

> Chemistry Industry Association of Canada's Comments **FEDERAL SUSTAINABLE DEVELOPMENT PLAN 2016-19**

CIAC is supportive of the efforts of the Federal Government to align its Sustainable Development Strategy with longer-term 2030 Sustainable Development Goals as its main focus. Resulting actions should be aimed towards growing our economy in an environmentally sound way and in the respect of social values and needs of Canadians for generations to come.

CIAC is supportive of the choices made by Government regarding the five priority goals which are being focused on for the next three years. The chemistry sector has a clear and important role to play on Taking Action on Climate Change, Developing Clean Technology and ensuring that the Health of Canadians, their Well-being and their Quality of Life are enhanced through the industry's actions.

Under the three year 2016-19 horizon to be covered by the current strategy, it would be unrealistic to expect to see measurable results against any of these goals. On the other hand, as part of the present exercise, the Federal Government can set a clear direction for the future of its economy and serve as a catalyst towards an environmentally-sound and equitable development, making optimal use of Canada's abundant natural resources, its highly skilled workforce, its culture of innovation, its resourcefulness and its open and integrated business climate.

In a very short time, many factors have combined to totally change the Canadian landscape around energy, resources, markets and the recognition of the need to balance the growing needs of a rapidly expanding global population with the need to preserve and where possible restore our environment. Making more with less, or making better choices under increasing pressures is at the heart of what chemistry continues to deliver for Canadians.

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More specifically, the most significant changes that have occurred in Canada in the past five years and which create game-changing opportunities for a more sustainable economy through the use of chemistry-derived solutions include:

- 1. The recent development and rapid expansion of the natural gas supply in North America, related in great part with the development of hydraulic fracturing technologies. This provides Canada with a unique opportunity to diversify its economy by allowing for the value-add chemical transformation of natural gas into the materials we will need as we transition to a low-carbon economy;*
- 2. The rapid developments surrounding electric vehicles which are taking a growing part of the domestic market and which can take advantage of Canada's overall low carbon electric grid;*
- 3. Advances in construction materials (insulation, windows, films/membranes) which deliver great energy savings, lower emissions and provide an affordable alternative for customers to reduce their utility costs, eventually making net-zero buildings possible;*
- 4. Increased efficiency and reliability of renewable power solutions such as photovoltaic panels are reducing our demand for fossil fuels and pressures on our electric grid. Also advances in energy storage are making electric vehicles a viable transportation alternative;*
- 5. Improved reliability and availability of advanced lighting solutions. In the past three to five years we have seen LED lighting almost leapfrog CFL bulbs bringing important energy savings (40 per cent more efficient) and greater durability at an ever shrinking cost differential.*
- 6. Food and water safety improvements. In the past three years the world population has increased by nearly a quarter billion people. Food supply and food waste are becoming a critical issue, even in Canada, where fruits and vegetables are becoming unaffordable for a large portion of our population. Advances in packaging and food preservation are making it possible for our growing urban population to get access to safe, nutritious and more affordable food grown upon ever shrinking agricultural land.*



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These trends and rapid technological developments have completely altered our economic and environmental landscape and need to be considered as Canada revises its sustainable development goals.

The chemistry sector is ready and willing to make a strong contribution to achieving government's objectives, as we will discuss below.

✓ TAKING ACTION ON CLIMATE CHANGE AND CLEAN TECHNOLOGY

Canada's chemistry industry is already a world leader in low-intensity carbon chemical production due to the abundance of low-carbon feedstocks, its relatively new plants and equipment, process and product re-engineering and energy conservation measures. These reductions are the result of significant new investments, including more than \$12 billion in the last decade alone.

Very few people appreciate the fact that more than 95 per cent of all manufactured products rely on chemistry. Nor do they understand that addressing the challenges of clean energy, clean air, clean water and of a sufficient supply of safe and nutritious food on a global scale is entirely dependent on chemistry-based solutions.

To meet the global climate challenge, Canada must fully develop the potential of the chemistry industry so it can deliver innovations and solutions that effectively reduce emissions both within the industry and throughout the Canadian economy. From improved building insulation and lighter plastics for automobiles, to the production of solar and wind energy equipment, these, and other innovative chemistry products and processes are essential in helping society meet its needs while reducing its carbon emissions. It has been shown that globally there would have been 11 per cent more total GHG emissions in 2005 in a world without the chemistry industry.

Today, research shows that for every unit of GHG emitted as part of chemical manufacturing, the industry's products and technologies result in a net reduction of 2.6 units of emissions during a product's lifecycle - from extraction of feedstock and fuel, through production, ultimate use and end of life disposal. Using emerging technologies, this ratio increases to more than 4:1. By far, avoided emissions, in the use phase of chemistry-derived products, represents the greatest contribution that the sector continues to make in reducing greenhouse gas emissions and energy demand economy-wide.



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The industry is resolute in its efforts to work with governments to develop effective long-term regulatory policies that successfully minimize the impacts of climate change without impeding necessary innovation, investments and growth.

Looking at innovation in the chemistry sector, several game changer technologies have already been implemented in Canada. In particular, taking advantage of the growing availability of shale-gas in North America, the industry is now producing olefins in Canada through ethane cracking process which brings up to an 8 to 10-fold energy-saving and proportional GHG reductions versus naphtha or coal based processes used in Asia, by far the world's largest chemicals producing region.

In Canada, Governments will have a role to play in supporting the development of the lowest carbon-intensive feedstocks and energy sources, such as shale-gas, used in the production of chemicals and in allowing for the safe and secure transport of these materials to the chemical facilities where they can contribute to improving the overall environmental footprint of the industry.

Of all the energy consumed around the world, one third is used for heating and cooling buildings. In Canada, with moderate improvements to energy efficiency standards in new buildings and a moderate increase in renovation of existing buildings, global GHG emissions from buildings could decrease by 12 per cent by 2050. More aggressive energy efficiency standards for new builds and more ambitious renovation rates could see as much as a 25 per cent reduction.

Advanced Lighting Solutions are a significant emission reduction lever. LED bulbs have a nearly 40 per cent greater efficacy (lumens per watt) than CFL bulbs, have a four times greater life expectancy, do not contain mercury, are less fragile and are dimmable allowing for further energy savings. Canada should promote and support the rapid deployment of LED lighting in all buildings and outdoor applications.

Transportation is another sector that requires a careful look. Since 1992, GHG emissions from Canada's transportation sector have increased by a whopping 33 per cent. Manufacturing lighter vehicles with parts made of new plastics and composite materials will be essential to tackling



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emissions from this vital sector. In addition, the need to electrify private and public transport will depend upon advances in energy storage solutions and low carbon fuels developed by our sector.

Chemistry enables nearly every renewable power generation source such as the composite materials in wind turbine blades, photovoltaic panels, biofuels and even nuclear and hydro-power. It also plays a critical role in the electronics industry which is now a component of modern life.

In our engagement with governments we offer the following principles to guide more appropriate domestic climate action policies:

- *Identify the potential for emissions' reductions in sectors beyond manufacturing, which accounts for less than 30 per cent of GHG emissions, notably the buildings, transportation, food and renewable energy sectors.*
- *Introduce minimum energy performance in building codes and provide incentives for owners to increase insulation values for new and existing buildings.*
- *Provide assistance during the development and deployment of pre-commercial emission reduction technologies in chemical manufacturing.*
- *Recognize that technological innovation and step-change emissions reductions are completely dependent on new capital investment. Carbon policies must be designed in a manner that encourages rather than discourages future investment and economic growth through new builds, even if this means short-term emissions growth.*
- *Create a new Low Carbon Economy Trust to help fund projects that materially reduce carbon emissions.*

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✓ HEALTH, WELL-BEING, QUALITY OF LIFE FOR ALL CANADIANS

The Federal Government wants to protect the health and well-being of Canadians by ensuring clean air and drinking water, and decrease risks posed by harmful substances and environmental emergencies.

CEPA requires every new chemical substance introduced since 1994 to be assessed for health and environmental risks. Originally launched in 2006, the Chemicals Management Plan (CMP) enables the Government of Canada to protect human health and the environment by addressing substances of concern in Canada. It is a science-based approach that allows for setting priorities and government-imposed timelines for risk assessment and risk management of chemicals and other substances of concern and for increasing industry stewardship and responsibilities for substances.

The chemistry industry has been and remains a fully engaged and a productive partner in the development and delivery of the Canadian Environmental Protection Act 1999, and the accompanying Chemicals Management Plan. Timely action to reduce risks from toxic substances is important for the health of Canadians and our environment. The CMP has changed and improved how industry, Environment Canada and Health Canada manage chemicals in Canada. This partnership has helped improve public confidence in chemicals management.

CMP is achieving its objectives and is on track for success. CEPA 99 mandated the evaluation and appropriate risk management of over 23,000 substances on the Domestic Substances List. At the time, it was known that this would require years of work, sustained resources and attention by government, industry and other stakeholders. Canada completed the first phases of this work, categorizing more than 23,000 substances. This was no small feat and Canada was the first country in the world to complete this exercise.

Categorization was especially important because it allowed government, industry, and other stakeholder groups to focus on the scientific assessment and risk management of those substances which are actually present in the economy today and which might hold potential for harm to human health and the environment.

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To date, more than 2,700 of those 4,300 substances identified have already been assessed under the chemicals management plan. Only 360 of those have been identified as toxic substances. Of the more than 21,000 substances evaluated to date, only 360, or less than 2 per cent have, so far, been identified as posing risks to human health and the environment which require further management actions.

It is clear that the goals of completing risk assessments of all the 4,300 substances are in sight of being completed by 2020. CMP is efficient and effective in its use of public and private resources because it applies a science and risk-based approach, considering both the degree of risk and extent of potential exposure in conducting the assessments.

The program effectively leverages available data and existing classification frameworks already in use across industry and agreed to by regulators. It also reviews scientific studies and data from other international jurisdictions, such as Europe. All the while allowing for the incorporation of significant new information to ensure prioritization decisions remained relevant and current.

Once the program has identified a risk to the health of Canadians or the environment, the program uses a very broad array of legislative and regulatory tools to meet the goal of managing that risk.

Canada should be proud of its chemical management regime. CMP has been well examined by US academics and authorities and our approach to prioritization is the cornerstone of changes the US made to their Toxic Substances Control Act which was signed by the President a week ago. Brazil is contemplating adopting the same approach.

CMP also works because it incorporates the views of all stakeholders, as CMP explicitly includes the opportunity for public review and comment to ensure the best available data and information is used in toxicity designations. The CMP has the broad support of other levels of governments in Canada, and as a result, we do not see the checkerboard of competing rules/regulations across our country.

Canada's chemistry industry remains committed to delivering on the objectives of CEPA 1999 and the CMP. Since the inception of the CMP, we believe that industry, government and stakeholders



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have had the right chemistry to work together to build a strong, effective, and transparent CMP. This partnership approach has ensured that the environment and human health are protected from the risks identified by science based risk assessments.

- **Environmental Emergencies**

The Federal Emergency Response Plan provides a framework for how the federal government responds to environmental disasters, incidents and emergencies. The federal government requires industry and others to proactively manage environmental emergencies.

As part of its commitment to Responsible Care[®], the chemistry industry, through its voluntary initiatives TRANSCAER[®] and TEAP III[®] has taken a leading role in working with governments, local communities, first responders such as police, firefighters, medical professionals to ensure a quick and safe response to environmental disasters, incidents and emergencies.

Our industry has been able to demonstrate that a well-managed voluntary initiative can be just as effective as mandatory regulations in preventing and responding to environmental emergencies. In addition, working with Governments and multiple stakeholders, the chemistry industry remains fully engaged in ensuring that the chemicals management program meets its goals to protect the environment and human health from the risks identified by science based risk assessments of chemical substances.

> Conclusion

CIAC member-companies are willing and well-positioned to continue to demonstrate a proactive approach to environmental protection, to resource conservation and to product development consistent with the Responsible Care[®] Ethic and Principles for Sustainability so they can contribute to improving the life of all Canadians.

Canada's chemistry sector is eager to work with governments and stakeholders to develop policy frameworks that address global climate change efforts and preserve the benefits of an efficient, modern and responsible domestic chemistry manufacturing industry.

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Building on an abundance of natural resources, a well-educated workforce and a low carbon energy grid, Canada is uniquely positioned to take advantage of the industry's continuous stream of innovations to build a safe, prosperous and resilient sustainable economy.

Today, Canada's chemistry sector is poised for growth, thanks to new shale gas and biomass feedstocks and a growing market for chemistry-based solutions. Our industry could continue to bring safe, high-paying jobs to communities across the country. By working with the federal government to improve Canada's competitiveness, the chemistry industry hopes to continue delivering economic and environmental benefits for all Canadians.

Thank you for giving the chemistry industry the opportunity to share its view on the ***Federal Sustainable Development Strategy for 2016 to 2019***. We would welcome the opportunity to meet with you to discuss how the chemistry industry can work with the Federal Government and other stakeholders towards developing and implementing the new strategy.

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