

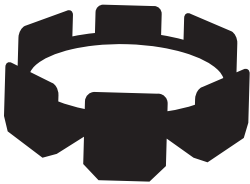


Green Jobs: Is This the New “New Economy” Summary Report

January 2009



Public Policy Forum
Forum des politiques publiques



Public Policy Forum *Building Better Government*

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Executive Summary

On November 2 and 3 2009, the Public Policy Forum hosted a symposium on the issue of green jobs. In this time of economic recovery and concern over the environment, many Canadians see the green economy as a way to create new, environmentally friendly jobs and encourage a sustainable economic recovery. However, many questions remain about the creation of green jobs and the broader role of the green economy in Canada. This symposium was meant to provide some clarity.

The Public Policy Forum sought to raise awareness of this issue and present some of the most important considerations that arise when thinking about the growing impact of the green economy on the Canadian labour market. Described during the event as the “mother-of-all horizontal public policy challenges,” the symposium was not intended to produce a solution to climate change or a definitive policy on green jobs.

With this in mind, symposium discussions revealed some key themes that will be central to future action on green jobs. They are:

- **Green jobs cross the jobs spectrum** – Throughout the symposium participants heard that a “green” job is not limited to one sector of the workforce. Indeed, green jobs span the entire workforce. Whether it is the transformation of old auto manufacturing plants into windmill manufacturing plants, or designing “green” buildings, or conducting research into carbon capture, green jobs are best defined not as a type of job but rather according to their impact on the environment: any job that minimizes its environmental damage or contributes to environmental sustainability can be considered “green.”
- **Canadians want action; framing the message is important** – Though there is a simmering debate in Canada about the potential costs of climate change, many Canadians recognize that environmental problems, namely climate change, constitutes a significant challenge; what they are concerned about is paying for a boondoggle. Canadians are willing to consider solutions to climate change, however they must be clearly articulated and have been developed with the consultation of the non-profit and business communities.
- **The green economy is the future** – The speed at which it develops will be dictated by the level of government support, the pace of technological development and the evolution of the labour market (i.e. employee skills), but the Canadian economy of the future will certainly be greener. Technological advances are making green technologies more and more affordable. All the while, sectors of the economy that are identified as “green” are today seeing dramatic growth in jobs, to the point where there is a dearth of employees to fill them. In 2007, the growth of “green” jobs outpaced the growth of traditional jobs by 24%. However, what’s interesting is that this number could have been much higher; what limited this growth was the absence of qualified workers.



- **Skills and training are significant challenges** – Because the definition of a “green” job is so broad, developing policies to address the skills and training requirements of green industries is particularly difficult. Add to this the reality that many of these industries are themselves emerging and it becomes next to impossible to get ahead of the skills demand curve. There are some obvious solutions: national credential harmonization; teaching environmental awareness throughout primary and secondary school; developing more responsive immigration screening policies; and, providing support to post-secondary institutions to develop training programs in green industries.
- **Aboriginal Canadians will be central to the future of alternative energy in Canada** - Much of Canada’s vast natural resource wealth rests on Aboriginal lands. This includes the tremendous energy-generating potential from renewable sources. During the symposium, it was estimated that more than 60% of future alternative energy projects in Canada will be based on Aboriginal land. This will require particular sensitivity to Aboriginal culture and to the acute development challenges faced by these often-rural communities. Labour mobility within Aboriginal communities is very rare, so it is incumbent on the private sector, the federal government and band councils to ensure that the revenues that are generated by these projects are invested with careful consideration. Too often, Aboriginal communities suffer a feast and famine phenomenon that undermines longer-term development opportunities. Instead, consideration needs to be given as to how these revenues can help foster local business, or be invested in durable skills that can be transferred to future projects in such a way as to ensure the gradual development of the community over the long term.
- **Government involvement is critical** – Because of the costs associated with research and development, new technologies and “green” trained labour, new green products and services are more expensive than more traditional competitors. Governments, with their resources and their regulatory power, have a unique role to play in fostering the development of green industries in Canada. There are a number of policy options available to government that will help develop a domestic green technology (and by extension, green job) market. Government support could mean setting a price on carbon, investing in public infrastructure, setting emissions target in law, introducing product regulations, or investing in research and development. In order to be most effective, governments would be well advised to undertake these elements simultaneously, as has been done in certain jurisdictions (e.g. Ontario and the United States). However, ensuring long-term policy coherence is key. Governments need to be transparent and forward-looking in their interventions. By lowering the risk of sudden changes, governments can help to encourage private investment, and venture capital will be more willing to invest.
- **Innovation is essential** – It may seem obvious that green industries would be on the forefront of innovation – after all, new technologies underpin much of the green economy. However, new and emerging industries cannot be the only industries that go “green;” indeed, many traditional industries need to begin to consider possible ways of innovating and becoming greener. One example raised during the symposium is the construction industry. Though it is seemingly a straightforward industry, there is room for innovation not only in the technologies and materials

used to construct buildings but also in how these buildings are financed in the planning phase. The green economy will be one of the most active areas for innovation; we must only be limited by our creativity.

These themes illustrate the importance of considering the challenges of climate change – and indeed, green jobs – holistically. Though trying to address all of these considerations simultaneously may be daunting, simply addressing half of the problem could mean confusion and even greater economic dysfunction than the status quo.

All of the symposium’s participants recognized that responding to climate change will require the sharing of a cost burden. As was illustrated at the event, Canadians are willing to open their wallets; but before they do, the solutions need to be carefully considered and costs need to be evenly shared. However, if taking meaningful action on climate change requires Canadians to share a cost burden, it is the prospect of creating new, green jobs that provides the balance. No longer is the question about addressing climate change solely about how much it will cost Canadians; through the creation of green jobs and the growth of the green economy, the question also becomes one of opportunity.

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Sommaire

Les 2 et 3 novembre 2009, le Forum des politiques publiques a organisé un symposium sur la question des emplois écologiques. En cette période de reprise économique et d'inquiétude pour l'environnement, beaucoup de Canadiens voient dans une économie verte un moyen de créer de nouveaux emplois écologiques et de favoriser une reprise économique durable. Nombre de questions restent cependant sans réponse quant à la création d'emplois écologiques et au rôle plus vaste de l'économie verte au Canada. Ce symposium avait pour but d'apporter quelques éclaircissements.

Le Forum des politiques publiques cherchait plutôt à sensibiliser les gens à cette question et à présenter certaines des considérations les plus importantes lorsque l'on pense à l'impact grandissant de l'économie verte sur le marché canadien du travail. Portant sur ce qui a été décrit pendant la rencontre comme “le défi par excellence en termes de politiques publiques horizontales”, le symposium n'avait pas pour but de proposer une solution pour le changement climatique, ni une politique formelle en matière d'emplois écologiques.

Dans cette optique, les discussions lors du symposium ont fait ressortir certains thèmes centraux qui seront incontournables lors des interventions futures en matière d'emplois écologiques. Ces thèmes sont les suivants :

- **Les emplois écologiques se retrouvent dans tous les secteurs de l'emploi** – Tout au long du symposium, les participants ont entendu dire que les emplois « écologiques » n'étaient pas limités à un seul secteur de la main-d'œuvre. On les retrouve en effet partout. Qu'il s'agisse de la transformation de vieilles usines automobiles en usines de fabrication d'éoliennes, de la conception de bâtiments « écologiques », ou de recherches sur le captage du CO₂, la meilleure façon de définir les emplois écologiques n'est pas en termes de type d'emploi mais plutôt en termes d'impact sur l'environnement : tout emploi qui minimise son incidence néfaste sur l'environnement ou contribue à la durabilité écologique peut être considéré comme un « emploi écologique ».
- **Les Canadiens veulent des mesures concrètes; Il est important de bien présenter le message** – Si le débat est encore discret au Canada quant aux coûts potentiels du changement climatique, les Canadiens sont nombreux à reconnaître que les problèmes environnementaux, le changement climatique pour le nommer, constituent un défi majeur. Ce qui les inquiète, c'est l'idée de payer pour des mesures futiles. S'ils veulent bien envisager des solutions au changement climatique, ils veulent cependant que celles-ci soient clairement formulées et qu'elles aient été élaborées en consultation avec le secteur sans but lucratif et le milieu des affaires.
- **L'économie verte, c'est l'avenir** – Si la vitesse à laquelle elle se développera sera fonction de l'ampleur du soutien gouvernemental, du rythme des progrès technologiques et de l'évolution

du marché du travail (c’est-à-dire des compétences des employés), une chose est cependant certaine : l’économie canadienne de demain sera plus verte. Les progrès technologiques rendent de plus en plus abordables les technologies vertes. Et en même temps, le nombre d’emplois dans les secteurs de l’économie qui sont considérés comme « verts » augmente actuellement de manière spectaculaire, à tel point que l’on manque d’employés pour les pourvoir. En 2007, la croissance des emplois écologiques dépassait de 24% celle des emplois traditionnels. Ce qui est intéressant, cependant, c’est que ce chiffre aurait pu être beaucoup plus élevé – ce qui a limité cette croissance, c’est l’absence de travailleurs qualifiés.

- **Les compétences et la formation constituent des défis de taille** – La définition d’un emploi écologique étant trop vague, il est particulièrement difficile de concevoir des politiques en ce qui concerne les exigences en matière de compétences et de formation dans les industries écologiques. Si l’on ajoute à cela le fait que beaucoup de ces industries sont elles-mêmes nouvelles, il devient quasiment impossible de progresser en termes des compétences exigées. Il existe quelques solutions évidentes : l’harmonisation des titres de compétences à l’échelle nationale; l’enseignement de la sensibilisation aux questions environnementales tout au long des études primaires et secondaires; l’élaboration de politiques mieux adaptées pour la sélection des immigrants et l’apport d’un soutien aux établissements d’enseignement postsecondaires pour la mise au point de programmes de formation pour les industries vertes.
- **Les Autochtones joueront un rôle central pour l’avenir des énergies de remplacement au Canada** – Beaucoup des grandes richesses du Canada en termes de ressources naturelles se trouvent sur des terres autochtones, y compris l’immense potentiel en matière de production d’énergie à partir de sources renouvelables. On a estimé au symposium que 60% des projets futurs dans le domaine des énergies de remplacement se trouveraient sur des terres autochtones. Une sensibilité toute particulière à la culture autochtone et aux défis considérables auxquels sont confrontées ces collectivités, souvent rurales, sera de rigueur. La mobilité de la main-d’œuvre est une chose très rare au sein des collectivités autochtones et il incombe donc au secteur privé, au gouvernement fédéral et aux conseils de bandes de veiller à ce que les revenus générés par ces projets soient investis en réfléchissant bien. Trop souvent, les collectivités autochtones alternent abondance de biens et pénuries, ce qui nuit aux possibilités de développement à long terme. Il faut plutôt réfléchir aux façons dont ces revenus peuvent servir à encourager le commerce local ou être investis dans des projets futurs de manière à contribuer au développement graduel de la collectivité à long terme.
- **La participation du gouvernement est capitale** – Les coûts associés à la recherche et au développement, aux technologies et à la formation de “cols verts” et aux nouveaux produits et services sont plus élevés que ceux auxquels font face les concurrents plus traditionnels. Les gouvernements, avec leurs ressources et leurs pouvoirs de réglementation, ont un rôle particulièrement important à jouer dans la promotion des industries écologiques au Canada. Diverses possibilités s’offrent à eux pour ce qui est des politiques pour favoriser le développement d’un marché pour les technologies vertes au Canada (et par extension, la création d’emplois écologiques). Le soutien du gouvernement pourrait prendre la forme de la fixation du prix du



carbone, d'investissements dans l'infrastructure publique, de cibles fixées par les lois pour ce qui est des émissions, de la mise en place de réglementations pour les produits ou encore d'investissements dans la recherche et le développement. Pour être le plus efficaces possible, les gouvernements auraient intérêt à prendre ces mesures simultanément. Veiller à ce que des politiques à long terme soient en place est cependant essentiel aussi. Les gouvernements doivent faire preuve dans leurs interventions de transparence et de capacité à penser à l'avenir. En diminuant le risque de changements soudains, les gouvernements peuvent aider à encourager les investissements du secteur privé et, du même coup, ceux des sociétés de capital risque.

- **L'innovation est essentielle** – Cela peut sembler aller de soi, mais les industries écologiques devraient être à la pointe de l'innovation – après tout, l'économie verte repose sur les nouvelles technologies. Néanmoins, les industries nouvelles et émergentes ne peuvent pas être les seules à devenir vertes – de nombreuses industries traditionnelles doivent aussi commencer à chercher des façons d'innover et de venir plus écologiques. L'exemple de l'industrie de la construction a été cité au symposium. Si l'on a tendance à penser que les choses y sont simples, il y a beaucoup de place pour l'innovation, non seulement au niveau des technologies et des matériaux utilisés pour construire les bâtiments, mais aussi dans la manière dont ces bâtiments sont financés au stade de la planification. L'économie verte sera l'un des domaines les plus dynamiques pour ce qui est de l'innovation – seul notre créativité pourra nous limiter.

Ces thèmes montrent combien il est important d'avoir une approche d'ensemble des défis posés par le changement climatique – et, cela va de soi, des emplois écologiques. S'il peut être intimidant de tenter de s'attaquer simultanément à tous ces problèmes, ne s'attaquer qu'à une moitié du problème pourrait engendrer la confusion et un dysfonctionnement de l'économie encore plus grand qu'avec le statu quo.

Tous les participants au symposium ont reconnu que, pour faire face au changement climatique, il faudra partager les coûts. Comme on l'a vu lors de cette rencontre, les Canadiens sont prêts à ouvrir leurs portefeuilles – mais seulement une fois que les solutions auront été mûrement réfléchies et à condition que les coûts soient équitablement partagés. Cependant, si prendre des mesures significatives face au changement climatique nécessite le partage des coûts entre les Canadiens, c'est la possibilité de créer de nouveaux emplois écologiques qui équilibre les choses. La question des mesures à prendre face au changement climatique ne se résume plus au coût escompté pour les Canadiens – une fois que l'on entre dans l'équation la création d'emplois écologiques et l'expansion de l'économie verte, cela devient aussi une question de débouchés.

Introduction

Recent news of widespread melting of the Antarctic has underscored what humanity has known for decades: the earth is getting warmer. Though debate still remains as to the true cause of this warming, many experts point to the unprecedented amounts of human-generated carbon emissions in the atmosphere as the primary catalyst. They would also argue that to mitigate this warming we must make drastic – and rapid – changes to our carbon-dependent lifestyle.

For a number of years, governments eschewed this type of dramatic action because they saw only higher costs to consumers and economic hardship. And while this may have been true fifteen or even ten years ago, today, instead of simply increased costs and economic hardship, scientists, economists, entrepreneurs, policymakers have all begun to see the potential for something different: opportunity.

In addition to this long-term climate crisis, the world has been buffeted by a widespread and devastating global economic crisis. And while this has served to shift concerns away from the environment – widespread no more than two years ago – towards the spectre of deep, gruelling recession, some policymakers see in the confluence of economic and environmental crises an opportunity to rebuild the global economy in ways that also mitigate humanity’s impact on the planet.

Put simply, these experts envision economic recovery – and job creation – by way of environmentally friendly businesses, clean energy, and sustainable manufacturing and construction processes. For them, economic recovery cannot and will not be the rebuilding the “old” economy; for them, the future lies in the “green” economy.

On November 2 and 3, the Public Policy Forum hosted a symposium to discuss and explore the “greening” Canadian and North American economies and what it means not only for the industries that will be affected, but, more importantly, for the labour force. A greening economy naturally requires workers with different skills sets. Though some may be very similar, the “green” jobs of the tomorrow certainly will not be the same as those jobs of the past.

The Public Policy Forum sought to explore what this means for workers who have lost their jobs, those workers who are in industries drifting gradually into obsolescence, and for the workers of tomorrow – students



Jake Caldwell, Stewart Elgie, Chad Gaffield and Jacques Shore (left to right)

... Some policymakers see in the confluence of economic and environmental crises as an opportunity to rebuild the global economy in ways that also mitigate humanity’s impact on the planet



who are beginning to consider future careers.

Beyond this, we sought to make the connection to the potential that the green economy offers for innovation – especially in the public sector, as governments consider investment, immigration and labour market policies. Innovation has long been of keen interest to the Forum and, we believe, the green economy offers significant potential for future innovation. Adapting to a greening economy is such a complex policy challenge that it would seem that innovation is not only something that must be encouraged. It is something that must be required, if Canada wants to take a leadership role.

But in order to understand where the potential for growth and innovation lie, policymakers, business people and Canadians must first understand what “green” means. Indeed, better understanding the terminology that defines what it means to be “green” was a principal motivation of this symposium. What is a “green” job, specifically? What sectors that will be transformed by a greening economy? How will they be transformed? And, what possible role can governments play in facilitating a shift toward a greener economy? Only by providing a more comprehensive overview of some of these issues can we begin to consider how best Canada can move forward.

Key Messages

Though the symposium featured four central components, several themes emerged throughout. Panellists each brought their own perspectives, but many agreed on the fundamental issue underpinning the conference: that the green economic transformation is underway globally and that Canada can ill-afford to rest on its laurels. Investment and innovation is happening in developed and developing countries alike. From China to Germany, South Korea to the United States, change is afoot and complacency is simply not an option. Whether driven by external forces or domestic leadership, Canada’s labour market of tomorrow will not resemble the labour market of yesterday, or even today.

Canadians must consider two options. Either we can take a leadership role – in business, in government and in society – in crafting a solution that is bold enough to stay competitive globally but still relevant for the Canadian economy, or we can accept the global consensus on possible solutions, once it emerges. Regardless of our decision, one key message emerged from this symposium: change is going to occur and as a globally integrated and trade-dependent economy, Canada’s future will be decidedly “green.”

Green Jobs Cross the Jobs Spectrum

One of the central questions the Public Policy Forum aimed to address during this symposium is “what constitutes a green job?” Thinkers and policymakers from other jurisdictions have tended to focus primarily on the alternative energy sector. This sector offers far and away the greatest source of new jobs – alongside energy retrofitting – and is a growing part of the sector which underpins the entire Canadian economy, which makes this belief understandable. However, many speakers throughout the day recognized the need to think of green jobs in a broader sense.

Rather than thinking about specific jobs, or sectors, it became apparent that a “green” job is more a concept than a set of specified “jobs.” Instead, in the words of Jake Caldwell from the Center for American Progress, a green job ought to be thought of as a job that “participate[s] in transforming the economy into a low carbon economy.” His co-panellist, professor Stewart Elgie from the University of Ottawa, went slightly further in his definition, including “jobs that improve the environment and not just on the climate change front.”

Indeed, many speakers took for granted that green jobs are “defined in the broadest sense of the term.” These positions are neither sector-specific nor “type-of-job specific;” any “activity that helps lower our carbon footprint and promote[s] sustainability” can be, and ought to be, considered green.

Any ‘activity that helps lower our carbon footprint and promote[s] sustainability’ can be, and ought to be, considered green.



What presents a challenge for policymakers is this ephemeral concept of a “green” job. Though there is an interest in promoting these types of jobs, the sectors in which they can be found vary markedly. Whether it is the construction industry, the automotive industry, architecture, accounting, the electricity sector or research into carbon capture, green jobs are not defined solely by the skills they require but rather their effect on the environment, and in particular the carbon economy. Unfortunately, this means that there cannot be a universal green jobs policy or program. Some jobs, like those focused on carbon capture, are going to be new and exclusively green; others are going to be traditional jobs that require minor skill adjustments.

Though participants recognized the vast number of green and greening industries, many panellists – like their international colleagues – used clean energy as the example of the complexity that typifies the entire green economy. To underscore the importance of a comprehensive understanding of what jobs had the potential to be “green,” Chris Henderson, President, Lumos Energy and head of the Aboriginal Clean Energy Network, identified at least eight types of jobs required in clean energy production and distribution alone:

- Technology Innovation & Design
- Product Manufacturing
- Project Development
- Science & Engineering
- Technical Specialists
- Communications & Stakeholders
- Construction & Trades
- Operations & Maintenance

This list demonstrates that all jobs are not simply “bricks and mortar” jobs. Indeed, one of the most critical type of job that he identified from this list are those technical specialists who are designing the software and computer systems that will operate the smart grids and power generation plants of the future. These jobs in particular are highly skilled and highly competitive; the issues relating to developing and retaining this type of talent will certainly be different than those jobs relating to the operations or manufacturing sectors, which themselves require specialized training.

This complexity in just this one sector points to the extreme difficulty governments face in trying to inspire action on the green economy. Perhaps the most sobering reminder about the task at hand came from Velma McColl, a Principal at Earncliffe Strategy Group, who said that the issue of green jobs and the green economy is the “mother-of-all horizontal policy challenges.” This was echoed by co-panellists Grant Trump, President of ECO Canada, who said that if the green transformation was easy to solve “it would have been solved already.”

Canadians Want Action; Framing the Message is Important

Just because the problem is not yet solved does not mean that Canadians are keen to leave it unresolved.

Rather, a paradoxical opinion prevails amongst most Canadians. It would seem as though many of us are increasingly concerned about our environmental impact and want to take action; however, this action cannot have an impact on our pocketbooks. This was the verdict of the most recent Canadian federal election, which was arguably fought on the premise of taking action on the environment.

Yet, according to pollster Bruce Anderson, Senior Vice President at National Public Relations and Senior Consulting Associate at Harris Decima, Canadians are not that singularly focused on preserving their bottom line. Rather, they are willing to grant governments considerable latitude to develop meaningful climate change and green economic policy. The only condition they seem to have is ensuring clear, coherent, understandable messaging.

In his presentation, Mr. Anderson presented data that indicate Canadians, particularly from the Baby Boom generation, are concerned about their impact on the environment. According to these data, 79% of Canadians aged 55+ believe on some level that “my generation has done an unacceptable amount of damage to the environment.” Beyond this, the data suggest that 87% of Canadians believe that it is the wasteful behaviour of consumers that is the biggest cause of environmental problems.



Panellists Jonathan Westeinde, Saäd Rafi and Bruce Anderson

These numbers clearly suggest that an overwhelming number of Canadians want to see some form of action on the environment. The challenge lies in convincing those who want action that the increased costs are going to make a meaningful difference. In this sense, Canadians want to see all of the players working together to devise solutions. Indeed, 90% of Canadians want environmental groups and business to work together on this issue.

This desire is not limited to consumers, either. According to Wes Muir, Director of Corporate Communications at Waste Management, many clients are quite interested in being more environmentally friendly with their waste. Though they do not consider this solely out of altruism, rather they are concerned about the future and are also looking to make money from what would have otherwise simply been discarded.

If Canadians want action, and companies see a potential for profit, then why have Canadian policymakers not acted? It would seem, as suggested by Mr. Anderson’s data, that political leaders and policymakers have been unable - or unwilling - to take this will for action and transform it into acceptable policy prescriptions.

For example, in one question, respondents were asked to rate their favourability of four slightly varied policy options:

Political leaders and policymakers have been unable - or unwilling - to take this will for action and transform it into acceptable policy prescriptions



- A carbon tax levied on people and businesses based on the carbons emissions they generate
- A carbon tax levied on people and businesses based on the carbons emissions they generate with the money raised by the tax spent in incentives for environmentally friendly behaviour and investment in environmental and renewable energy technologies
- An environmental usage charge that would apply to people and businesses who use more than average amounts of fossil fuels, water or electricity or who produce more garbage than average
- An environmental tax refund paid to those who succeed in reducing their use of fossil fuels, electricity, water and the amount of garbage they produce



Panel on Skills and Training requirements

Each of these options present essentially what is a price on carbon. Support for the first measure was nineteen points lower than the last (61% to 80%). In a minority government context, where a government only needs the support of approximately 35% of the population, this difference allows for politicians who question the merits of a price on carbon to find success by portraying the introduction of a price on carbon as a rise in taxes.

Regardless, all of the data point to the same conclusion: policymakers, business and environmental groups must work together to develop sound policy, and work to convey the essence of these solutions in a way that is acceptable to Canadians. What is clear is that there is no absence of will or interest in debating solutions, the difficulty – and Canadians’ suspicion – lies in the confusion of the message and of available information.

The Green Economy is the Future

Naturally, a discussion about jobs cannot continue for very long without the additional discussion about the economic conditions that create them. Throughout the event, panellists and participants alike recognized the important role the green economy will play in Canada’s – and the world’s – economic development into the future.

Even in the midst of troubling economic times, according to a number of panellists, demand for green jobs increased relative to traditional jobs. As just one example, according to Robert Hornung, President of the Wind Energy Association, 33 jobs have been created in the wind energy sector in Europe per day, every day since 2005. Similarly, the solar power sector in Canada is expected to face a 60% increase year-over-year this year and next.

According to Grant Trump, the environmental sector in Canada has been growing significantly quicker than the traditional economy for a number of years. In 2004, employment in the sector was growing at a rate 60% higher than the traditional labour market. By 2007, that number had dropped to only 24%. However, the source of this decline was surprising. It was not the demand for these jobs that slowed; interestingly, it was the supply of qualified labour.

So it would seem that green jobs are being created, even as other sectors of the economy are seeing positions lost at uncompromising pace, and, even in the absence of qualified labour. This is in no small part due to regulatory commitments (alternative energy projects and energy retrofit requirements, etc.) already underway, many of which cannot be suspended because of economic troubles, and many of which are buttressed by government stimulus.

This has meant that companies working in the green economy have been partially insulated from the storm. Though they may suffer from a niche market phenomenon, green companies have not seen their business suffer as much as others during the tough economic times. And, with sound, careful, considered policy, the green economy is poised to benefit from tremendous growth as the rest of the global economy continues to go green.

The challenge to developing “green” industries lies in scale. Because many of these technologies and industries are emerging, they suffer from higher input costs and lower aggregate demand for their products and services. Traditional industries, because of their market share, benefit from economies of scale. Start-up industries, no matter their virtue, lack the resources or the capacity necessary to compete on a cost basis.

Governments have begun to invest, and, provided that the right investment and regulatory environment exists, venture capital has also recognized the potential. The challenge remains, however, to ensure that this growth is sustained into the future. Many panellists recognized the need for innovative approaches to encouraging investment and significant government involvement, at least in guaranteeing a medium-term investment horizon that can allay some concerns of jittery investors.

Looking to the future, and most importantly for future green workers, many of the day’s panellists recognized that “the takeoff is just starting now.” These emerging green industries may be competing at a disadvantage against the traditional market, but they are ahead of the curve. Traditional industries may be dominant today, but given global trends in innovation and environmental policies, these lumbering giants will be forced to play catch-up, lest they be replaced by those companies nimble and responsive enough to adapt to the world economy’s greener hue.

Skills and Training are a Significant Challenge

Very early on during the event, Canada’s reaction to the ICT revolution in the early 2000s was raised as an analogous situation to the challenge faced by policymakers with respect to green jobs. During the rapid technological advances that inflated the “dot com bubble,” Canadian companies faced



...‘The order of magnitude to address [the issue of climate change] is steep... no single instrument is going to solve the challenge.’

shortages in the labour market for the jobs that were created by the incredible growth at the time. Governments across Canada did not anticipate the rapid pace of this growth nor the type of skills that would be required to support it and were caught flat-footed.

Deputy Minister of Human Resource and Skills Development Canada Janice Charette posed to the audience the question of whether there were lessons to be learned from that experience. And though many of the panellists and participants agreed that the situations are different – i.e. that green jobs

are jobs in any number of sectors – there do seem to be similar challenges in trying to get ahead of the skills demand curve.

Beyond simply the high demand for workers with training in green energy production, Executive Director of the Canadian Electricity Sector Council Catherine Cottingham presented the grim reality that is facing the entire electricity generating sector in Canada.

By 2010-2012, the ESC is predicting there to be a shortage of over 5,000 engineers and maintenance personnel in the sector. And this is if all things are equal. As consumers continue to demand more energy, and the sector continues to grow beyond three years from now, a labour crisis looms. Add to this the fact that at least 50% of the trades people, engineers and managers in the industry are over the age of 45 (74% of managers, in fact), and the industry is facing both a skills and demographic crisis.

So bad is the concern that a recent survey of ESC members indicated that 51% of respondents identified labour shortages as “critical” to future growth strategies.

Certainly, these figures only represent one sector for potential green job creation, but if indeed “the takeoff is just starting now,” then it would seem that the Canadian job market is very ill-prepared for what lies ahead. This begs the question: what needs to be done to ensure these green jobs can be filled?

It is one of the virtues of the definitions of a “green” job that is also one of the biggest challenges in understanding the necessary requirements from both a skills and training perspective. Because these jobs cross the jobs spectrum, each individual position (or classification) bears its own unique skills requirements and, of course, the corresponding educational requirements to train future workers.

As the information presented by Grant Trump indicates, the employer demand is clearly there, and growing. The challenge, as was succinctly put by Velma McColl, is that “the order of magnitude to address [the issue of climate change] is steep,” and that “no single instrument is going to solve the challenge.”

Governments have pledged to help create new jobs by supporting industry; in order to actually move forward, however, what is also needed is attention on supporting the retraining of workers.

Specifically, this means that governments have to consider any and all possibilities to ensure that those green jobs that are created can be staffed by the appropriate people.

In some cases, this simply means helping to facilitate the amelioration of skills for labourers to ensure that they have a “green flavour;” in others, it requires more investment in educational institutions to provide the opportunity to develop specific programs that are highly specialized.

Beyond simply training, governments must also ensure that there are enough people to fill these positions, which naturally will require that federal and provincial government re-think policies on immigration, settlement and skills recognition.

Much as with immigrants who come to Canada and face challenges having their credentials recognized, employees in traditional industries who try to make the move to the green economy also face difficulty in transferring their credentials. One example are geothermal installers, a classification that is new to alternative energy production. In some provinces, HVAC (Heating, Ventilation & Air Conditioning) specialists are identified as having the most analogous set of skills to transition into these positions, in others, it is plumbers. This is merely one example, but the absence of a national strategy on these new credentials requirements serves to limit labour mobility, confuse prospective employees, and hamper further growth in these sectors.

Given that some of the new green positions will not require post-secondary math or science skills – but rather technical knowledge – it was suggested that provincial governments must incorporate environmental awareness and practices into the k-12 system. Given that this shift towards green appears to be both global and inexorable, instilling the basic tenets of environmental protection and environmental practices into the future generation seems both prudent and economically wise.



The symposium's concluding panel

Wes Muir, referencing a conversation he had with the makers of the children's television program *Sesame Street*, offered a word of caution, however: “If you want to talk about being environmentally friendly, do not talk about wanting to save the world. Focus more on how to improve the world, not save it.” This is very much in keeping with the presentation from Bruce Anderson, who said that Canadians recognize that they have a responsibility for the state of the environment, but do not want to be hectored on it, nor do they want to be presented with impractical solutions.

Bolstering workers' training and introducing greener curricula in both the k-12 and university systems would appear to be examples of the type of practical solutions that Canadians ought to support, particularly given the labour shortages that are already beginning to affect green industries, and especially given the increase in the number of laid-off workers from more traditional industries.



The aboriginal pool of person power represents the largest single potential pool of employable people in any sector, but particularly this sector...60% of future alternative energy projects in Canada will involve aboriginal communities and aboriginal labour.

Working to retrain these laid-off workers helps put people back to work in jobs that will last well into the future.

Aboriginal Canadians Will be Key to the Future of Alternative Energy

Though there has been an increase this past year in unemployment, this increase is fleeting. Many industries will continue to face the prospect of labour shortages as baby boomers continue retire to their cottages. As one of the fastest – and only – growing populations in Canada, Aboriginal communities – along with immigrants – will play an essential role in our economy of the future.

If many immigrants flock to big cities, many of Canada’s Aboriginal communities are located in remote reaches of the country. And while immigrants may replace workers in urban industries, Aboriginal communities are critical to the future of the alternative energy sector in Canada. This was the striking point made by Chris Henderson, the President of the Aboriginal Clean Energy Network.

“Here’s a simple fact,” he said, “almost every hydro project, many wind projects, most biomass projects and some solar projects [as well as] some geothermal projects will involve aboriginal communities.”

This is because much of the land on which these future projects will be built is Aboriginal land and thus requires the engagement (and acceptance) of the local communities. Add to this the fact that these young, fast-growing, underdeveloped communities could benefit tremendously from investment and training.

Whether it is a new hydroelectric dam on a river, building isolated wind and solar farms, or putting the low quality soil of the reserves to use to grow biofuels, these communities have the land to spare and the capacity to utilize it.

Likening it to hitting the “sweet spot” when taking a slap shot in hockey, Mr. Henderson sees this as a tremendous opportunity to move away from traditional sources of power generation while providing economic opportunities to Canadians for whom it is long overdue. Put simply, the “sweet spot, in terms of clean energy and Aboriginal jobs creation potential,” is now.

According to Mr. Henderson, “The Aboriginal pool of person power represents the largest single potential pool of employable people in any sector, but particularly this sector.” To this end, he believes that 60% of future alternative energy projects in Canada will involve aboriginal communities and aboriginal labour.

Working with Aboriginal communities is not without its challenges. Project development is often a challenge of feast and famine. Because many communities are remote, each new project dictates the community’s fortunes. Whether it is a hydro dam or a wind farm, or even a mine or a lumber mill,

there has been a tendency by both the company coming into the community as well as community leaders themselves to not consider the long-term development of the community. This makes it difficult to attract and train younger Aboriginals, who are only going to be interested in seeking training if they know that there will be value to the training in the longer-term. It is also important to note that Aboriginal people are less mobile. Community culture, land ownership rights, community remoteness and myriad other issues make labour mobility very disruptive. This makes the challenge of ensuring long-term communities development that much more acute.

Building power generating infrastructure requires considerable man hours, but these jobs are temporary. What is needed is further investment in the community that will allow the earnings from these projects to be reinvested. What ought to be considered, said Henderson, is something similar to the “Jean Chrétien 1/3 model” – 1/3 of revenues be spent on the needs today, 1/3 be saved and invested in future development and 1/3 be spent on educational and training programs to promote sustained community development.

With such a tremendous opportunity for these communities and growing demand for clean energy, what are needed are smart and nimble policy prescriptions. Aboriginal communities have a long and chequered history with the federal government and businesses who seek access to the resources their land has to offer. But much like its intended effects on the environment, alternative energy offers tremendous potential for aboriginal communities to prosper sustainably.

Government Involvement is Key

As has been raised previously, because “clean tech” and other green job-creating industries are still nascent they face difficulty competing with established industries. To help provide greater parity, experts and entrepreneurs in the sector look to governments for both their resources and their regulatory power.

But while there are many who see government support as essential at least at the outset, and particularly during this economic crisis, there are myriad recommendations on how government could be most effective. Some do not want governments “picking winners” and want to limit the role of government in the green market, others call on the government with all of its resources to take a leadership role in ensuring the adoption of green technologies – and by extension creating more green jobs. One common refrain off-heard is that governments need to “establish a price for carbon,” through either participating in a carbon trading market or introducing a “carbon tax” on emissions.

Though by no means an authoritative list, professor Stewart Elgie offered seven key areas in which governments could have meaningful impact. These seven points fit nicely with what many other contributors offered throughout the day:

Ensuring long term commitments to some of these policy initiatives will guarantee the time necessary to cultivate the expertise required to become a global leader.



- **Set targets** – By setting firm targets, governments establish commitments that are bound by law and though the law can be changed, it makes back peddling on promises more difficult politically.
- **Incent private investment** – “Feed-in tariffs” are perhaps the best example, but the intention behind this option is for governments to offer subsidies to clean technology as recognition that input costs are higher. By lowering the barriers to entry for private capital, the expectation is that more private capital will flow into the green market.
- **Put a price on carbon** – Whether it is a “cap-and-trade” carbon trading market or a carbon tax, advocates for this option see carbon emissions as an externality of the traditional consumer/producer dynamic that needs to be accounted for; as a result of this change, it is assumed that consumers will continue to purchase in their own self-interest (i.e. look for the lowest price), which would be those goods that have a smaller carbon footprint.
- **Supplement with regulations, and reduce regulatory barriers** – Many participants recognized that the regulatory powers of government are essential to setting environmental standards. California is one North American example of a jurisdiction that has used its regulatory powers effectively. From requirements on vehicle emissions to efficiency standards on light bulbs, governments have the ability to set standards that will compel businesses to adjust, but in a way that does not necessarily “pick winners.”
- **Invest in public infrastructure** – In addition to their regulatory powers, governments spend tremendous amounts of money, which can be channelled into projects and investments that can lead the transformation toward a lower-carbon economy. Retrofitting government buildings, purchasing energy efficient vehicles, and working to ensure government operations are sustainable shows that governments are leading by example.
- **Fund green R & D** – Already underway in Canada via Sustainable Development Technology Canada (SDTC) and recent government investment in carbon capture and sequestration, this type of investment is crucial to developing domestic expertise and markets. Canada can have an ambitious alternative energy strategy, but if we are forced to import all of the expertise and technology, high-quality green job creation will suffer.
- **Policy stability: for Long-term return on investment** – Without clarity and long-term policy commitments, governments will have trouble motivating the private sector to action. Governments may play an important role in fostering the green economy through its infancy, but it’s the private sector that will be its parent in the long-term. Ensuring policy stability is key to attracting investment and planning beyond an election cycle.

These seven steps were undertaken by the German government in 2000. At the time, Germany was a laggard in Europe; today it is a world leader in clean technology and greenhouse gas reduction.

In North America, Ontario has begun to undertake some of these measures. And though it is still too early to compare Germany and Ontario, the Ontario government has been recognized as a North American leader.

Specifically, Ontario has recently enacted the Green Energy and Green Economy Act, which is an effort to streamline the regulatory process around alternative energy projects, promote the development of new grass-roots green energy projects through the use of feed-in tariffs, provide tax and other incentives for the creation of these projects, and support additional research into the public health benefits of renewable energy. This Act is part of Ontario’s broader “Smart Growth” agenda, which will also invest in smarter urban planning, scaled-up infrastructure projects (e.g. retrofiting, home energy audits, and a “green” infrastructure fund), and the development of a smart grid for more efficient energy transmittal. As was mentioned throughout the seminar, what underpins all of this work, and the list provided by Professor Elgie, is the need for government’s strategic investment in training.



Of this list, there is “one area that has differentiated Europe from North America”: policy stability. It was this point that was stressed as essential for North American governments as they begin to consider future action. Interestingly enough, the United States was a leader in wind energy in the 1970s. But in the 1980s, with a change in government, a reduction in funding and a shift in policy, much of this research, expertise and capacity migrated to Europe. Ensuring long term commitments to some of these policy initiatives will guarantee the time necessary

to cultivate the expertise required to become a global leader. Germany now leads the world in wind power production and technology, North American governments can ill-afford to allow another similar opportunity to pass them by.

To this end, groups like the Canadian Autoworkers – a union that has seen its membership hard hit by the collapse of the auto industry and the tough economy – have been calling on Ottawa to create a “National Green Economy Consultation Committee,” which would include not only business executives, but also workers’ representatives and education experts, who are both uniquely positioned to provide insight into the educational – and retraining – needs of workers. Furthermore, it will give the government an opportunity to better understand the impacts of whatever environmental policies it decides to implement.

Of course, these policies will also be shaped by the direction of the United States. Canada is in the unique position wherein it is not only Canadian governments’ involvement that is important to shaping policy; indeed, these policies must be developed with the United States’ direction in mind. The Canada-US Clean Energy Dialogue is one mechanism introduced by Prime Minister Harper and President Obama in February 2009 to ensure that the lines of communication remain open. However, beyond this, Canadian policymakers must be aware of the different pieces of legislation currently making their way through the houses of Congress. The American Recovery Re-Investment Act, the US stimulus bill that injected \$787 billion into the American economy, set aside



approximately \$122 billion for clean energy and the promotion of green job creation; by contrast, the Canadian stimulus measures - admittedly much smaller - provided approximately \$2.5 billion in “green” stimulus, namely in the areas of carbon capture and storage research. Similarly, a number of pieces of legislation are being debated in the US Senate on the creation of a US cap-and-trade marketplace. Though the debate has been slowed by other domestic political considerations, the Obama administration remains committed to putting a price on carbon, and may resort to using the regulatory power of the Environmental Protection Agency (EPA) in lieu of legislation.

The message from many seminar panellists was clear: Government involvement is key; and though there are tremendous opportunities to invest in the green economy, the Canadian government must act in concert with the provinces and the United States if it hopes to provoke meaningful and long-lasting development.

Innovation is Essential

With such a significant amount of resources flowing into the green economy - from both government and private investment - the shift toward green heralds tremendous potential for innovation. Whether it is working to mitigate the footprint of Alberta’s oil sands or revitalizing Ontario’s manufacturing base, a great source of future innovation will be in the field of “clean technology.”

Jonathan Westeinde, Managing Partner of the Windmill Development Group suggested that innovation cannot simply be confined to new and emerging industries. Alternative energy is important, as is carbon capture and storage, but one industry that holds considerable potential for controlling carbon emissions, and which suffers from a lack of innovation, is the construction sector. It would seem odd to consider the construction industry the hotbed of innovation, but the corollary to creating more alternative energy generating capacity is also to reduce the average Canadians’ energy consumption. Hybrid cars already reduce a driver’s gas consumption; buildings must also reduce a tenant’s electricity and heating consumption as well. 35% of green house gas emissions in North America come from buildings. And yet, their construction, maintenance and even the financial modelling used at the development stage are slow to change. In Canada there are only three LEED certified buildings; more are being built, but much more innovation can happen.

As with many green industries, financing is a real challenge. Capital will naturally flow to those industries that are proven money makers. Unfortunately, because the green economy is only now emerging, there is considerable more uncertainty. With rapidly changing priorities and new technologies emerging regularly, venture capital faces difficult challenges in ensuring that it is not being led down garden paths. This is where government can take a leading role. As Ms. McColl identified, the United States government has at least a 10-year investment horizon for many of its green economy investments. By looking significantly into the future, the US government is demonstrating that investing in green is not simply a flash in the pan; if it is going to be tied to the future of the green economy, at least for the medium-term, so too can venture capital.

Furthermore, some interesting anecdotes were described at the event that suggested that lenders, and in some cases municipal governments, are beginning to think creatively around the creation of funds that can help provide

credit to customers who wish to retrofit their houses. Crown organizations like Sustainable Technology Development Canada are important in supporting innovation in new industries; it will be innovative financial options that will in the end encourage them to take advantage of these new and innovative technologies.

Conclusion

From the outset of this symposium, the Public Policy Forum realized that we would be asking a lot of questions to which there were no clear answers. This was our goal. The challenges presented by climate change are as difficult as they are complex. The unfortunate reality is that emissions of carbon dioxide underpin the world's economic model for development. People living in developing and developed countries alike do not expect to suffer economically for the sake of reducing carbon emissions, particularly given the complexity of coordination and the on-going debate within the scientific community around the speed and severity of the change underway.

But what if there was a third way? What if economies could develop and become more productive while at the same time reducing carbon emissions? This is the hope represented by green jobs, clean technology, and the green economy writ large. As was heard during the symposium, Canadians want action and are willing to listen to thoughtful, comprehensive, balanced proposals; businesses are beginning to see the value; governments can have a dramatic effect on the development of the green economy; and, our workforce, as it stands, is woefully ill-equipped to handle this transformation.

These issues are but the beginning. In order to truly have a meaningful impact, as it became clear throughout the day's proceedings, all projects governments undertake, all future public policy considerations, all future economic development must at the very least be assessed through a “green” lens.

This symposium helped to clear the air on what defines a “green” job and identified some of the most important issues to consider. What is required now is for governments, the private sector and the environmental community to work together to craft policy alternatives that are able to fully realize the economic and carbon-reduction opportunity afforded by the green economy and green jobs.

It is no secret that Canada is trailing the world on the issue of climate change. If this continues, governments must realize that the short term gain could result in longer-term pain. Regardless, the global economy of tomorrow will be considerably greener than today's; failure to get ahead of the curve could mean that it passes Canada by, with corresponding economic consequences.



Appendix 1: Agenda

NOVEMBER 2 – Dinner Presentation

6:00 pm – 9:00 pm **Armchair Discussion: Are Green Jobs the way of the future?**

Moderator: Jacques Shore, Gowlings LLP

Speakers: Stewart Elgie, Professor of Environmental Law and Economy, University of Ottawa
and Chair, Sustainable Prosperity

Jake Caldwell, Director of Policy for Agriculture, Trade & Energy, Centre for
American Progress, Washington

NOVEMBER 3

8:00am – 8:30am Registration & Breakfast

8:30am – 8:35am Welcoming Remarks

David Mitchell, President & CEO, Public Policy Forum

8:35am – 10:00am **Opening Panel – Understanding Green Jobs**

Moderator: Janice Charette, Deputy Minister, HRSDC

Panellists: Bruce Anderson, Senior Vice President, National Public Relations & Senior
Consulting Associate, Harris Decima

Sääd Rafi, Deputy Minister, Energy and Infrastructure, Government of Ontario

Jonathan Westeinde, Founding Partner, Windmill Development Group

10:30am – 12:30 am	Panel: Green Jobs Necessitate Green Training
Moderator:	Robert Hornung, Canadian Wind Energy Association
Panellists:	Wes Muir, Director, Corporate Communications, Waste Management Catherine Cottingham, Executive Director & CEO, Electricity Sector Council Christopher Henderson, President, Lumos Energy & Head, Aboriginal Clean Energy Network Ken Bondy, National Coordinator, Canadian Autoworkers
12:30pm – 2:00pm	Networking Lunch
2:00pm – 3:25pm	Concluding Panel – Policy Implications of a Greening Labour Market
Facilitator:	Jeffrey Simpson, Columnist, Globe & Mail
Panellists:	Toby Heaps, Co-Founder, Corporate Knights Magazine Paul Thompson, Associate ADM, Skills and Employment Branch, HRSDC Grant Trump, President, ECOCanada Velma McColl, Principal, Earnscliffe Strategy Group
3:25pm	Concluding Remarks



Appendix 2: Participant List

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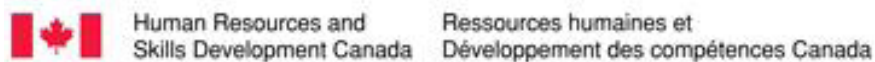
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