

# Acting on Climate Change: **Extending the Dialogue Among Canadians**

A collection of texts in response to  
*Acting on Climate Change:*  
**Solutions from Canadian Scholars,**  
a consensus document released in March 2015



Faculty of  
Science



ABOUT THE ORGANIZATION

# RENEWABLE CITIES

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Renewable Cities is a new five-year program of Simon Fraser University's Centre for Dialogue. From May 13<sup>th</sup> to 15<sup>th</sup>, 2015, we convened a Global Learning Forum in Vancouver that brought together over 300 participants representing 43 municipalities from North America, Europe, Africa, Asia and Australasia. Together, they discussed in small group dialogues the opportunities and challenges of making an ambitious transition to renewable energy in cities. The following report is a synthesis of the key findings and take-aways from the Global Learning Forum from the perspective of the Renewable Cities team. It reflects the major ideas we heard during the Forum that we think should inform cities and citizens that aim to transition their cities to 100% renewable energy<sup>1</sup>.

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# Transitioning Cities

## to 100% Renewable Energy

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### Converging Trends

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The Global Learning Forum highlighted the convergence of three global trends:

- The rapid fall in the cost of new renewable energy technologies, especially solar photovoltaic (PV) panels, that are now making renewables cost-competitive with fossil fuel and nuclear energy sources in many places around the world;
- The desire of many cities to play a leadership role in confronting the threat of climate change by setting their own targets for reducing greenhouse gas (GHG) emissions, which are often more ambitious than the targets set by their national governments;
- The desire of many cities and towns to have greater energy security, in terms of stable, reliable and resilient access for all their citizens to energy at a predictable cost from sources that do not pose a health risk to their populations.

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1 Summaries of all 32 dialogues held at the Forum, plus reports on the plenary sessions, speaker presentations and related video clips have been posted in the Final Report of the Forum available on our website [www.renewablecities.ca](http://www.renewablecities.ca). These materials go into much greater depth on the following points.

Renewable energy offers cities the means of achieving all three of these goals at the same time.

Cities are now adopting strategies to dramatically increase their use of renewable energy and a small but growing number are setting targets to reach 100% renewable energy in one or more sectors of urban energy use (electricity, transportation and/or heating and cooling). We call such cities renewable cities.

The goal of reaching 100% renewable energy use by cities – which seemed far-fetched even a few years ago – now seems within our grasp. This was the overarching and compelling insight that energized everyone at the Global Learning Forum.

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### Positive Findings

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- The benefits of renewable energy and energy efficiency apply to developed and developing economies and to local governments of all sizes and scales. The global 100% renewable energy movement provides a vision of an optimistic future: one based on practical solutions, rooted in community

experience, using proven technology and inspired by non-partisan collaboration.

- Climate change is too often associated with dire predictions and untenable scenarios. Renewable energy inverts the discussion to one of opportunity. There is broad, positive political appeal of renewable energy, versus the often negative political energy around reducing fossil fuel driven emissions.
- Renewable energy, including energy efficiency, is not tied to an ideology – it can be embraced by conservative and liberal communities alike. Conservative values of self-reliance and independence, conserving heritage and traditional land uses, and strengthening local community ties are all reflected in many renewable energy plans of smaller cities and towns. Similarly, liberal values can be found in renewable energy's promise of democratization of resources, reducing energy poverty, driving technological and social innovation, and mitigating GHG emissions. The potential for consumers to lower and stabilize their energy costs by investment in energy efficiency and renewables appeals across the board.
- It is technically feasible to provide 100% of the energy needs of advanced economies from renewable sources and to balance the load from wind, water and solar resources by 2050. Additionally, the land area requirements to satisfy the energy demand are minimal compared to the benefits.
- When communicating to the public the benefits of renewable energy, climate change mitigation does not have to be the primary message. There are many other more immediate benefits to municipalities from investing in renewable energy. These include: greater control over their sources of energy; protection against cost volatility; system resilience in the face of extreme weather; better health outcomes; and more local jobs and investment.
- Stakeholder and citizen engagement on renewables is crucial and must clearly communicate co-benefits for health, jobs, the urban environment and local decision-making. When citizens can see the personal economic benefits of switching to renewable energy, the transition can occur rapidly.
- Smaller towns and rural municipalities can often be the first in their region to make the shift to 100% renewable energy. This happens when rural landowners in the municipality can see the economic benefits of becoming renewable energy producers for their community. Rural communities that become net energy producers through renewables can enable larger nearby cities to plan their own shift to renewable energy.
- Energy efficiency is the first fuel for any transition towards renewable energy implementation in all three sectors of urban energy use (electricity, heating and cooling, and transportation). In North America, up to a 40% improvement in energy efficiency is estimated as necessary to complete the transition.
- Strict green building codes for new buildings can promote much greater efficiency for heating and cooling, making it possible to use lower temperature district energy systems.
- A rapid transition to renewable energy has often been made possible by stable, supportive national and sub-national policies. Feed-in tariffs have been very successful in jurisdictions such as Germany and Ontario. These policy frameworks have allowed for citizens, farmers, small businesses and cooperatives to enter the energy market through distributed technologies. Never-

theless, even in the absence of supportive policies at the national or sub-national level, local governments can make their own decisions to switch to 100% renewable energy.

- Municipalities that control their own utilities can combine renewable energy and energy efficiency targets with social equity objectives and integrate both into their business models.
- Municipalities that do not control their own utilities can still promote the transition to renewable energy by demonstrating leadership in their own energy use, through their procurement practices, and through creative incentive programs, such as verifying voluntary initiatives or creating municipal revolving funds.
- Even in jurisdictions that are not supportive of municipal energy initiatives, opportunities exist for citizens to become consumer-owners through the creation of local energy cooperatives. Small renewable projects can be developed with strong community support and a multitude of benefits for low-income residents.
- The transition to renewable energy requires long-term planning and investment in new infrastructure. This includes: continuous expansion of cost-efficient and sustainably developed renewable energy sources; reduced energy consumption and dramatic gains in end-use efficiency; and future electrical grids that are flexible, powerful, and can integrate electricity from renewable sources.
- Against the backdrop of historically low interest rates, the renewable energy industry is attractive to capital providers because it is clean, long-term, and predictable over project life spans. Cities do not necessarily need to provide the capital required for

renewable energy, energy efficiency and climate resilience projects; what they need to establish are the policy frameworks to attract the private sector investment.

- Financial markets, specifically through green bond issuance, could provide necessary capital for such projects. There is a demonstrated market for green bonds, whether these are issued by private sector actors or municipalities, projected to be \$100 billion in 2015. It is less inherently risky for municipalities to access international finance markets through relatively low-risk products like bonds, than it is to not build infrastructure necessary for liveable and climate resilient cities.

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### Remaining Challenges

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- While municipal governments have some of the authority and policy levers to transition their communities towards 100% renewable energy, they certainly do not have all the powers required to mandate the job. Thus urban leaders have to engage their local utilities to switch to renewables, they have to encourage sub-national and national governments to enact supportive policies, and they have to build an enduring foundation of support with the public and the private sector to realize this goal.
- The renewable energy revolution can compound social equity issues between richer citizens, who can afford to become energy producer-consumers (prosumers) by installing solar PV panels on their homes, and poorer citizens and renters, who lack the means or the incentives to do so. These kinds of trade-offs cannot be solved just through rate-setting by the local utility. There has to be some larger community vision about what is fair and who should pay for the costs of integrating new sources of renewable energy into the grid.

- It is a challenge to come up with ways of retrofitting old building stock to meet new green energy and heating efficiency standards. Many cities greatly underuse their abundant geothermal resources for heating, despite availability of simple heat pump systems. Further use of renewable energy as the heat source in district energy systems and combined heat and power systems also requires increased deployment and support from local governments.
- The transition to 100% renewable energy in the transportation sector will require a major overhaul in the way people and goods move around cities. This will be very challenging. It includes: electrification of all public transportation; community-wide adoption of personal electric vehicles (EVs); commercial fleets powered by renewable fuels such as electricity, hydrogen or bioethanol; and a significant shift to active forms of personal transportation (walking or biking) to reduce vehicle-kilometres travelled.
- In most countries fossil fuels are still heavily subsidized, directly or indirectly, and the energy market is highly regulated. Despite the rapid uptake of renewables in many areas of the world, a level playing field that would spark dramatic growth in renewables generation worldwide does not yet exist.
- How can the political will to achieve 100% renewable energy be enhanced by informal political and business alliances between large cities and their surrounding regions? Could such models of cooperation apply to potential new energy producers (e.g., First Nations communities) in rural or more remote areas who could supply a city with renewable electricity?
- What strategies can promote the transition to renewable energy in poor communities – in either the developed or developing world – where most citizens do not yet have secure access to reliable, affordable energy?
- How can we be sure that renewable energy fits within the long-term framework of sustainability? How do we take into account the ecological impact of new technologies, and assess the full life cycle of these products?
- Are there significant policy gaps or inconsistencies between cities adopting ambitious GHG reduction strategies, with carbon neutrality as the ultimate goal, and cities adopting 100% renewable energy targets?
- How can international city networks and members of the Global 100% RE campaign best support cities in transitioning to 100% renewable energy in all sectors?

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#### Areas for Further Research and Dialogue

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- How will the sharing economy, social networks and disruptive technologies affect citizen participation in the urban energy economy?
- How can urban consumers influence their local energy utility – especially if it is not owned by the city – to shift to renewables, especially when the utility has ready access to existing fossil fuel sources?
- How can city-level initiatives be scaled up to achieve more ambitious climate change mitigation and adaptation goals at the sub-national, national and international levels?



ABOUT THE INITIATIVE

# SUSTAINABLE CANADA DIALOGUES

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This contribution is part of a collection of texts, *Acting on Climate Change: Extending the Dialogue Among Canadians*, stemming from interactions between Sustainable Canada Dialogues, an initiative of the UNESCO-McGill Chair for Dialogues on Sustainability, and business associations, First Nations, non-governmental organizations, labour groups, institutions, organizations and private citizens.

Sustainable Canada Dialogues is a voluntary initiative that mobilizes over 60 researchers from every province in Canada, representing disciplines across engineering, sciences and social sciences. We are motivated by a shared view that putting options on the table will stimulate action and is long overdue in Canada.

Together, the contributions enrich the scope of possible solutions and show that Canada is brimming with ideas, possibilities and the will to act. The views expressed in *Acting on Climate Change: Extending the Dialogue Among Canadians* are those of the contributors, and are not necessarily endorsed by Sustainable Canada Dialogues.

We thank all contributors for engaging in this dialogue with us to help reach a collective vision of desired pathways to our futures.

FOR MORE INFORMATION, VISIT OUR WEBSITE

[sustainablecanadadialogues.ca/en/scd/acting-on-climate-change](https://sustainablecanadadialogues.ca/en/scd/acting-on-climate-change)