technology development fund if they know they are going to be out of compliance with this regulation. To date, the Climate Change Emission Management fund has taken in over $257 million in non-compliance penalties (Hanneke Brooyman, 2011).

Discussion

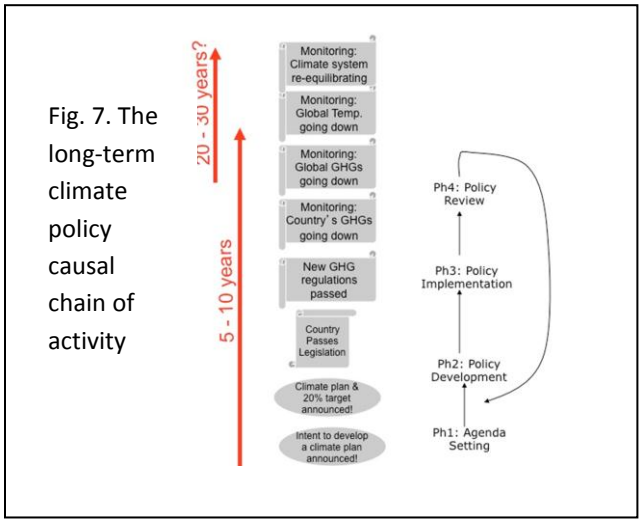


Fig. 7. The long-term climate policy causal chain of activity

Efficacious climate change policy involves a complex chain of causality that is currently taking decades to achieve (Fig. 7). The challenge with even achieving a reduction in GHG emissions is that there must be a critical mass of countries that are achieving reductions that add up to a global reduction in emissions. This is not happening as yet. Unlike reductions in regional air pollutants that bring immediate health and ecosystem benefits, achieving GHG reductions in one area of the globe is generally insufficient to bring about global benefits. The ultimate metric of policy success is not simply declining GHG levels, but an indication that the risks related to global warming and resulting climate changes are actually starting to go down. Figure 7 illustrates the various stages of policy development and the very long timelines that are needed before real long-term climate risks are reduced. To date, most policy reviews at the international UN level, coupled with the periodic IPCC scientific assessments, have concluded that the existing policies are insufficient. The global community, made up of individual countries, inevitably needs to return to Phase 1 or 2 of the policy cycle and start again, about every 5-10 years (Fig. 5). This trend is likely to continue for decades to come.

But there are also disturbing signs that this top-down, cyclical climate change policy process is not working anymore, nor will it necessarily be the paradigm of the future. The 3rd UN policy cycle (Fig. 5) has for the past three years failed to reach agreement on a new omnibus climate change protocol. Climate policy is also facing a new intersection

of energy security issues (e.g. rising prices of gasoline linked to peak oil and the move to more GHG intensive non-conventional hydrocarbons like the Alberta Oilsands) and market-driven interest in capturing a share of the emerging clean energy (wind, carbon capture and storage - CCS, solar, many others) technology sector. The role of serendipity and unknown global events cannot be underestimated either as an accelerant or retardant of climate change policy progress – for example, the 9/11 event in the United States effectively stalled climate progress in that country for nearly a decade as their focus was on fighting terrorism. It is possible that future progress on climate change may come from more "bottom-up" initiatives (e.g. government and/or industry targeted R&D in things like CCS or solar installations that produce climate benefits as a secondary effect) than by top-down UN climate policy. Another option that is emerging might be to more closely link climate policy to energy policy. Such a combined energy/climate policy could work towards a radical transformation away from fossil fuels towards renewable energy and thereby gradually reduce greenhouse gas emissions over the next 100 years.

---

*Author: *Donald E. Macdonald is an earth scientist, and former climate change policy advisor, currently teaching at Grant MacEwan University in Edmonton, Alberta, Canada. In the past, he served as a senior climate change policy advisor for the Alberta Government and represented the province in many of the United Nations Framework Convention on Climate Change negotiating sessions. He was also involved in national and provincial climate change policy developments.*

Acknowledgements: Thanks are extended to Chris McDermott (carbon and renewable energy financier and former climate change negotiator for Canada), an anonymous reviewer, and Andrea Church (Earth Common Journal editor) who all helped strengthen this paper.

References

Brooks, S. (1989). *Public Policy in Canada: An Introduction*. McClelland and Stewart, pp. viii, 378.

Hanneke Brooyman. (2011, May 4). Alberta industry cut 6.5M tonnes in carbon emissions in 2010. Retrieved June 2011, from *Edmonton Journal* http://www.edmontonjournal.com/technology/Alberta+industry+tonnes+carbon+emissions+2010/4722885/story.html

City of Wellington, (2010). *Wellington City's 2010 Climate Action Plan*. Retrieved May 2011, from http://www.wellington.govt.nz/plans/policies/climatechange/pdfs/climatechange2010.pdf

EcoInformatics International Inc, (2011). Policy Cycle Graphic. Retrieved May 2011, from http://www.geostrategis.com/p_policy.htm

Intergovernmental Panel on Climate Change (2007). *Fourth Assessment Report*, Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

OECD (2009). OECD in Figures 2009. OECD Publishing.

PEW Center (2009). *Emissions Trading in the European Union: Its Brief History*. Retrieved May 2011, from http://www.hss.caltech.edu/~pbs/ec131/EUCapTrade.pdf

Simpson, J, Jaccard, M and N. Rivers. (2007). *Hot Air: Meeting Canada's Climate Change Challenge*, McClelland and Stewart, 281pp.

UNFCCC (1992). *The Framework Convention on Climate Change*. Retrieved May 2011, from http://unfccc.int/resource/docs/convkp/conveng.pdf

United States Climate Action Partnership, (2009). *A Blueprint for Legislative Action: Consensus Recommendations for U.S. Climate Protection Legislation.* Economic analysis of the USCAP Blueprint for Legislative Action.