2016–2019 Federal Sustainable Development Strategy:
Input from *Sustainable Canada Dialogues*' Scholars.

In March 2015, a network of 62 scholars from all 10 provinces launched the position paper, *Acting on Climate Change: Solutions by Canadian Scholars*[1] presenting ten key policy orientations, illustrated by specific actions, that could be adopted to kick-start Canada's transition toward a low-carbon society. *Sustainable Canada Dialogues*[2] (*SCD*) is a voluntary initiative mobilizing scholars working on sustainability and climate change adaptation and mitigation, representing expertise in areas from engineering to sociology. *Acting on Climate Change: Solutions by Canadian Scholars* was collectively written by 31 *SCD* scholars and reflects expert feedback from 11 *SCD* reviewers, who were not part of the core writing team, and from 10 external reviewers. It was approved by the entire *SCD* network as a consensus position. The scholars who participate in *SCD* hold a total of 18 research chairs, e.g. Canada Research Chairs, and another 25 are heads of research or academic units. The policy orientations and actions agreed upon are based on our diverse disciplinary and interdisciplinary knowledge and in some cases, on-the-ground practice. We are pleased to offer some comments and opinions on the **Federal Sustainable Development Strategy (2016-2019)** based on our solutions paper.

We recognize with pleasure many aspects of the proposed **Federal Sustainable Development Strategy**. We are comfortable with the five pillars of actions identified, namely: *Taking Action on Climate Change*; *Clean Technology*, *Jobs and Innovation*; *National Parks*, *Protected Areas and Ecosystems*; *Freshwater and Oceans*; and *Human Health, Well-being and Quality of Life*. Furthermore, we support positioning the Strategy's goals in the context of the 2015 *UN Sustainable Development Goals*. We consider it important for Canada to advance on sustainability in a manner coherent with the international agreements in which it takes part. We feel, however, that some aspects of the transition to a sustainable society deserve more attention than received in the proposed Strategy, in particular (1) community participation, (2) education information and communication, (3) institutional arrangements and Indigenous governance. The following discussion stems from *Acting on Climate Change: Solutions from Canadian Scholars,* Section 3.4.1— Building Resilient Governance for Sustainability.

1. Towards Effective Climate Change Governance in Canada

In our position paper, we state that:

"An essential element of the building of strategic capacity is social mobilisation. Moving toward sustainability requires behavioral changes, promoted by adequate policies, by all relevant

[1] http://sustainablecanadadialogues.ca/en/scd/endorsement
[2] http://www.sustainablecanadadialogues.ca/en/scd

populations and sectors of society.[3] It has been shown that individuals are more likely to restrain their behavior voluntarily if they recognize the legitimacy and fairness of the process establishing limits.[4] Information about interconnected environmental and societal risks and how to manage them[5] is therefore an important aspect of the transition to a low-carbon society.

In a country as geographically dispersed, diverse, and pluralistic as Canada, the pursuit of climate change mitigation and sustainability requires a governance system that can integrate the knowledge and practices of multiple stakeholders.[6] Canada has historically benefited from its strong democratic institutions, efficient structures of federal governance, and a professional civil service, since the end of the Second World War. In the face of climate change, however, there is a need for policy approaches that use longer time horizons, systems thinking, adaptive management and integrated decision-making in community planning.[7]

The new hyper-connected and collaborative world moves away from traditional, siloed government structures, which are mismatched when it comes to addressing broad, horizontal cross-cutting issues.[8] The governance system could take advantage of the push/pull from web technologies and emerging digital innovations crucial to civil society as a neutral convenor of multiple actors, including the business sector.[9] For example, web channels for key public policy issues and ideas can be tested, developed, and evolve using informed deliberative dialogues from Canadians who choose to be involved."

We hope that the present exercise of seeking inputs from Canadians will set the stage for an open participatory governance of climate change, based on dialogue rather than traditional consultative processes. We hope that appropriate mechanisms for continuous feedback will be set in place to allow continued dialogue between the population and the government as Canada engages in the transition towards sustainable futures.

Participation is essential because "information alone is not enough to trigger leadership on climate change and more effective climate change governance.[10,11] It is clear that decisions are

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[3] Levin, K., et al. (2012). *Overcoming the tragedy of super wicked problems: constraining our future selves to ameliorate global climate change. Policy Sciences, 45(2), 123-152.*

[4] Tyler, T. R., and Degoey, P. (1995). Collective Restraint in Social Dilemmas - Procedural Justice and Social Identification Effects on Support for Authorities. *Journal of Personality and Social Psychology 69*(3): 482-497.

[5] Carpenter, S. R., et al. (2009). *Science for managing ecosystem services: Beyond the Millennium Ecosystem Assessment. Proceedings of the National Academy of Sciences, 106(5), 1305-1312.*

[6] Castells, M. (2009). *Communication Power*. Oxford, UK: Oxford University Press.

[7] Burch, S. et al. (2014). Triggering transformative change: a development path approach to climate change response in communities. *Climate Policy*, *14*(4), 467-487.

[8] Biermann, F., et al. (2012). Navigating the Anthropocene: improving earth system governance. *Science*, *335*(6074), 1306-1307.

[9] Newell, R. and Dale, A. (2015) Meeting the Climate Change Challenge (MC3): The Role of the Internet in Climate Change Research Dissemination and Knowledge Mobilization. *Environmental Communication*, 1-20.

[10] Tribbia, J. and Moster, S. C. (2008). More than information: what coastal managers need to plan for climate change.

made more on the basis of intuition and values than on rational, careful consideration of costs and benefits of action.[12] This highlights the importance of triggering a values shift in response to climate change – a task that requires convening leadership on the part of governments, private sector leaders, and civil society – to co-create a vision of the future that is both desirable and feasible.[13] This shift in values could help Canada to redefine national interests in light of climate change risks and elaborate a strategic policy framework."

2. Education, Information and Communication

"Governments at all levels should participate regularly in a multi-directional exchange of information of climate change impacts and response options. Part of this involves communicating how climate change is already affecting Canadian communities, particularly northern communities, and starting a conversation around visions of a sustainable future. Informing the public about climate change ensures that individuals can understand the key issues.[14] It also facilitates dialogues among key stakeholders and the general public regarding possible measures of mitigation and adaptation. Doing this means finding ways to make large-scale environmental problems relatable by translating climate change from an abstract concern to an everyday experience,[15] thus generating informed personal responses from the general public.

Several jurisdictions within Canada are already adopting innovative measures for engaging the general public on climate change. For example, the province of British Columbia has created the LiveSmart BC Energy Efficiency program, which serves as a hub for information on services and community programs related to energy efficiency, and promoting the use of smart meters to enable the public to better understand and change their energy consumption patterns. Ontario developed a climate change mapping browser,[16] an online tool the public can use to view projections of the impacts of a changing climate. Prince Edward Island has created a wind energy interpretive centre[17] to help educate the public about the transition toward this low-carbon energy technology."

Environmental Science & Policy, *11*(4), 315-328.

[11] Kollmuss, A. and Agyeman, M. (2002). Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior?. *Environmental education research*, *8*(3), 239-260.

[12] Slovic, P., et al. (2007). The affect heuristic. *European journal of operational research*, *177*(3), 1333-1352.

[13] Burch, S., et al. (2014). Triggering transformative change: a development path approach to climate change response in communities. *Climate Policy*, *14*(4), 467-487.

[14] Brulle, R. J., et al. (2012). Shifting public opinion on climate change: an empirical assessment of factors influencing concern over climate change in the US, 2002–2010. *Climatic change*, *114*(2), 169-188.

[15] Shaw, A., et al. (2009). Making local futures tangible—synthesizing, downscaling, and visualizing climate change scenarios for participatory capacity building. *Global Environmental Change*, *19*(4), 447-463.

[16] http://www.ontario.ca/government/search-results?external_tag=Natural+resources+maps

[17] http://welcomepei.com/listing/wind-energy-interpretive-centre-gift-shop/

3. Institutional Arrangements

Finally, the proposed Federal Sustainable Development Strategy frequently cites *Policy and Scientific Research and Analysis* as means of implementation (e.g. targets 1.1, 1.2, 1.4, 2.5). We certainly concur with the government that "knowledge acquisition and the provision of expert knowledge are key elements needed to build strategic capacity for climate change since they allow for increased understanding. Scientific knowledge provides the basis for evidence-based decision-making and clarifies the context in which the interests of stakeholders are to be considered. Furthermore, scientific and technological advances will sustain sustainability and climate change mitigation innovation."

However, in *Acting on Climate Change: Solutions from Canadian Scholars* we also note that: "After elaborating a strategic policy framework, there is a need to establish organizations focused on the transition to low-carbon pathways, and also embed climate action in existing organizations and policies. Canada has past experience in governance innovation that can be drawn upon to facilitate such a transition: for example, the Canadian Council of Environment Ministers and the national, provincial and municipal round tables on the environment and the economy and their structural arrangements. Effective climate change governance favours policy coherence within government, supports policy congruence between levels of government; and enhances participatory policy-making to close implementation gaps, transitioning *de facto* to multi-level governance.[18] Multi-level governance allows for decisions that engage a multiplicity of politically independent but otherwise interdependent actors—private and public—at different levels of territorial aggregation in more-or-less continuous negotiation/deliberation/ implementation.[19,20]" We therefore see the need for new institutional arrangements that ensure participation of different sectors of society, place climate action at the heart of the government and ensure over time both a monitoring of progress and evaluation of implemented policies.

4. Indigenous Governance for Sustainability

"As Canada moves forward to meet the challenges posed by renewable energies, future resource extraction, and industrial development, Indigenous sovereignty and Indigenous governance are defining issues. Despite a 40,000-year history of cultural continuity, land usage, and subsistence living with and on the land, Indigenous peoples in Canada have been consistently marginalized, discriminated against and politically disempowered through the enduring legacies of colonialism. Current governance structures in Canada do not always support or recognize the inherent rights

[18] Urwin, K. and Jordan, A. (2008). Does public policy support or undermine climate change adaptation? Exploring policy interplay across different scales of governance. *Global environmental change*, *18*(1), 180-191.

[19] Hooghe, L.& Marks, G. (2001). Types of multi-level governance. European Integration online Paper 5, http://eiop.or.at/eiop/texte/2001-2011a.htm.

[20] Rabe, B. G. (2007). Beyond Kyoto: Climate change policy in multilevel governance systems. *Governance: An International Journal of Policy, Administration, and Institutions*, *20*(3), 423-444.

and sovereignty of Indigenous peoples for self-governance. Many land claims remain unsettled and many historic Treaties not honoured. The push to low-carbon energy could well involve new land negotiation. Many aboriginal peoples value Mother Earth, view themselves as stewards/caretakers and have taken on the role of aboriginal social entrepreneurs to safeguard their values. Energy projects that threaten to violate First Nations lands have met strong opposition. Other First Nations have responded by proposing renewable energy projects that protect the land, air and water while creating much-needed employment. Recognizing Indigenous sovereignty and governance institutions are therefore core ingredients, not only of good governance in general, but more specifically of good governance for sustainability. These can only be recognized through meaningfully working with Indigenous peoples, communities and governments across Canada, and through commitment from the Canadian government to conclude the outstanding land claims and unresolved sovereignty issues across the country." This is particularly important now that Canada has fully joined the UN Declaration on the Rights of Indigenous Peoples, which mandated free, prior and informed consent of Indigenous peoples prior to any action on Indigenous lands.

Preamble questions

The draft **Federal Sustainable Development Strategy** poses several questions in its preamble. The work done by the scholars of *Sustainable Canada Dialogues* provides answers to some of them.

FSDS: WHAT'S YOUR VISION FOR A SUSTAINABLE CANADA?

Our position paper presents a detailed version of our vision for a sustainable Canada (http://sustainablecanadadialogues.ca/en/scd/endorsement).

FSDS: WHAT ASPECTS OF YOUR VISION ARE MOST IMPORTANT TO YOU?

On the one hand, we think that "Canada needs an integrated climate action plan. The most important aspect of the plan is to **get going today**. Because energy, transport, and building infrastructure last several decades, and they lock in development along specific pathways,[21] we believe that a **long-term target of 80% emissions reduction**, aligned with IPCC's recommendation for developed countries,[22] should be adopted immediately to inform current decision-making. Failure to do so would imprison Canada in a high-carbon development path dependency." (*Acting on Climate Change: Solutions from Canadian Scholars*, Chapter 2—Canada's Transition to a Low-Carbon Society).

[21] Lecocq, F. and Shalizi, Z. (2014). The economics of targeted mitigation in infrastructure. *Climate Policy*, *14*(2), 187-208.

[22] http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_SPMcorr1.pdf

On the other hand, the "transition to a low-carbon society is a matter of urgency. As pathways to reduce Canada's GHG emissions are identified, it is important to take into account the broader sustainability agenda." As we stated in Section 3.5 of our position paper—The Need for Visions: "The early notion of sustainability emerged from concerns around the health of the biosphere; consequently, the objective was to limit environmental damage. Hence discourses were cast in terms of reducing harm or damage, and as such, have been criticized for being uninspiring.[23] This novel vision of sustainability breaks away from the negative paradigm by favoring "net-positive" approaches.[24] "Net positive" buildings, such as the Centre for Interactive Research on Sustainability[25], which is designed to be net positive in terms of energy, carbon, water quality, health, productivity and subjective well-being, exemplifies this approach. The local organic food movement can be also seen as a positive sustainability action that not only reduces the impact of agriculture and transportation but also brings important local livelihood and economic benefits.

Given that sustainability can improve environmental, social and economic well-being, the transition to a low-carbon and sustainable society represents a positive opportunity for change. It provides the possibility for all Canadians to act on the future at hand. Rather than positioning climate change in the context of depressing futures, we hope that our collective work to identify policy orientations and possible actions with positive overall consequences will open new doors. The transition to a low-carbon economy and sustainable society can mobilize society around technical and social innovations and become the basis for a new vision for Canada."

HOW CAN THE NEXT FEDERAL SUSTAINABLE DEVELOPMENT STRATEGY HELP ACHIEVE YOUR VISION?

We are expecting the federal government to show leadership in initiating Canada's transition to a low-carbon, sustainable society. We draw attention to the latest report of the UN Intergovernmental Panel on Climate Change (IPCC)[26], which discusses in detail the vertical allocation of responsibilities between jurisdictions of the same state. According to the IPCC, given the global and public nature of climate change, the responsibility falls upon the highest possible level of government. We suggest that this leadership could be manifested by adopting "meaningful climate policies requiring three elements:

1. "An objective (clear target and timeline);

[23] Robinson, J. and Cole, R. J. (2014). Theoretical underpinnings of regenerative sustainability. *Building Research & Information*, 1-11.

[24] Svec, P., et al. (2012). REGEN: toward a tool for regenerative thinking. *Building Research & Information*, *40*(1), 81-94. See the special issue of *Building Research and Information* on "Net-zero and net-positive design", 43(1) 2015.

[25] www.cirs.ubc.ca

[26] IPCC AR5-WGIII (2014). Chapter 15: National and Sub-national Policies and Institutions. Somanathan, E., Sterner, T., Sugiyama, T. Lead Authors. http://mitigation2014.org/report/publication

2. A choice of policy instruments (subsidies or tax incentives, regulation and standards, carbon tax or cap-and-trade, research and development); and
3. The design of policy instruments to achieve the stated objective." (*Acting on Climate Change: Solutions from Canadian Scholars* Chapter 2—Canada's Transition to a Low-Carbon Society)"

WHAT DO YOU SEE AS CANADA'S MOST PRESSING SUSTAINABILITY CHALLENGES?

As a group, we contend that climate change is the most serious "symptom" of non-sustainable development and, as such, we welcome the proposal to position climate change action at the heart of the **Federal Sustainable Development Strategy**.

HOW CAN THE NEXT FEDERAL SUSTAINABLE DEVELOPMENT STRATEGY BEST ADDRESS THEM?

SHOULD THE STRATEGY BE BROAD AND COMPREHENSIVE, OR FOCUSED ON A FEW KEY PRIORITIES?

WHAT IMPROVEMENTS TO OUR MEASUREMENT AND PROGRESS REPORTING WOULD BETTER SUPPORT TRANSPARENCY AND ACCOUNTABILITY?

WHICH TARGETS SHOULD WE FOCUS ON FOR 2016–2019?

FSDS: Relative to 2005 emission levels, reduce Canada's total GHG emissions 17% by 2020 and 30% by 2030.

SCD: The Paris Agreement sets in place a system to monitor progress periodically. We strongly suggest that the Government of Canada adopt **2025** as its assessment year instead of 2030 to better align with the world and United States' targets.

DO WE HAVE THE RIGHT MEASURES OR INDICATORS?

In the context of climate change one of the most robust indicators is greenhouse gas emissions. We note that many cities currently do not have the means to estimate and track their emissions. It is essential to develop and rapidly adopt a tool allowing municipalities in Canada to do so. It is only by tracking emissions from municipalities, provinces, territories and governments that it will be possible to monitor progress and identify sectors in which action is needed.

In the broader context of sustainability, according to several economists, including Nobel prize winner Joseph Stiglitz, limited economic indicators such as the gross domestic product are neither an adequate measure of sustainability nor of "social progress"[27]. The Organisation for

[27] Stiglitz, J.E., Sen, A. and Fitoussi, J.P. (2009). Report by the commission on the measurement of economic performance and social progress. Commission on the Measurement of Economic Performance and Social Progress.

Economic Co-operation and Development (OECD)[28] therefore developed green growth indicators to capture the complex reality of sustainability. Beyond indicators of economic growth, OECD indicators were chosen in three categories to: measure environmental and resource productivity, such as CO_2 productivity, energy productivity and material productivity; monitor the natural asset base of the economy such as freshwater, land and wildlife resources, and finally monitor economic opportunity and policy responses such as green technology and innovation or environment prices, taxes and transfers. We look forward to tuning into the news on CBC/Radio Canada and hearing of not only indicator values such as TSX and the price of oil but also a range of measures conveying the state of the three pillars of sustainability: social, environmental and economical.

WHICH OF THE SUSTAINABLE DEVELOPMENT GOALS IS MOST IMPORTANT TO YOU?

WHAT ROLE SHOULD THE FEDERAL SUSTAINABLE DEVELOPMENT STRATEGY PLAY IN CANADA'S DOMESTIC RESPONSE TO THE SUSTAINABLE DEVELOPMENT GOALS?

ON WHICH ASPECTS SHOULD CANADA FOCUS ITS MEASUREMENT EFFORTS?

SHOULD WE HIGHLIGHT STAKEHOLDER ACTIVITIES IN THE FEDERAL SUSTAINABLE DEVELOPMENT STRATEGY THAT CONTRIBUTE TO ENVIRONMENTAL SUSTAINABILITY?

Yes

IF SO, WHICH STAKEHOLDERS SHOULD BE HIGHLIGHTED (INDUSTRY, ACADEMIA, PROVINCIAL, TERRITORIAL OR MUNICIPAL GOVERNMENTS, OTHER GROUPS)?

In *Acting on Climate Change: Solutions from Canadian Scholars* we noted, "Throughout Canada, cities are increasing urban density, mixed land uses and non-automobile transportation options, while encouraging climate-friendly buildings and reduction of energy consumption. Strategic landscape planning can provide environmental, economic and social benefits to both rural and urban areas, including resilience to the effects of climate extremes and protection of agriculture, as well as improving cultural, recreational, public health, social equity and education benefits." Local and regional governments should therefore be regarded as key stakeholders in the sustainable development of Canadian communities.

We thus proposed, in the short-term, to integrate climate change into the heart of territorial and urban planning and identify new avenues for financing. "New "smart" urban development projects such as providing incentives to build-in ecological resilience and reduce reliance on cars

[28] OECD's mission *is to promote policies that will improve the economic and social well-being of people around the world.* The world's most "advanced" countries, including Canada, are its members. http://www.oecd.org/greengrowth/greengrowthindicators.htm

will require considerable investment. Land value tax financing is probably neither sufficient nor adequate since it incentivizes developer-led. New financing approaches, such as divesting from currently planned road and highway expenses, could be considered. Valuation of natural and constructed landscapes for their ecosystem functioning and environmental management benefits, for example climate change mitigation via thermal cooling[29], represents a critical paradigm shift in municipal and provincial planning."

WHAT ARE YOU DOING TO PROTECT THE ENVIRONMENT AND CONTRIBUTE TO SUSTAINABLE DEVELOPMENT?

All we can.

4. Specific comments

Federal Sustainable Development Strategy: Executive Summary

FSDS: *We acknowledge that we cannot achieve sustainable development alone. Partners such as provinces and territories, Indigenous peoples, businesses, non-governmental organizations, and Canadian citizens will all play an essential role in helping us meet our objectives*.

SCD: We note that cities are not mentioned in the text cited above and are mostly absent from the Federal Sustainable Development Strategy. We believe that cities have a major role to play in the transformation to sustainable futures. As stated in Section 2.5—Energy consumption: Cities and Buildings, "Cities are home to 81 percent of Canadians.[30] They concentrate wealth, innovation, education, consumption, and GHG emissions, as well as poverty and vulnerability. *SCD*'s vision of cities is articulated at three interconnected levels: landscape, city and building." To allow cities to play a major role in the transition to low carbon it is imperative to modify the fiscalism making them dependent on income from development projects.

FSDS: Clear and measurable targets, high-quality indicators, concrete plans, and reporting are important for making progress on tackling environmental issues, which requires leadership, strong management and a commitment to openness and transparency.

SCD: While we agree with the sentence above, we also think it is important to clarify that indicators serve to measure progress and are not a means in and of themselves. We therefore mention in our position paper in 2.6—Transitioning to a Low-carbon Society that: "Advancing this transition means getting going now, applying policies that are most appropriate according to the current state of knowledge, then systematically monitoring progress and adjusting our efforts over time on the basis of lessons learned."

Target 1.1. NATIONAL LEADERSHIP ON CLIMATE CHANGE

[29] Hough, M. (2004). Cities and natural process: a basis for sustainability. Routledge.
[30] Statistics Canada (2011). "Population, urban and rural, by province and territory." http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/demo62a-eng.htm

FSDS: A Pan-Canadian framework for climate change which will include national GHG emissions reduction targets. (Minister of Environment and Climate Change).

SCD: In the spirit of the Paris Agreement, we hope that the Federal Sustainable Development Strategy will put in place a process by which current and future emissions reduction targets could be updated to increase ambition, an essential condition to maintain global temperature increase lower than 2°C. Any national framework has to go beyond the existing provincial plans now in place and accelerate the take-up of provincial plans across the country. To that effect it will be necessary to put in place a national mechanism to assess progress, evaluate the policies and regulatory measures that worked or not and adapt governance.

FSDS: While targets are essential, they are not enough: success will also require effective policies and programs to reduce emissions. Rather than imposing a single solution, the government will ensure that provinces and territories have the tools they need to design climate change policies that reflect their unique circumstances, including carbon pricing policies. The government will provide targeted funding to help provinces and territories achieve their goals.

SCD: This statement should be redrafted to recognize the recent plans of the provinces, in particular the intentions of Ontario and Alberta, and pending the new plan from British Columbia. We propose that the Federal Sustainable Development Strategy modify the sentence above as follows: The government will provide targeted funding to help provinces and territories achieve their goals [and increase their level of ambition to be coherent with maintaining global temperature increase below 2°C].

FSCS: *The government will also implement climate policies at the federal level—for example: Fulfilling Canada's G20 commitment to phase out subsidies for the fossil fuel industry;*

SCD: We support the idea of stopping subsidies to the fossil fuel industry as a key element of the transition to a low-carbon sustainable society. This is coherent with our third policy orientation. We envision that this action should be taken in the short-term and encourage the government to provide a timeline for eliminating all subsidies to the fossil fuel industry.

TARGET 1.3: *SUSTAINABLE ENERGY*

FSDS: Work closely with the provinces and territories to advance a Canadian Energy Strategy to protect Canada's energy security, encourage energy conservation, and bring cleaner, renewable energy onto the electricity.

SCD: We agree with the actions proposed above, but would call for a timeline for the transition of the electric grid to low carbon. In our position paper, we propose that Canada's electric grid could be 100% low-carbon by 2030. Setting such an aspirational target will be instrumental in inspiring action. In addition, we think it essential that a future Canadian Energy Strategy address the fact, as stated in our position paper in Section 2. 3—Energy Consumption, that: "Currently decision-making is made in a fragmented way disconnecting energy production, transport and

consumption, as well as jurisdiction. A multi-level energy policy could incorporate the following elements:

- update norms and standards of energy efficiency across the economic sectors to the highest possible levels, with automatic increments planned ahead;
- favour low- or zero-carbon energy sources whenever possible;
- adopt a lifecycle integrated approach to energy projects;
- limit energy losses by favouring energy reuse."

FSDS: Our extreme climate and widely dispersed population make Canada one of the world's highest per capita energy consumers…. however, environmental stewardship remains an important consideration in developing renewable energy projects.

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SCD: We would like to contest this statement. We propose that climate is not the only reason Canada has low energy efficiency. An important factor is our economy's reliance on natural resource extraction. A shift to increased processing of these natural resources and to a service economy would help increase our energy efficiency. Furthermore, improvement of energy efficiency in Canada is often forsaken due to social attitudes. The building sector provides an excellent example of the needed shift in Canadians' attitudes. While energy efficiency in the residential sector improved 29 percent from 1990-2007, overall energy use in this sector increased 7 percent.[31] Between 1990 and 2007, number of households increased 31 percent while the average Canadian home became 10 percent larger, leading to an increase in the number of dwellings and more energy consumed. (*Acting on Climate Change: Solutions from Canadian Scholars*, 2.5—Energy consumption: Cities and buildings). Furthermore, while the statement calls for "environmental stewardship", it is also important to consider the social impact of energy projects, in particular the potential impact on Indigenous communities.

TARGET 1.4: *REDUCE GREENHOUSE GAS EMISSIONS FROM FEDERAL GOVERNMENT OPERATIONS*

FSDS: The Government of Canada will reduce energy related greenhouse gas emissions from its facilities and fleets by 17% below 2005 levels by 2020 and 30% by 2030.

SCD: We support the notion that the Government of Canada needs to become a leader in climate action. As stated in *Acting on Climate Change: Solutions from Canadian Scholars* Section 2.3—Energy Consumption: "Governments are big purchasers, and their practices can influence private industry to follow, especially since private industry supplies government entities.[32]" To this end, we do not find the level of ambition proposed in the Federal Sustainable Development Strategy adequate. By setting its own target on par with the target of the general population, the federal

[31] http://oee.nrcan.gc.ca/publications/statistics/trends09/chapter3.cfm?attr=0

[32] Brammer, S. and Walker, H. (2011). Sustainable procurement in the public sector: an international comparative study. *International Journal of Operations & Production Management*, *31*(4), 452-476.

government would not be leading in action, but simply accompanying it. We hope for the federal government to increase the ambition of its target, possibly to the level of the most ambitious provincial target. For example, the province of British Columbia achieved carbon neutrality in all of its public sector buildings by 2012.

FSDS: TARGET 2.6: *SUSTAINABLE FOREST MANAGEMENT and* ***TARGET 2.7:*** *SUSTAINABLE AGRICULTURE*

SCD: The land use sector of Canada, namely forestry and agriculture, could play an increased role in carbon storage. This aspect could be developed further as an important component of Canada's Sustainable Development Strategy. With respect to the agriculture sector for Canadian consumers, the idea of local, organic (with local perhaps being more important than organic, though both are important) is critical since we can produce so much of what we need right here in Canada. For example, a lot of the pickles Canadians buy come from India – such food imports have a large carbon footprint! Canada must consider the climate change consequences of our export agriculture sector, since Canada produces more than it consumes and world markets are hungry for our agricultural products. Lowering the carbon footprint of our agricultural sector requires a combination of soil carbon sequestration approaches to production, local processing (using renewable energy) to reduce shipping bulk around the world, and climate friendly transport systems, thus tying into sustainable transport. In addition, fertilizer nitrogen is a large emitter of nitrous oxides; regulations on fertilizer use are needed to reduce this. Overall, decarbonizing agriculture and food production is a key area of research and development, and Canada can lead the world by developing these processes.

FSDS: TARGET 2.8: *SUSTAINABLE MINERAL RESOURCE DEVELOPMENT*

SCD: We propose changing the title of this section to low-impact mining. Mining entails the extraction of non-renewable resources and as such is not sustainable. In our position paper (Section 2.3), we propose that "An energy framework could be designed to improve energy efficiency in all natural resource extraction. Extractive industries, which are generally energy intensive, are often located far away from connected electricity grids. It is important to encourage these industries toward maximizing low-carbon energy and moving to low-carbon electricity production, even for the most remote sites. The mining industry is directly affected by climate change and already identifying mitigation options.[33,34]„

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[33] Ford, J. D., et al. (2010). Perceptions of climate change risks in primary resource use industries: a survey of the Canadian mining sector. *Regional Environmental Change*, *10*(1), 65-81.

[34] Ford, J. D., et al. (2011). Canary in a coal mine: perceptions of climate change risks and response options among Canadian mine operations. *Climatic change*, *109*(3-4), 399-415.

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