



CHEMISTRY INDUSTRY | ASSOCIATION CANADIENNE DE
ASSOCIATION OF CANADA | L'INDUSTRIE DE LA CHIMIE

January 28, 2019

Nathaniel Aguda
Environmental Policy Branch
40 St. Clair Avenue West
10th floor
Toronto ON M4V 1M2

Re: CIAC submission to ERO #013-4208 Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan.

Dear Nathaniel Aguda:

The Chemistry Industry Association of Canada (CIAC) congratulates the Ministry of the Environment, Conservation and Parks on the release of the Made-in-Ontario Environment Plan. We fully support the intent to balance a healthy environment with a healthy economy and recognize the plan's objectives and guiding principles:

Objectives:

1. Protect our air, lakes and waters
2. Address climate change
3. Reduce litter and waste in our communities and keeping our land and soil clean
4. Conserving land and greenspace

Guiding Principles:

1. Clear rules and strong enforcement
2. Trust and transparency
3. Supporting resilient communities with local solutions

CIAC is pleased to submit our comments and look forward to working with the Ministry to implement the plan. In particular, we offer some recommendations to help with the balance of the twin objectives of a healthy environment and a healthy economy.

Please do not hesitate to reach out if you would like any further information or have any questions.

Regards,



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CC: Hon. Rod Phillips, Minister of Environment, Conservation and Parks
Serge Imbrogno, Deputy Minister

CHEMISTRY INDUSTRY ASSOCIATION OF CANADA SUBMISSION

Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan.

The Chemistry Industry Association of Canada (CIAC) congratulates the Hon. Rod Phillips, Minister of Environment, Conservation and Parks on the release of the Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan. We are pleased to submit the following comments in response to the consultation request.

➤ Recognize Responsible Care®

Any action by CIAC members to address the environmental, economic and community impacts of our operations are governed by Responsible Care®. Responsible Care is the flagship program of our industry that ensures our members innovate for safer and greener products and processes, and work to continuously improve their environmental, health and safety performance. Launched in Canada in 1985 and now adopted globally and recognized by the United Nations, Responsible Care compels CIAC member-companies to “do the right thing and be seen to do the right thing.” This is our commitment to sustainability – delivering results for the betterment of society, the environment, and the economy.

As part of our members’ commitment to Responsible Care, companies have to be transparent about their activities, and allow independent experts and members of the public to verify that they are living up to the standards set by Responsible Care. Every three years, a team of industry experts, public advocates and representatives chosen by local communities, audit each CIAC member to evaluate their commitment to Responsible Care. As part of these audits, emissions reductions are verified and since 2004 Ontario members have achieved very notable reductions:

Carbon Dioxide	55 per cent reduction
Nitrogen oxides	50 per cent reduction
Nitrous Oxide	70 per cent reduction
Sulphur Dioxide	91 per cent reduction
Benzene	64 per cent reduction
Total VOCs	35 per cent reduction
Total Particulate Matter	78 per cent reduction
Carbon Monoxide	27 per cent reduction

As Ontario considers new environmental policies and measures, we strongly urge the government to enable compliance options through recognizing industry standards. We believe Ontario should support and recognize operators that demonstrate superior performance and who exceed regulatory compliance. Industry-led stewardship initiatives that require third-party certification such as Responsible Care commit members to a code of ethic for continuous improvement and exceeding regulatory compliance.

Recognizing Responsible Care as a compliance pathway maintains strong regulatory integrity and encourages greater industry-wide adoption. This will enhance compliance and best-in-class performance, streamlining regulatory compliance and audit costs for both government and industry while enabling the government to dedicate more resources to areas where environment compliance and

performance levels need to be improved.

Recommendation:

1. Recognize Responsible Care and similar third-party certified industry standards as a means of regulatory compliance.

➤ Addressing Climate Change

CIAC recognizes that climate change is an important global public policy issue and that sound environmental stewardship and management of natural resources are fully consistent with good business practices.

Our industry has been a leading sector in managing and mitigating climate change. For instance, our Sarna-Lambton-based members' use of ethane as a feedstock emits on average half of the emissions of traditional production and 80 per cent less than coal-based production. Coal-based production is still being used in Asia which remains the world's leading producer of petrochemicals. As such, we are pleased to engage in Ontario's climate change strategies and GHG emission reduction objectives. We are committed to working with the Government of Ontario to find a balanced solution that puts people first, makes life more affordable for families, and takes Ontario's role in fighting climate change seriously.

CHEMISTRY-BASED SOLUTIONS

We support that Ontario's approach allows for the continued economic growth of our sector. Addressing the challenge of climate change in Ontario, in Canada and globally depends on chemistry-based solutions. The chemistry sector is an important contributor to Ontario's economy as well as an integral solutions provider to protect clean air and water, encourage conservation and do more to address urban litter and waste. See examples in CIAC's [Chemistry: Essential to Canada's Transition to a Low-Carbon Energy Future](#)¹ report.

ONTARIO'S CARBON ADVANTAGE

Ontario's chemistry sector is uniquely positioned as a low carbon leader amongst its global peers through a combination of low carbon feedstock, a low carbon energy grid and, through substantial investments and modernization initiatives, modern and efficient production facilities.

We support the Ontario objective to recognize industries that are best-in-class. In fact, we are ahead of our global competition when it comes to energy savings and the resulting GHG emission reductions potential. A 2013 report from the International Energy Agency and the International Council of Chemistry Associations has shown that compared to the other global jurisdictions Canada's chemistry sector already has many of the best possible technological processes for increasing the efficiency of its operations².

¹ http://canadianchemistry.ca/wp-content/uploads/2018/04/CIAC_LowCarbonPaper_English.pdf

² IEA, (2013), Technology Roadmap Energy and GHG Reductions in the Chemical Industry via Catalytic Processes, IEA, France.

Low Carbon Feedstock - Ontario's chemistry sector leverages low-carbon natural gas liquids (NGLs) as the building blocks for polyethylene, polypropylene, plastics and solvents, refrigerants, rubbers and more. Other chemistry clusters in Europe and Asia rely on higher carbon crude oil or coal-based feedstock. A 2017 study from the Joint Research Centre of the European Commission compared different chemistry production processes and technological options to increase GHG efficiency and found that ethylene production that uses higher-carbon naphtha as a feedstock has an 82 per cent higher GHG emissions factor than ethylene produced from lower-carbon ethane feedstock³.

OPTIMIZED AND INTEGRATED CHEMISTRY CLUSTER IN ONTARIO

The key advantages of the Sarnia-Lambton cluster complex include the diverse range of producers from refiners to producers of base chemicals, resins and specialty chemicals, and the integration of facilities across the chemistry value chain. The by-product from one producer becomes the input used by a neighbouring complex to make another chemical or refined product, resulting in increased value-added manufacturing and little or no waste. Services are shared and resources are consumed more efficiently. A thriving complex based on ethane from shale gas and the emergence of a bio-hybrid chemistry cluster provide the foundation for renewal and growth of the chemistry industry in Ontario.

FEDERAL CLEAN FUEL STANDARD

The federal government's Clean Fuel Standard (CFS) will apply in Ontario regardless of any made-in-Ontario plan or Renewable Fuel Standard. As a first in the world clean fuel standard to include carbon intensity reductions for gaseous and solid fuels along with transportation fuels (liquid), the CFS, as currently being directed, will have costly implications for the chemistry sector as an end user and price taker. We urge the Ministry to assess the full impact of these additional costs on our sector as it implements its climate change plan. CIAC would encourage the Ontario government to actively engage in the federal CFS process to help Ontario industry avoid costly duplicative climate change policies.

ONTARIO CARBON TRUST

We are supportive of the approach proposed for the Ontario Carbon Trust to encourage private sector investments in clean technologies and green infrastructure. As described, we see a focus on avoiding duplication, supporting the lowest cost reductions, addressing competitiveness, encouraging technological innovation and supporting low-carbon investments for the future low-carbon economy. It is important to note that energy intensive chemistry processes are currently limited by available technology. To achieve further large reductions in greenhouse gas emissions will require innovation through research and development into next generation chemistry processes. These initiatives involve large capital investments and, to remain competitive in a global economy, will require some form of funding assistance.

On the Ontario Carbon Trust Fund, we commend your government's commitment to give priority to projects which achieve GHG reductions at the lowest cost. Every Ontarian will see a cost for their carbon emissions and will have a financial incentive to drive reduction. For example, offset projects will have financial incentives from the offset credits generated, and large facilities will see a cost via a large emitters' regulation. We believe that the fund should be made available fairly to any sector willing to invest their capital to drive real reductions in order achieve lowest cost reductions.

³ Energy Efficiency and GHG Emissions: Prospective scenarios for the Chemical and Petrochemical Industry, Joint Research Centre Institute for Energy, Transport and Climate, European Commission, p. 65 (2017).

Recommendations:

1. Address climate change through measures that deliver global emission reductions while maintaining the competitiveness of Ontario businesses by recognizing our chemistry sector as best-in-class.
2. Allowing for economic growth by incenting continued investment in lower carbon production in Ontario to displace higher carbon production elsewhere in the world.
3. Program design considerations to recognize the benefits of cogeneration and the integration the Sarnia-Lambton facilities for continued shared environmental and economic opportunities.
4. Factor the costs imposed by the proposed Clean Fuel Standard within the sector's existing EITE assessment framework.
5. Advocate to the federal government to exclude regulated large final emitters from CFS to avoid costly and duplicative climate change policy.
6. Leverage the Ontario Carbon Trust to encourage private sector investments in clean technologies and green infrastructure.
7. In order to ensure the lowest cost reduction is found, the rules to access the funding must be fair, market based, and accessible to every sector that can deliver real GHG reductions.

➤ Managing Litter and Plastics Waste

More than 95 per cent of all manufactured products rely on chemistry and many of these include plastic resins. From wind turbines and solar panels, to vehicles and building materials, to the packaging that allows us to feed our planet, plastics chemistry is vital to our economy.

These products that enable our modern way of life, however, do not belong in our waterways or in the environment. Today in Canada, as a result of inadequate sorting, contamination, limited end markets and not employing all the technologies available, nearly 80 per cent of all post-consumer plastics end up in landfills – three million tonnes annually. The current approach to producing, using and disposing of plastics poses a real threat to the environment and results in a significant loss of value, resources and energy.

SUPPORTING THE FEDERAL GOVERNMENT'S EFFORTS TO REDUCE MARINE LITTER AND PLASTIC WASTE

Throughout 2018, there has been growing common ground and recognition of the need for cooperation between the plastics industry, governments, brand owners, businesses, NGOs, and concerned citizens to protect and restore the health of the world's oceans.

For instance, in June 2018, CIAC and the Canadian Plastics Industry Association (CPIA) offered support for the oceans and waterways focus of the Ocean Plastics Charter, which was endorsed by five countries at the G7 Summit. The Charter included commitments to: ensure that plastics are designed for recovery, reuse, recycling and end-of-life management; strengthen waste diversion systems and infrastructure; stimulate innovation for sustainable solutions, technologies and alternatives across the lifecycle; and other actions.

In September 2018, along with the American Chemistry Council and CPIA, CIAC again provided support to the Canadian federal government in their announcement of the G7 Innovation Challenge to Address Marine Plastic Litter. CIAC stated that the Innovation Challenge will incentivize the development of new technology and processes, generate new ideas and build on the successes and innovations happening now in the plastics value chain. Many of these solutions will involve chemistry.

PROBLEMS WITH ALTERNATIVES

In the search to reduce the amount of plastic waste in our lives, some have turned to using alternative materials such as paper straws or cloth bags. There are some applications where alternatives could be used in place of single-use plastic. However, it is important to ensure the full life-cycle analysis of a product is considered, otherwise we could end up with an application made from a material that can be recycled but has a much larger overall environmental footprint.

In 2016, the American Chemistry Council published a study called Valuing Plastics by Trucost which looked at how to reduce the natural capital costs of plastic including using alternatives.⁴ Trucost found that replacing plastics in consumer products and packaging with a mix of alternative materials that provide the same function would actually increase environmental costs to society up to four times from \$139 billion to \$533 billion annually.

THE CHEMISTRY INDUSTRY'S AMBITIOUS TARGETS TO REDUCE PLASTIC WASTE

In June 2018, CIAC and the Canadian Plastics Industry Association (CPIA) announced ambitious targets that underscore their members' commitment to a future without plastic waste. Representing the broad plastics value chain in Canada, CPIA and CIAC and their members announced the following waste reduction targets:

- An aggressive goal of 100 per cent of plastics packaging being recyclable or recoverable by 2030
- A new aspirational goal of 100 per cent of plastics packaging being reused, recycled, or recovered by 2040.

POLICY TO CREATE A CIRCULAR ECONOMY FOR PLASTICS IN CANADA

The chemistry sector is supporting the transition from a linear economy to a circular economy — one that prioritizes the extension of product life cycles, extracting maximum value from resources in use, and then recovering materials at the end of their service life.

An important principle of the circular economy is increasing the capture of materials in waste streams so that they can be recycled, recovered and reused in new products. But a circular economy involves far more than just upgrading traditional mechanical recycling — it's a new economic model where, ultimately, the waste of one process becomes a feedstock for another process, and ultimately, waste is eliminated.

We will never be able to reach 100 per cent diversion / zero waste goals from mechanical recycling alone. Other waste management options of energy recovery and chemical recycling are needed to advance a circular economy.

⁴ <https://plastics.americanchemistry.com/Study-from-Trucost-Finds-Plastics-Reduce-Environmental-Costs/>

Improve and Standardize Waste Collection and Diversion

The mantra of “reduce, reuse, recycle” must also include “recover.” Getting to 100 per cent diversion of plastic packaging will require radical innovation, and the use of both recycling and recovery options. It will require a whole of society approach with significant support and investment from not just industry but governments and stakeholders as well. Specifically, industry needs investments in collection and mechanical recycling, chemical recycling using pyrolysis and gasification technologies, energy recovery and enabling regulations.

Consistency in waste collection across jurisdictions to facilitate recycling and recovery for residential, commercial and institutions is imperative to our goals. It is also important to standardize and harmonize definitions and policies across Canada to recognize plastic recovery and conversion to energy as diversion (e.g. Nova Scotia recognizes materials diverted from landfill to advanced facilities to make new plastic feedstocks, fuel replacement as diversion).

Promote innovation

As we grow chemistry production in Canada, we must ensure that systems are in place to recover the value of waste plastics as potential feedstocks. Canada can become a global leader in the advanced recovery of plastics by investing in chemical recycling technologies and other innovative forms of deriving benefits from plastic waste. Below are two Ontario-based examples:

- Since 2010, GreenMantra Technologies, located in Brantford, Ontario, has been transforming hard-to-recycle materials such as grocery bags and film, and converts them into high-value waxes and other specialty chemicals. These materials have a broad range of applications in the coatings, plastics processing, adhesives, roofing and paving industries.
- ReVital Polymers, Pyrowave and INEOS Styrolution announced a partnership in 2018 to recycle polystyrene packaging collected in consumer curbside and depot recycling systems as well as other sources such as restaurants, offices, schools and universities. This made-in-Canada collaboration will use advanced recycling technology from Pyrowave that will recycle single-serve polystyrene packaging and use recycled polystyrene in the manufacturing of new products and packaging. This Canadian solution will help reduce the amount of polystyrene packaging going to landfill regardless of colour, food residue or odours.

Ensure Science and Life-cycle Decision Making

Foregoing simplistic virtue signalling and ensuring that policies for reducing plastic waste are evidence-based and best practice will be critical in making real progress to enable the circular economy. Materials should be judged on a life-cycle basis and with their societal value assessed. A material that can be recycled but has a much larger overall environmental footprint does not improve sustainability.

Recommendations:

- 1.** Work with all levels of governments to invest in improvements to standardize waste collection and sorting in Canada.
- 2.** Promote well-designed, industry-led extended producer responsibility systems to inform consumer behaviour and help establish markets.
- 3.** Review, revise and standardize policies that currently provide disincentives to the processing and use of waste materials as feedstock, such as value-added recovery.

4. Develop standardized, supportive policies across jurisdictions that consider energy recovery (or resource recovery) where non-recyclable plastics today can displace coal/pet coke (e.g. cement) or petroleum fuels (e.g. plastic to diesel fuel).
5. Recognize that acceptance and use of non-combustion energy recovery technologies such as pyrolysis are needed for chemical recycling (i.e. making new plastics from old plastics).

➤ Protect our Air, Lakes and Waters

CIAC and its member companies in no uncertain terms are wholly committed to the protection of human health and the environment and to an effective use of resources. CIAC believes, in the spirit of Responsible Care, that it is possible to:

- protect the environment and human health while manufacturing the products on which our society depends,
- develop new products and solutions to meet public and industry's needs in a sustainable way and to grow economic opportunities for Ontario and all Canadians.

We support effective policies that allow flexibility in achieving objectives while minimizing administrative burden on industry.

APPROVALS

The length of time it takes to receive an ECA in Ontario creates a barrier for facility expansions and new investments. Recent efforts taken to speed up the approvals process in Ontario to streamline the process for lower risk projects (Environmental Activity and Sector Registry) and setting a 1-year service standard for complex ECA are a good start. However, even the 1 year service standard continues to be a major issue for industry as it continues to cause significant uncertainty in the capital planning process for businesses and places Ontario at risk of losing investment opportunities. Ironically most of these new investments will yield environmental improvements over existing operations.

Additionally, while the Ministry has been accommodating in accelerating approvals on a one-off basis, the system needs additional changes so that it can deliver timely approvals consistently. As such, more structural change is necessary to see a step-change reduction in turnaround times to match other jurisdictions.

SARNIA-LAMBTON INITIATIVES

We appreciate the Ministry's recognition in the environmental plan regarding key initiatives that address air quality and improving the understanding of health impacts in Sarnia-Lambton. CIAC applauds Clean Air Sarnia and Area (CASA) members and supports their efforts to share real-time air quality information with the community. We also commend their multi-stakeholder approach involving representatives from the public, government, Indigenous communities, and industry.

Similarly, we applaud the work done by the Lambton Community Health Study (LCHS) in response to concerns expressed regarding health impacts arising from the close proximity of industry and citizens in the Sarnia-Lambton community. We are very pleased with the Ontario government's commitment to proceed with the environmental health initiative. We believe it is in the best interests of all

stakeholders to determine the impact of the local petrochemical industry on the health of Sarnia-Lambton residents. CIAC looks forward to continued collaboration with all stakeholders involved to carry the project through to completion.

LOCAL AIR QUALITY REGULATIONS

CIAC supports updating Ontario's general standards where warranted. Currently, Ontario's regulatory regime uses a far more conservative methodology to revise air standards when compared to other advanced jurisdictions.

Health Protective and Achievable - The current methodology for setting Local Air Quality standards requires a structural reset. It is based solely on health-based outcomes without any cost-benefit or technical feasibility analysis. This is best exemplified in the case of the recently updated (2017) Ontario Sulphur Dioxide (SO₂) air standard.

There was broad consensus that the previous SO₂ was out of date and in need of updating. While the Ministry based its decision on the same scientific evidence (produced by Health Canada and the United States Environmental Protection Agency) used by many national and sub-national jurisdictions. Ontario's methodology led to the setting of the Air Standard at the most stringent level in the world. For more details, refer to [CIAC's SO₂ Air Standard submission](#).

Modeling

The current regulation bases compliance on a modelled image of emissions. Appropriate use of air dispersion modelling offers value as tool for scenario analysis and to support compliance. It is important to recognize that models are not definitive but rather mathematical representations and subjective. Further, combining unfavourable historical meteorological data, maximum emissions scenarios and best available emissions data tends to over-estimate facility emissions and their effects at the fence line versus actual emission levels. Monitoring, on the other hand, provides a real-time reporting of actual conditions.

As well, monitoring tools and technology have evolved dramatically since the Regulation 419 modelled compliance approach was developed in 2005 and have been implemented in certain circumstances (i.e., the Petrochemicals and Petroleum Refining Technical Standard). Where technically and financially feasible, monitoring should be an option for compliance.

Alternative Compliance Pathways

The current local air quality regulatory framework does not consider financial or technical achievability in the setting of the modelled fence line limits. Contrary to the regulatory design, these alternative compliance pathways were not a panacea to the setting of local air standard concentration levels that result in Ontario mandating the most stringent limits in the world (i.e., SO₂ Air Standard).

In reality, the air quality objective creates an expectation with the public that the limit will be met, and it is not safe until it is achieved. Furthermore, these alternative compliance pathways are a time and effort-consuming process for both industry and government that impair regulatory certainty and hinder business investment decision-making in Ontario.

CUMULATIVE EFFECTS ASSESSMENT

The previous government introduced the concept of Cumulative Effects Assessment (CEA) in specific air sheds when new industrial facilities are built or existing industrial facilities are expanded as part of the Environmental Compliance Approval process. In principle, CIAC supports the concept of a cumulative effects assessment for air quality when air approvals are under consideration. However, we have significant concerns with the current approach that was enacted on the potential impact to competitiveness, investment attraction, cluster development, source apportionment and greater uncertainty and delays in approvals processing.

The CEA framework compels industrial facilities that are in compliance with local air quality regulations to take additional mitigation actions to lower the ambient concentration in their air shed at risk-based thresholds. It is a model-driven process and, as noted earlier, models are mathematical representations and by design, conservative.

SOILS

CIAC supports the concept of beneficial use for excess soil thereby avoiding waste, and reusing soil appropriately. We contend that industrial facilities that are covered by an industrial ECA should have the ability to test soils and determine the risk and therefore the standing of whether the soil is a waste and/or how it can be used.

Recommendations:

1. Reduce the 1-year service standard for approvals. Strive to set a 3 month service standard similar to other jurisdictions in Canada and the United States.
2. Prioritize and expedite approvals for projects involving new capital investments, job creation and retention, and improved environmental performance ahead of other applications.
3. Amend the Local Air Quality regulation to ensure the methodology used to set air quality standards is based on a science and risk-based approach that is technically sound, consistent with, but not in advance of, other leading jurisdictions, and informed by rigorous cost-benefit and technical feasibility analysis.
4. Align methodology of air standards to federal Canadian Ambient Air Quality Standard (CAAQS) which is based on a local air shed basis rather than imposing these standards at the fence line.
5. Provide facilities with an option to base compliance to air standards using monitoring data where technically and financially feasible.
6. Only soil that is assessed and confirmed to be unacceptable be classified as waste and grant an exclusion for industrial facilities with existing Environmental Compliance Approvals that already manage soils and wastes from the proposed regulation.

➤ Chemistry Industry Association of Canada (CIAC)

CIAC is the Association for Canada's chemistry sector leaders, innovators, solution providers and world class stewardship pioneers. Canada's chemistry industry is one of the most valuable sectors in the country. With more than 95 per cent of all manufactured products relying on chemistry, our industry is a fundamental part of the average Canadian's life. Our sector transforms raw materials like natural gas liquids, oil, minerals, electricity and biomass into the building blocks needed to manufacture some 70,000 products used daily. CIAC members also pride themselves for their dedication to health, safety, and the environment.

➤ Chemistry sector investment rejuvenation

Currently, the chemistry sector is the fastest growing manufacturing sector in North America with investments approaching CAD \$300 billion from 300 projects, at various stages of development. Regrettably, the vast majority of this growth is occurring outside of Ontario. We believe that investment in chemistry is the path towards securing a sustainable environment and economy.

➤ Ontario chemistry leadership

Ontario is the economic backbone of the nation's manufacturing sector and is Canada's largest chemistry-producing province. Its \$22 billion chemistry industry has major operations in Sarnia-Lambton, in the Greater Toronto Area and in the eastern regions of the province. It produces 43 per cent of Canada's chemistry output. The sector employs 46,000 people and supports almost 220,000 people in downstream sectors. Our sector is also the province's second largest trader with 2017 imports and exports totaling \$55 billion. Furthermore, Ontario's chemistry sector provides high-skilled and high-paying jobs. The industrial chemicals industry average earning in 2017 was \$88,200 which is 50 per cent higher than that of the average annual manufacturing sector pay (\$58,700).

As a chemistry hub, several of the world's largest chemistry companies have operations in the province. Recently, NOVA Chemicals announced a \$2+ billion expansion and new polyethylene facility to its operations in the Sarnia-Lambton region. The investment will create 2,000 direct and indirect jobs over the first 10 years of the project alone and will result in a further 25 per cent reduction in greenhouse gas emissions intensity from 2016 levels. However, Ontario has the potential to attract much more chemistry investment activity. Based on historical trends, Ontario should have seen a further \$8 to \$10 billion worth of chemistry investments during the current growth cycle occurring in North America.