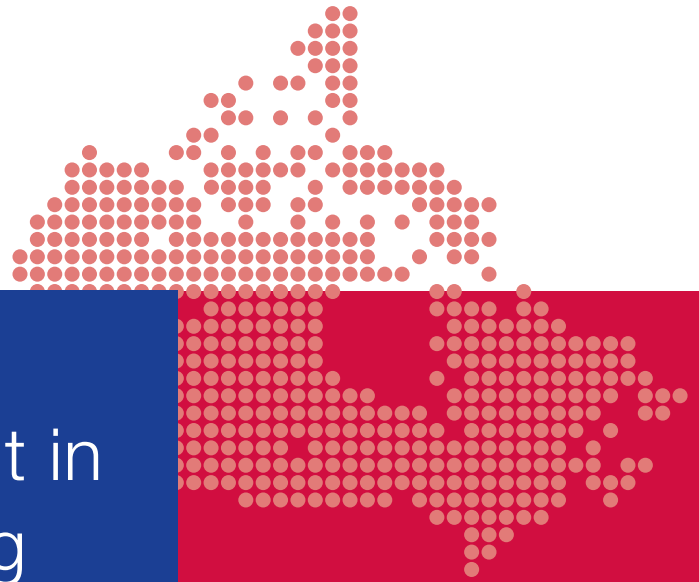




Standards Council of Canada
Conseil canadien des normes



Conformity Assessment in Canada: Understanding the Value and Implications for Internal Trade

April 2018





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Executive Summary

Standards are one of the basic infrastructures of the knowledge economy. Simply put, they make nearly every product, process and service work. Standards go hand-in-hand with conformity assessment, which is the practice of determining whether a product, service or system meets the requirements of a particular standard. Conformity assessment ensures consumer safety, as well as product and service quality, compatibility, efficiency and effectiveness. The significance of the conformity assessment system is evident in part by its use in government regulations. This report provides a broad overview of the conformity assessment system, what it is, how it operates, its social and economic importance to Canada, and the implications for internal trade.

Given the value of conformity assessment to society, it is important to understand the economic implications of the sector. To date, there has been no estimate or data compiled on the size and characteristics of the conformity assessment industry in Canada. This report represents a first effort to quantify the sector. Based on the available data, the conformity assessment sector is making a significant contribution to the Canadian economy with respect to Gross Domestic Product (GDP) and employment.

While there are numerous benefits to conformity assessment, there are also opportunities to enhance the efficiency of the system. Specifically, when regulators from different jurisdictions have different conformity assessment requirements or refer to different standards for the same product, this can be a “technical barrier to trade.” Discrepant requirements can emerge for producers distributing their products in multiple jurisdictions due to:

- Variability in the use of standards within equivalent regulations,
- References to different standards in equivalent regulations, and
- References to different editions of the same standards in equivalent regulations.

There are inconsistencies in regulatory requirements across provinces and territories. However, interviews with federal and provincial regulators, conformity assessment bodies, and industry associations help to shed light on efforts to reduce technical barriers to internal trade. SCC is also playing a critical role in enabling regulators to ensure the alignment of conformity assessment procedures and standards referenced in regulation. To this end, and in support of the Canadian Free Trade Agreement (CFTA), SCC in collaboration with stakeholders is working towards the goal of “one standard, one test, one certification accepted everywhere.”



1.



Conformity Assessment

In a restaurant in St. John's, Newfoundland, a waiter pre-emptively explained to some patrons the difference between Newfoundland and New Brunswick lobsters. Newfoundland lobsters are typically smaller and sweeter, due to the colder water surrounding the province. Clearly, the differences had been remarked on previously by patrons of this establishment. Yet while the gastronomic, cultural, scenic, and other forms of diversity that are evident across Canada are generally accepted, if not celebrated and promoted, there are times when uniformity in products, processes and services is expected.

Canadians expect to receive the same standard of care, whether they visit a doctor in Brooks, Alberta, or in Montréal, Québec. They expect the electronics they purchase to be compatible, whether they were bought in the Territories or in the Maritimes. And they expect that infrastructure should provide the appropriate level of protection and shelter, regardless of whether buildings are erected on fault lines or permafrost. Canadians have this expectation met because most products, services and systems have undergone extensive evaluation to ensure safety, as well as product and service quality, compatibility, efficiency and effectiveness. Evaluations are necessary to ensure that these products, services and processes are up to standard.

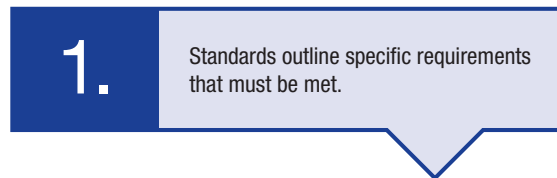


Standards and conformity assessment are basic infrastructure for the knowledge economy. They ensure that most products, services and processes work as intended. While the term standard is often colloquially used, it is more strictly defined in the world of conformity assessment. The International Organization for Standardization (ISO) defines a standard as “a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose.”¹ In other words, standards tell you how to test or identify something. Just as important as what they are, is how they are developed. For the purposes of this research, when we refer to standards, we are referring to documents developed by a committee of interested experts that are published by a recognized (i.e. accredited) standards development organization to provide independent and widely accepted guidance.²

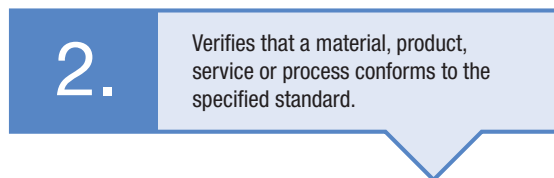
Once the requirements for a product, process, or service have been established, there needs to be a system in place to verify that the standard has been met. This is the role of conformity assessment (see Figure 1: The Conformity Assessment Process). Conformity assessment is the process of verifying that the item in question is compliant with the specifications of a standard.³ Conformity assessment can be carried out by different parties (see textbox: Who Performs Conformity Assessment?). For the purpose of this research, the term “conformity assessment” refers to any third-party assessment performed by an accredited conformity assessment body.

FIGURE 1: THE CONFORMITY ASSESSMENT PROCESS

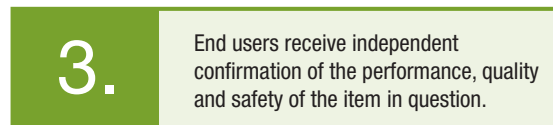
Standards



Conformity Assessment



Verified Products/Services



1 ISO. *We're ISO: We Develop and Publish International Standards*. [online]. [Accessed February 17, 2017]. Available from: <https://www.iso.org/standards.html>

2 For more information on how standards are developed see for example: Standard Council of Canada, [Developing Standards](#).

3 For a detailed description of conformity assessment, please refer to: ISO, [Building Trust - The Conformity Assessment Toolbox, 2010](#).

Who Performs Conformity Assessment?

Legal requirements and the purpose of pursuing conformity assessment can influence who performs conformity assessment.

First-Party Conformity Assessment – the conformity assessment is typically conducted by the supplier or manufacturer who then self-declares that their product is “conformant.” This is the quickest and most economical form of conformity assessment. It is often used when the product in question is low-risk.

Second-Party Conformity Assessment – the user performs the conformity assessment. This form of conformity assessment is not very common. It is most often used when a client specifies this requirement for purchased products or services. The purpose is typically to verify the first-party conformity assessment.

Third-Party Conformity Assessment – an independent body performs the conformity assessment. By relying on a third party that is independent of the buyer and seller this gives the highest level of confidence in the performance, safety and reliability of the product or system in question.

While all forms of conformity assessment play an integral role in ensuring Canadians’ quality of life, regulators typically leverage third-party conformity assessment as a means of demonstrating public confidence in the system through the minimization of bias and related risks.

Source: IEC. *Types of Conformity Assessment*. [Online]. [Accessed June 19, 2017]. Available from: http://www.iec.ch/conformity/what/ca_types.htm

What is the Process for Conformity Assessment in Canada?

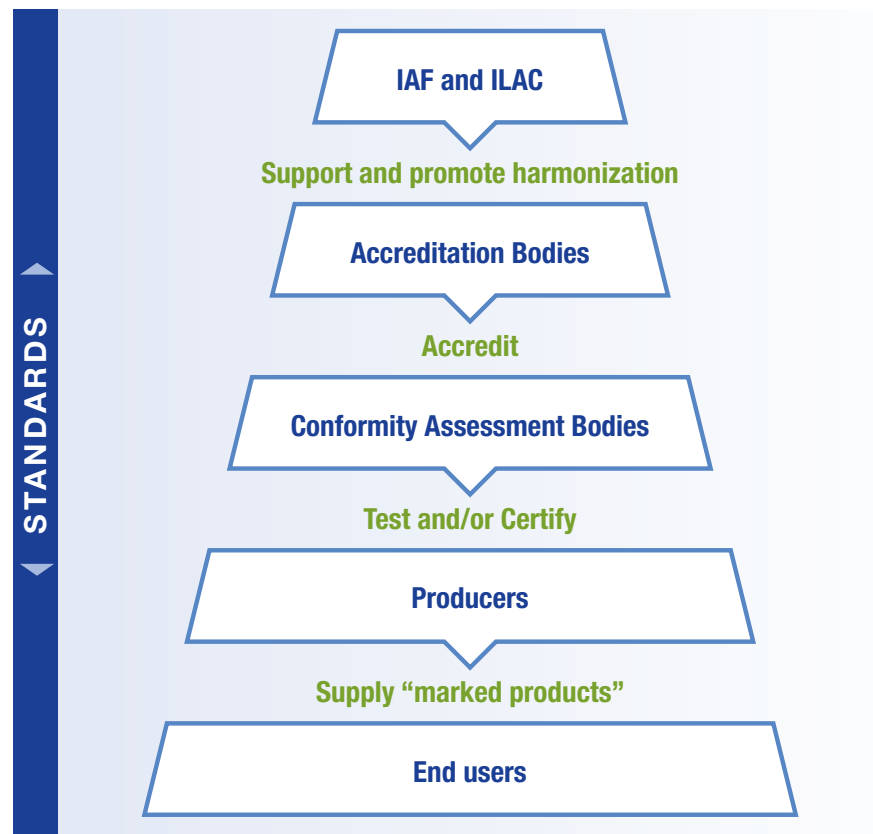
Given the important role that conformity assessment plays for societies and the environment, it is important to understand how the system works. The parties involved in conformity assessment can be viewed as having a hierarchical structure that is designed to ensure transparency and deliver consistent results (see Figure 2: Conformity Assessment System). At the top of the hierarchy are the International Accreditation Forum (IAF) and the International Laboratory Accreditation Cooperation (ILAC). SCC is an accreditation body that is a signatory to IAF and ILAC’s Multilateral Recognition Agreement and Mutual Recognition Agreement. As a signatory to these agreements SCC is recognized as competent to accredit conformity assessment bodies.

Accreditation bodies provide independent confirmation of the competence of the accredited conformity assessment bodies. Accreditation bodies ensure that conformity assessment bodies are operating in accordance with internationally recognized standards, such as ISO/IEC 17025 – *General requirements for the competence of testing and calibration laboratories*.⁴ By confirming the competence and impartiality of conformity assessment bodies, accreditation adds an extra layer of accountability to the third-party conformity assessment.

⁴ Standards Council of Canada. *SCC Accreditation Program for Testing and Calibration Laboratories*. [online]. 2017. [Accessed July 20, 2017]. Available from: <https://www.scc.ca/en/accreditation/laboratories>

Accredited conformity assessment bodies in turn test or certify products and processes against relevant standards. By providing independent confirmation of the safety and/or performance of a product/service, conformity assessment bodies help businesses enhance consumer confidence while meeting regulatory requirements. The processes involved in the third-party conformity assessment system provide assurance of the independence of results to safeguard public interest.

FIGURE 2: CONFORMITY ASSESSMENT SYSTEM



Source: Standards Council of Canada.

While the basic structure of the system is relatively straightforward, the system is responsive to inputs from a number of relevant stakeholders. Regulators often make reference to standards and conformity assessment procedures in their regulations. Because they have a vested interest in the content of conformity assessment procedures, regulators can work together with standards development organizations and conformity assessment bodies to ensure the procedures address their priorities. Similarly, industry relies on the "marks" that confirm their materials, products, processes and services are compliant. As such, businesses also have a vested interest in ensuring that conformity assessment requirements are effective and not overly burdensome. This multi-stakeholder impact of standards and conformity assessment is one of the reasons that standards are often required to be developed by a balanced committee of experts and through a consensus process.

For regulated products that require conformity assessment, governments need a system to determine if the products and services are conformant. Canada relies on both pre-market and post-market surveillance to ensure that products or services supplied domestically meet requisite safety and/or quality standards. For international imports, there can be pre-market examination and approval processes for commercial goods brought into the Canadian market. According to the Canada Border Services Agency's (CBSA) offload policy, all commercial goods imported into Canada are subject to examination, if requested.⁵

However, for products moved across provincial borders there are neither customs nor border services; consequently, regulators rely more heavily on the post-market oversight and surveillance. Government regulators often perform post-market reporting and inspections to assess the compliance of products with relevant regulatory requirements. For example, the Inspectorate Program of Health Canada was created to ensure that drugs and health products sold in Canada are safe for Canadians and comply with the Food and Drugs Act and Regulations.⁶ This national program conducts thousands of on-site inspections as well as paper reviews of inspections performed by international regulatory partners each year, and requires companies to take corrective actions if they do not meet the requirements. A robust post-market regime is an efficient and effective tool to address safety in the marketplace through "a balanced, risk-based approach to compliance and enforcement while allowing for the free flow of goods."⁷

What are the Benefits of Third-Party Conformity Assessment?

Third party conformity assessment typically involves investments from companies. While it can be costly, manufacturers do it because they recognize its value. The third-party conformity assessment becomes of significant value to manufacturers when the regulatory requirements can be met by a third-party conformity assessment. It is important to note that due to the way they are developed, standards and conformity assessment procedures are voluntary by nature. However, they can become mandatory when regulators reference them in regulations. In this case, assurance of conformity can be a necessary step to demonstrate compliance with regulatory requirements enabling market access. In the gas-fired equipment sector, for example, certification and inspection bodies estimate that roughly 90% of their business is driven by regulatory requirements.⁸

While a company may use conformity assessment to certify a product to be legally compliant, the process confers a number of advantages on all parties involved. When standards are developed, accredited standard development organizations (SDOs) work with subject matter experts to ensure that standards reflect the latest technologies and scientific knowledge. Using these standards for independent evaluation of product or process quality is one of the clearest ways to ensure pre-market compliance and engender confidence in the product or process. This confidence is beneficial to regulators, producers, and consumers (see textbox: Identifying the Benefits of Conformity Assessment).⁹

5 According to the Canada Border Services Agency (CBSA), "Many goods are subject to the requirements of other government departments and agencies and may require permits, certificates, and/or inspection. The CBSA is responsible for administering the legislated import requirements on behalf of other government departments." *Step-by-Step Guide to Importing Commercial Goods into Canada*. [online]. 2015. [Accessed July 20, 2017]. Available from: <http://www.cbsa-asfc.gc.ca/import/guide-eng.html>

6 Health Canada. *Inspectorate Program - Annual Inspection Summary Report 2014-2015*. [online]. 2016. [Accessed August 3, 2017]. Available from: <https://www.canada.ca/en/health-canada/services/drugs-health-products/reports-publications/compliance-enforcement/inspectorate-program-annual-inspection-summary-report-2014-2015.html>

7 Health Canada. *Frequently Asked Questions for the Canada Consumer Product Safety Act*. [online]. 2013. [Accessed July 20, 2017]. Available from: <https://www.canada.ca/en/health-canada/services/consumer-product-safety/legislation-guidelines/acts-regulations/canada-consumer-product-safety-act/frequently-asked-questions.html>

8 Key informant interview, conformity assessment body, June 2017.

9 International Confederation of Inspection and Certification Organizations. *The Added Value of 3rd Party Inspection and Certification*. [online]. [Accessed June 2, 2017]. Available from: <http://www.ceoc.com/publications/positionpapers/Position%20Paper%20-%202007.11.2012.pdf>

Regulators

Regulators have an obligation to protect the health, safety, environment, economy and social well-being of Canadians.¹⁰ This must be done in a fiscally responsible way in consultation with Canadians. In 2016, approximately 5 per cent of Canadian federal regulations required third-party conformity assessment procedures to be conducted.¹¹ Provincial and territorial regulators also rely on third party conformity assessment, with some jurisdictions including hundreds of references to standards and conformity assessment within their regulations.¹² By using conformity assessment, regulators can be assured that products, processes and services meet their regulatory objectives and do not pose a risk to society or the environment. Relying on external experts also ensures that the procedures are sound, and developed at minimal cost to the federal government.

Producers

For producers, conformity assessment ensures the quality of their products and services, and provides them with a basis for comparison with their competitors. By conforming to standards, companies are better positioned to compete internationally, as multilateral agreements between accreditation bodies, and increasing efforts towards the harmonization of standards and regulations can open doors to new markets. Conformity assessment can increase trust and enhance a company's reputation among consumers who are familiar with the relevant standards or certification marks but not with a particular brand.

Consumers

As the end users, consumers expect that the products they purchase are safe, compatible, and meet their performance expectations. Conformity assessment is an effective way to ensure these needs are met.

Identifying the Benefits of Conformity Assessment

There are many bold claims made about conformity assessment. It is argued that conformity assessment increases productivity, decreases costs, and enables access to new markets. Conformity assessment is also promoted as a “great asset” for regulators seeking to meet public policy objectives. Recognizing the importance of substantiating the arguments made for conformity assessment international bodies (i.e. IAF, IEC, IIOC, IQNET, ILAC and ISO) have compiled research evaluating the implications of conformity assessment.

[Public Sector Assurance](#) identifies research on how regulators worldwide benefit from the use of conformity assessment in important policy areas. For companies, research on the [business benefits](#) of conformity assessment are listed by standard, country, sector, and type of benefit (e.g. cost savings, market access, etc.). Importantly, research from different countries in diverse sectors has demonstrated the value of conformity assessment for regulators, businesses, and ultimately end users.

10 Treasury Board of Canada Secretariat. *Government of Canada Regulatory Policy*. [online]. [Accessed June 7, 2017]. Available from: http://www.collectionscanada.gc.ca/eppp-archive/100/201/301/tbs-sct/tb_manual-ef/Pubs_pol/oepubs/TB_B3/RP1-1E.html

11 SCC Internal report based on the MSR (Monitoring Standards in Regulations) database. 2017.

12 SCC Internal report based on the MSR (Monitoring Standards in Regulations) database. 2017.

The advantages of conformity assessment can be further demonstrated when one considers the risks that can arise from non-conformance. With uncertified professionals and products, there is increased potential for damage, serious injury, long-term health risks or loss of life. Aside from the potential risks for consumers, non-compliance with regulatory requirements entails legal liability in the case of incidents.¹³ Regulators might prescribe a number of corrective measures, not limited to requesting the seizure of assets, or release of confidential business information that could affect an organization's reputation and market standing.¹⁴ By requiring conformity assessment, regulators can ensure that consumers are protected and businesses can potentially compete in diverse markets, internally and internationally.

Opportunities to Increase Efficiencies in Regulatory use of Conformity Assessment

There are clear advantages to engaging in conformity assessment. However, there are arguments to be made that conformity assessment could be more efficiently implemented. The inconsistent application of standards and conformity assessment procedures across jurisdictions can result in what are referred to as “technical barriers to trade.” Technical barriers to trade occur when requirements differ across jurisdictions.¹⁵ For example, when access in one market does not translate into other markets.

Indeed, there can be readily apparent reasons why requirements would differ from one jurisdiction to the next. For example, voltage requirements for electronics bought in Belgium will differ from those bought in Canada. Similarly, ensuring that certain building foundations are compliant with CAN/CSA-S500-14 – a National Standard of Canada for building in regions with permafrost – is very important in Dawson City, Yukon, whereas this would not be applicable for buildings in Victoria, British Columbia. Because standards and conformity assessment play such an important role in protecting societies and the environment, the discrepancies between regulatory requirements cannot simply be unilaterally eliminated. Indeed, Canada has struggled to address this challenge internally.

13 Canadian Food Inspection Agency. *Compliance and Enforcement Activities*. [online]. 2017. [Accessed June 8, 2017]. Available from: <http://www.inspection.gc.ca/about-the-cfia/accountability/compliance-and-enforcement/eng/1299846323019/1299846384123>

14 Environment and Climate Change Canada. *Enforcement and Compliance*. [online]. 2017. [Accessed June 8, 2017]. Available from: <https://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=66B8D849-1>

15 TBTs have been recognized as an important element of trade by the World Trade Organization (WTO) and incorporated into many free trade agreements Canada has signed with other countries.

In 1995, the Agreement on Internal Trade went into force. The goal of the agreement was to “eliminate barriers to trade, investment and mobility within Canada.”¹⁶ A key component of the agreement was the requirement for governments to harmonize standards for the express purpose of alleviating trade barriers that arise across provinces and territories due to different standards and regulatory requirements “on a range of issues.”¹⁷ In 2017, the Canadian Free Trade Agreement (CFTA) – an update of the Agreement on Internal Trade – came into force. The CFTA puts even greater emphasis on eliminating technical barriers to trade by taking a negative list approach. In other words, all sectors of the economy are automatically implicated in the agreement, unless a case is made for specific exclusions.¹⁸ This is a significant development; whereas previous agreements relied on “opting in” with arguably limited success, the CFTA requires regulators to “opt out.” Since exclusions need to be justified the default position is alignment, misalignment would only be allowed with a compelling rationale.

There are tremendous opportunities to be leveraged by eliminating internal barriers to trade. The standing senate committee on banking, trade and commerce reported that eliminating all internal trade barriers (e.g. standards, conformity assessment, quotas, licensing requirements, etc.) could increase Canada’s GDP by \$1 billion to \$130 billion – equivalent to a 0.05 to 7 per cent economic increase.¹⁹ The wide margin is attributed to the variety of research methods used to calculate the effects.²⁰ While stakeholders disagree on the exact magnitude of the economic impact of internal trade barriers, there is agreement that internal barriers are costly and frustrating to Canadians.²¹

With respect to conformity assessment requirements, it is important to ensure that the system operates efficiently and effectively for the maximum benefit of Canadians. Unfortunately, at present there is a lack of reliable data on conformity assessment that limits the ability of economists and policy-makers to fully appreciate the economic impact and role of conformity assessment as an internal trade barrier.²² This research begins to address that gap by examining available data on the conformity assessment market; it will then consider in greater detail how conformity assessment is addressed across provincial and territorial borders to better understand its role in internal trade.

16 Industry Canada. *Agreement on Internal Trade: Summary of the Agreement*. [online]. [Accessed June 8, 2017]. Available from: https://www.ic.gc.ca/eic/site/ait-aci.nsf/eng/h_il00064.html

17 Ibid.

18 Internal Trade Secretariat. *Canadian Free Trade Agreement: Consolidated Version*. [online]. 2017. [Accessed June 8, 2017]. Available from: <https://www.cfta-alec.ca/wp-content/uploads/2017/06/CFTA-Consolidated-Text-Final-Print-Text-English.pdf>

19 Standing Senate Committee on Banking, Trade and Commerce. *Tear Down these Walls: Dismantling Canada’s Internal Trade Barriers*. [online]. Ottawa: June 2016. p. 23. [Accessed February 2, 2017]. Available from: [https://sencanada.ca/content/sen/committee/421/BANC/Reports/2016-06-13_BANC_FifthReport_SS-2_tradebarriers\(FINAL\)_E.pdf](https://sencanada.ca/content/sen/committee/421/BANC/Reports/2016-06-13_BANC_FifthReport_SS-2_tradebarriers(FINAL)_E.pdf)

20 Ibid.

21 Ibid.

22 Canada’s Public Policy Forum. *Canada’s Evolving Internal Market: An Agenda for a More Cohesive Economic Union*. [online]. Ottawa: October 2013. [Accessed at June 8, 2017]. Available from: <http://www.ppforum.ca/sites/default/files/PPF%20AIT%20final%20report.pdf>





Overview of the Conformity Assessment Industry

The conformity assessment and accreditation market consists of national accreditation bodies, sector specific accreditation bodies, certification bodies, and testing laboratories. Due to the variety of organizations it is difficult to systematically collect data on the industry as a whole.²³ To date, there has been no estimate or data compiled on the size and characteristics of the conformity assessment industry in Canada (for information on available data in other countries see textbox: Estimating the Conformity Assessment Industry in Select European Markets). As previously mentioned, the lack of data makes it impossible for policy-makers, economists and researchers to fully understand the economic impact of the industry and the role of conformity assessment as an internal trade barrier.²⁴

²³ In Canada, industry level data is usually derived using NAICS codes (North American Industry Classification System), an industry classification system co-developed by the statistical agencies of Canada, Mexico and the United States for the purpose of collecting, analyzing, and publishing statistical data. For the conformity assessment industry, the most relevant NAICS code is 54138 - testing laboratories. However, depending on the product being tested, they might also be categorized in 5417 - scientific research and development services, 5419 - other professional, scientific and technical services, and, in cases where the certification body or lab is an affiliate of a larger enterprise, in the main industry code where the parent organization operates.

²⁴ Canada's Public Policy Forum. p. 6.

Estimating the Conformity Assessment Industry in Select European Markets

To date, European countries have been more likely to conduct research on the economics of the conformity assessment industry. Due to a lack of government data, these studies have relied on multiple data sources, including primary and secondary data. The differences in methodology make it impossible to systematically compare across countries. However, the findings provide some context for the market and are an important step towards quantifying this sector. Below is a brief description of the methodologies and key findings from two different studies:

United Kingdom²⁵

The size of the conformity assessment market was estimated based on SIC code²⁶ 712 – technical testing and analysis sector. While this code captures the majority of businesses in this sector, it should be noted that not all accredited conformity assessment bodies are categorized under SIC code 712 and not all businesses under SIC code 712 are in the industries covered by UKAS (United Kingdom Accreditation Service) accredited standards.

- The technical testing sector consists of about 1,990 enterprises, has revenue of nearly £6 billion (equivalent to about \$9.5 billion CAD) and employs about 43,000 people in the UK.²⁷
- Over 50% of the employment and nearly 75% of the revenue in the technical testing and analysis sector comes from the 20 largest businesses (with 250 or more employees).
- The value of UKAS accreditation service is estimated at approximately £295 million per year (equivalent to about \$470 million CAD).

Germany²⁸

Researchers in Germany used data from the Federal Statistical Agency (Statistisches Bundesamt) and the national accreditation body, Deutschen Akkreditierungsstelle GmbH (DAkkS) to estimate the size of the market.

- In 2010, there were approximately 5,380 conformity assessment bodies with 86,100 employees in Germany.
- Their overall revenue amounted to approximately 8.8 billion (equivalent to about \$12 billion CAD).²⁹
- The number of conformity assessment bodies has not grown significantly in the last couple of years; however, annual revenue growth in the industry is approximately 10%.

²⁵ Frenz, Marion, and Ray Lambert. "The Economics of Accreditation." NCSLI Measure 9.2 (2014): 42-50.

²⁶ In the United Kingdom, Standard Industrial Classification of Economic Activities (SIC) is used to "classify business establishments and other standard units by the type of economic activity in which they are engaged". For more information, please refer to [Standard industrial classification of economic activities \(SIC\), 2018](#).

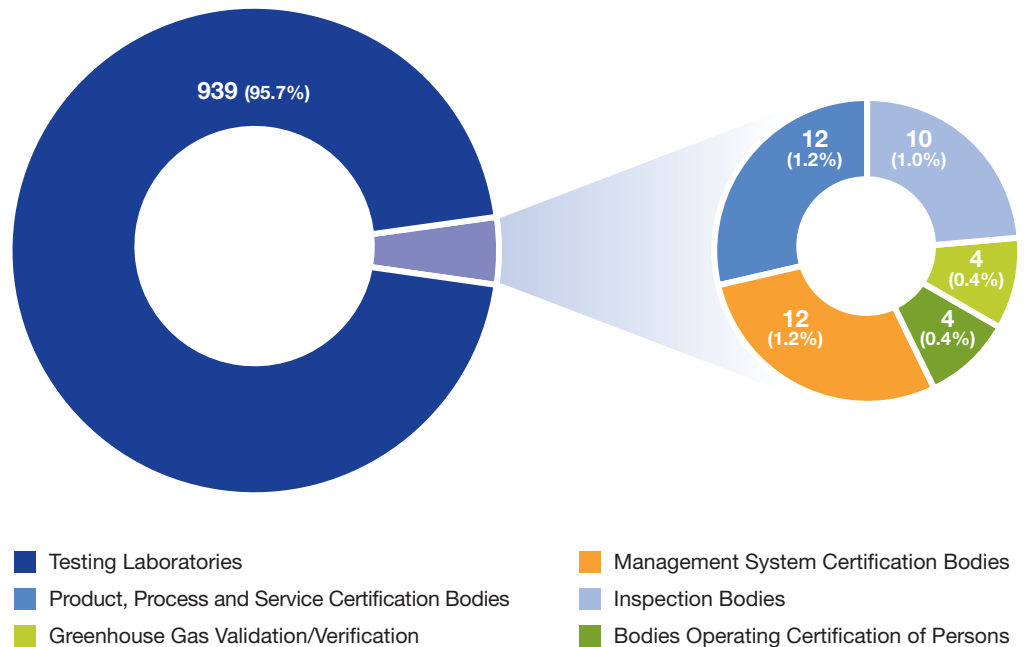
²⁷ The Canadian dollar value is converted based on the exchange rate of British Pound (GBP) to Canadian Dollar (CAD) in July, 2012, when the data of the UK study was collected.

²⁸ Technopolis Group Germany. *Economic Analysis of Conformity Assessment and Accreditation in Germany: Executive Summary of the Final Report*. [online]. August 2013. [Accessed June 8, 2017]. Available from: <http://ec.europa.eu/DocsRoom/documents/5258?locale=en>

²⁹ The Canadian dollar value is converted based on the average exchange rate of Euro (EUR) to Canadian Dollar (CAD) in the year of 2010, when the German study is based on.

To address the gap in available data on the conformity assessment sector, research by SCC identified 981 accredited Canadian (i.e. organizations with a physical presence in Canada) businesses that perform conformity assessment.³⁰ The list of these businesses was provided to Statistics Canada to obtain financial and employment data on the sector. Examining the 981 businesses, one sees that the Canadian conformity assessment industry has been dominated by testing laboratories (see Chart 1: Types of Accredited Canadian Businesses). Testing laboratories account for 95.7% of accredited businesses. These include medical testing laboratories, proficiency testing providers, testing and calibration laboratories in many fields such as agricultural, environmental, mineral, and petroleum testing.³¹ The rest of the market (4.3%) is accounted for by certification bodies certifying products, processes and services (1.2%), certification bodies certifying management systems (1.2%), inspection bodies (1.0%), certification bodies operating certification of persons (0.4%), and greenhouse gas validation/verification bodies (0.4%).

CHART 1: TYPES OF ACCREDITED CANADIAN BUSINESSES



Source: The Standards Council of Canada.

³⁰ Accredited businesses were identified from SCC's list of current and past accredited clients as well as from the Canadian Association for Laboratory Accreditation Inc.'s (CALA) publically available list of clients. CALA is a not-for-profit Canadian laboratory accreditation body that provides environmental testing, mineral testing, petroleum testing and food testing.

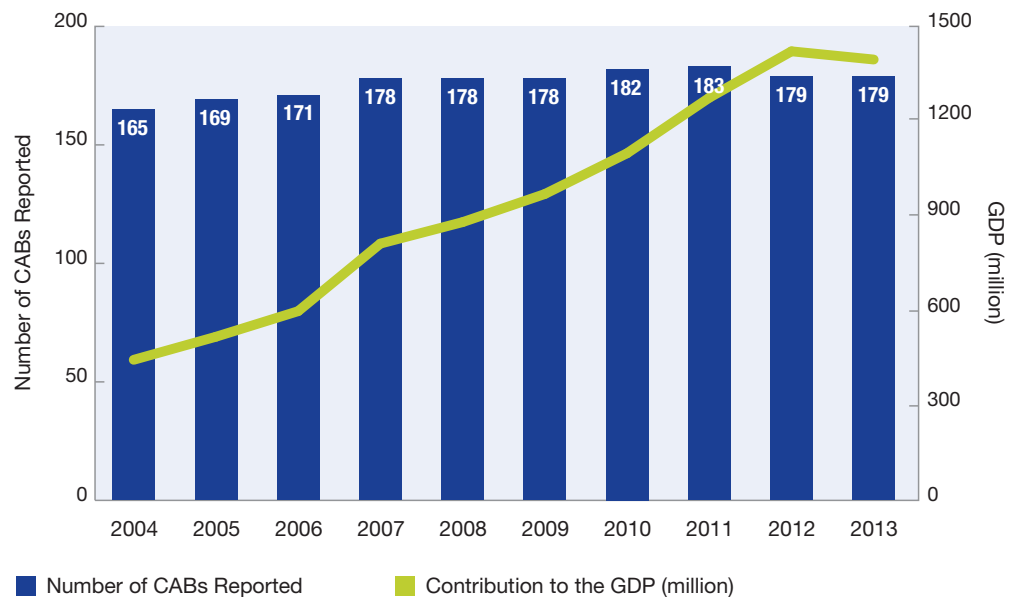
³¹ Good Laboratory Practices (GLP) facilities are excluded from here as they primarily pertain to ethical practices related to non-clinical laboratory studies.

Statistics Canada was tasked with matching the conformity assessment bodies (CABs) to the business register.³² Out of 981 CABs identified, Statistics Canada was able to find corresponding business register data for 378 (39%) businesses. In some cases, CABs are affiliates of larger enterprises; Statistics Canada was unable to isolate the conformity assessment component of these businesses. For example, Statistics Canada was not able to disaggregate the information for a testing laboratory that is part of a manufacturing plant sharing a physical location. Consequently, the industry overview provided below is based on the aggregated data of 39% of accredited CABs in Canada. For confidentiality reasons, Statistics Canada did not identify which companies were included in the data provided, which means that we cannot evaluate how representative the data is for the entire industry.³³

Size of the Industry

Based on the available data from Statistics Canada, between 2004 and 2013 (the latest year in which data is available) CABs contribution to national GDP tripled. Importantly, this increase was not tied to a similar increase in the number of companies with available data, which remained relatively stable during that timeframe (see Chart 2: Number of CABs Reported and their Contribution to the GDP). The rate and consistency of the growth in these businesses is impressive when one considers the economic downturn that occurred during this time period. In 2009 alone, the annual growth rate for these CABs was 10.1%, by comparison the growth rate for all Canadian businesses was -5.5%.

CHART 2: NUMBER OF CABs REPORTED AND THEIR CONTRIBUTION TO GDP, 2004 TO 2013



Source: Statistics Canada aggregate data.

³² Data linkage is done by extracting data from the National Accounts Longitudinal Microdata file (NALMF) through Statistics Canada's Business Register (BR).

³³ Statistics Canada is prohibited by law from releasing any information that could identify any person, business, or organization. Even though all financial data is anonymous, it is still possible to identify a business/organization based on other factors, such as geographic location, industry, size of revenue or employment. For example, it is difficult to identify a 45 year old woman with two kids, employed in banking and with an income of \$65,000 living in the Oshawa CMA, however, it isn't difficult to identify a motor vehicle manufacturer in the same area.

CHART 3: AVERAGE REVENUE AND EMPLOYMENT PER BUSINESS



Source: Statistics Canada aggregate data.

Growth in conformity assessment is also apparent from the revenue and employment of these businesses. Between 2004 and 2014 (the latest year data was available) with a relatively stable number of CBs and testing laboratories the average employment increased by 109%, while revenue increased by 59% (see Chart 3: Average Revenue and Employment per Business). In 2014, the average revenue of businesses in the conformity assessment industry was \$13.8 million, with an average employment of 114 full-time equivalent employees. By comparison, the average revenue for Canadian businesses operating in professional, scientific and technical services sectors (NAICS code – 54, which includes many conformity assessment businesses) was \$0.3 million and the average employment was 10 full-time equivalent employees in 2014.^{34,35} Given that the available data on conformity assessment is for businesses that are standalone establishments, it is reasonable to assume that the average revenue and employment for the entire sector may be slightly lower than reported here. However, we would still expect revenue and employment in conformity assessment to outperform the professional, scientific and technical services sectors given the magnitude of the differences.

34 The average revenue is calculated by dividing the operating revenue of businesses under NAICS code – 54 by the number of corresponding employer businesses (NAICS code – 54). The operating revenue is obtained from Statistics Canada, CANSIM [Table 187-0001](#), Quarterly balance sheet and income statement, by North American Industry Classification System (NAICS). Number of employer businesses is obtained from Statistics Canada, CANSIM [Table 552-0001](#), Canadian business patterns, location counts with employees, by employment size and North American Industry Classification System (NAICS), Canada and provinces, December 2014. Both tables are accessed at June 19, 2017.

35 The average employment is calculated by dividing the total employment of businesses under NAICS code – 54 by the total number of corresponding employer businesses (NAICS code – 54). Number of employer businesses is obtained from Statistics Canada, CANSIM [Table 552-0001](#), Canadian business patterns, location counts with employees, by employment size and North American Industry Classification System (NAICS), Canada and provinces, December 2014. Number of total employment is obtained from Statistics Canada, CANSIM [Table 282-0008](#), Labour force survey estimates (LFS), by North American Industry Classification System (NAICS), sex and age group annual (persons x 1,000). Both tables are accessed at June 19, 2017.

It has already been established that conformity assessment plays an important role in society. The analysis of the conformity assessment market also demonstrates that the industry plays a significant role in supporting Canada's economic growth and employment (for information on the impact of conformity assessment in global markets see textbox: Global Market Forecast). While there are concerns about the cost of duplicative conformity assessment requirements, at present we do not have the necessary data to quantify the cost for Canadian businesses and consumers.

This research is a critical first step towards understanding the cost of duplicative conformity assessment. By beginning to quantify the size of the market and historic growth rates we have established a baseline for future comparisons. Specifically, as provinces and territories make progress on the CFTA duplicative conformity assessment requirements will be reduced. Moving forward, if a reduction in duplicative conformity assessment corresponds to a decrease in the overall size of the conformity assessment market, this could suggest that duplicative requirements are helping to bolster the industry. However, if the industry continues to grow then presumably the cost of duplicative conformity assessments is not the main driver of growth in the industry. The following chapter will provide greater clarity on the current system of conformity assessment and how differing conformity assessment requirements are addressed by regulators, conformity assessment bodies and industry, based on a review of the literature and stakeholder interviews (see Appendix A: Stakeholder Interviews).

Global Market Forecast

Research conducted by Transparency Market Research found that in 2015 the global testing, inspection and certification market was valued at \$220 billion USD (equivalent to about \$281 billion CAD).³⁶ It is expected to reach \$346 billion USD by 2024, with a compound annual growth rate of 5.5%.³⁷ Comparing across sectors, it becomes apparent that the growth rate does differ by sector and geography.

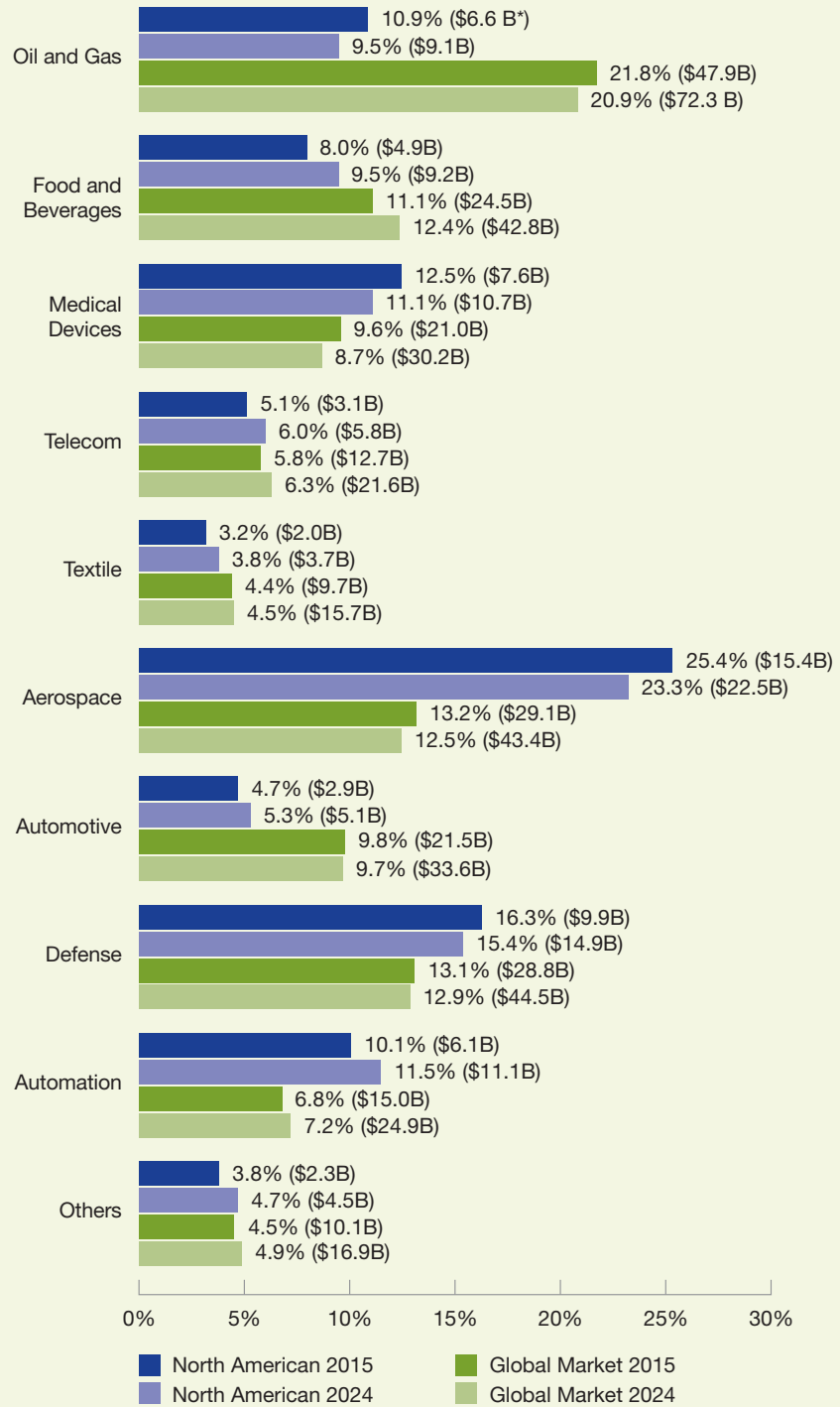
Examining the 10 sectors globally, oil and gas was the largest segment of the conformity assessment industry, accounting for 21.8% (or \$47.9 billion USD) of the market share in 2015. Oil and gas is expected to reach \$72.3 billion USD in 2024 with a compound annual growth rate of 5.1%. By comparison, in North America, aerospace accounted for the largest portion of the conformity assessment industry with a share of 25.4% (or US 15.4 billion). The industry is expected to grow to a valuation of \$22.5 billion USD in 2024.

With respect to the growth potential, excluding the "others" category, food and beverages are expected to be the fastest growing segment in the conformity assessment industry. The compound annual growth rate is projected at 7.7% for North America and 6.8% globally. These numbers, to some extent, could be an indication of the prevalence of standards in corresponding sectors. It could also be a reflection of the degree to which regulators rely on conformity assessment in specific sectors since companies engage in third party conformity assessment most often to meet regulatory requirements.

³⁶ The Canadian dollar value is converted based on the average exchange rate of US Dollars (USD) to Canadian Dollar (CAD) in the year of 2015.

³⁷ Transparency Market Research, *Testing, Inspection and Certification Market: Global Industry Analysis, Market Size, Share, Growth, Trends and Forecast* (New York: Transparency Market Research, 2016). The report has attributed the growth of global testing, inspection and certification market to three key drivers: 1) stricter regulations regarding health, quality, and environmental safety, 2) increased globalization that results in increased demand for conformity assessment, and 3) increasing demand for independent third parties for testing, inspection, and certification, especially in sectors such as energy, oil and gas, and transportation.

Chart 4: Forecast of the Testing, Inspection and Certification Market share, by sector, North American Market vs. Global Market, 2015 and 2024



Source: Transparency Market Research, *Testing, Inspection and Certification Market: Global Industry Analysis, Market Size, Share, Growth, Trends and Forecast* (New York: Transparency Market Research, 2016).

*Market value is in USD billion.



Conformity Assessment as a Technical Barrier to Internal Trade

In regulated industries, conformity assessment requirements can be a gatekeeper to market access. Consequently, before a company brings a new product to market, they need to determine if the product is regulated, and by what authority. This is often achieved by searching government regulations via government websites or the Canadian Legal Information Institute's (CanLII) website.³⁸ For products and services regulated solely by the federal government meeting those requirements ensures that a product can be distributed anywhere in Canada. For products and services regulated by provincial and territorial governments producers will need to verify requirements in every jurisdiction they intend to target.

It may seem reasonable to assume that conformity assessment procedures would not vary significantly across provinces and territories. Particularly since conformity assessment procedures are often related to health and safety and are designed to ensure interoperability. However, this cannot be taken for granted. As one federal regulator noted, 13 different jurisdictions with different mandates and priorities makes aligning regulatory requirements a challenge.³⁹ In developing regulations to fit their purposes there can be inter-jurisdictional variation in *what* is regulated and *how* it is regulated.

For producers determining what is referenced in each jurisdiction's regulations is the first step. When consulting regulatory requirements, producers may find that they are asked to demonstrate compliance to an older edition of a standard. These requirements may be disconcerting to producers who are developing products and services in line with the latest technology and scientific advancements.

³⁸ CanLII (Canadian Legal Information Institute) is "a virtual library of Canadian legal information" that "provides access to court judgments, tribunal decisions, statutes and regulations from all Canadian jurisdictions". It can be accessed through the following URL. <https://www.canlii.org/en/>

³⁹ Key informant interview, Federal regulator, construction, June 2017.



Governments also recognize that references to outdated standards in regulations are problematic. While he was Manitoba's Growth, Enterprise and Trade Minister, Cliff Cullen said "outdated references to standards that no longer meet their intended purpose deny industries the ability to achieve their full economic potential."⁴⁰ References to older versions of standards in regulations are a relatively common challenge, due to the efforts involved in developing regulations and standards. Both are labour intensive and time consuming endeavours. They require input from experts and public review. As a result, the timing between when a regulation and a relevant standard are published may not align, increasing the likelihood of outdated standards in regulations.

Because regulators are aware of the challenges that outdated standards can pose, there are times when the newest version of a referenced standard will be accepted. Consequently, if a producer determines that regulators are referencing an outdated standard, the producer may want to consult the regulator to determine if the latest version of the standard is also accepted. While this added layer of verification can be frustrating to producers it may reduce requirements for duplicative assessments in cases where jurisdictions reference different editions of the same standard. Only once the requirements for each jurisdiction have been firmly verified can producers determine with certainty whether they will experience technical barriers to internal trade.

How Conformity Assessment can become a Barrier to Internal Trade

The requirement to demonstrate conformity is not in itself a barrier to trade. However, discrepancies in what is required across jurisdictions can be an obstacle to internal trade for some producers. Discrepancies can be categorized into three broad types:

- Variability in the use of standards within equivalent regulations,
- References to different standards in equivalent regulations, and
- References to different editions of the same standard in equivalent regulations.

Variability in the use of Standards within Equivalent Regulations

Provinces and territories differ in the degree to which they use standards and conformity assessment procedures in regulations. For example, in provincial and territorial pressure vessel regulations, the number of standards referenced in comparable regulations ranges from 2 to 60 across jurisdictions. Standards and conformity assessment is *one* tool that regulators *can* use, not surprisingly regulators take different approaches to referencing standards both within and across jurisdictions.

A producer may find that some jurisdictions require demonstration of conformity to a specific standard while other jurisdictions do not. For jurisdictions that do not explicitly specify a standard, the producer may be required to conform to federal regulations, if they exist. While there may be readily apparent reasons for discrepancies in the use of conformity assessment procedures across jurisdictions (see for example Case Study: Renewable Fuels for Transportation on page 24), these differences can still be a cause of uncertainty for producers.

40 Manitoba. *Province Commits to Addressing Outdated Standards in Regulations as Part of Red Tape Awareness Week*. [online]. Manitoba News Release: January 26, 2017. [Accessed September 15, 2017]. Available from: <http://news.gov.mb.ca/news/index.html?item=40532>

Alternatively, in cases where standards are not referenced, a producer may be required to demonstrate conformity to specifications that are delineated within a regulation. When regulations explicitly spell out the requirements, rather than relying on established standards, this increases the variability of the specifications. It also increases the challenge for producers aiming to demonstrate compliance to functionally similar, yet practically distinct requirements.

When standards are available, and conditions warrant (e.g. there's no reason a specific standard would not apply in a given jurisdiction), their consistent application is advantageous for internal trade. Standards in regulations provide clarity of requirements for producers that trade inter-jurisdictionally.

References to Different Standards in Equivalent Regulations

When regulators decide to reference standards in regulations, there are often several options available to them. While a suitable Canadian standard might exist, there may also be another standard, developed outside of our borders, which meets the same need. In support of the World Trade Organization Technical Barriers to Trade Agreement, Canadian regulators are required to consider using international standards to avoid creating unnecessary obstacles to trade.⁴¹ However, occasions do arise when regulators, for various reasons, choose to reference different standards (see for example Case Study: Renewable Fuels for Transportation on page 24).

Regulators' references to different standards necessitate the use of different conformity assessment procedures. A respondent from a conformity assessment industry indicated that this can be worrisome for their clients. When a producer learns that requirements differ across provinces the most pressing concern is that the product will need to be redesigned.⁴² Fortunately, a representative from a manufacturing association indicated that members of the association had not had to redesign products to ensure compliance with different standards, although he could not speak to other industries.⁴³ While redesign does not appear to be a common outcome resulting from references to different standards, companies will still need to demonstrate conformity to at least two standards, which will have implications for cost and time to market.

In cases where producers need to demonstrate conformity to different standards, regulators may accept alternative standards. The Government of Canada's Regulatory Policy states that "positive consideration must be given to parties proposing equivalent means to conform with regulatory requirements. If proposals are not accepted, the rationale for doing so must be documented."⁴⁴ This rule applies not only to alternative standards; there are also cases in which a product or service has been certified by an accredited conformity assessment body other than what is specified in regulation. In such cases, SCC's MLAs and MRAs through ILAC and IAF, for example, give SCC the ability to write letters of recognition, acknowledging the equivalency of their certification. Regulators will, at their discretion, accept these letters as validation for exceptions to policy where they would otherwise mandate certification by an SCC-accredited organization.

41 Global Affairs Canada. Technical Barriers to Trade. [online]. 2013. [Accessed September 28, 2017]. Available from: <http://www.international.gc.ca/trade-agreements-accords-commerciaux/topics-domaines/goods-produits/barriers.aspx?lang=eng>

42 Key informant interview, conformity assessment body, June 2017.

43 Key informant interview, manufacturing association, June 2017.

44 Treasury Board of Canada Secretariat. "Government of Canada Regulatory Policy." (1995)

Gas-fired appliances in Alberta represent one instance where “equivalent” standards would not be suitable. Alberta has communities at some of the highest elevation in Canada. This creates a very unique environment for gas-fired appliances to operate in, since the amount of oxygen influences performance.⁴⁵ As a result, the conformity assessment procedures for gas-fired appliances supplied to Alberta can be very different from other jurisdictions. Regulators in Alberta often need to supplement standards referenced in regulations with additional information (e.g. code of practice, variance) to ensure the utility of the standard in a specific environment.⁴⁶ While inter-jurisdictional differences in the application of standards can pose a trade barrier, as this example highlights, the health and safety component of standards requires that discrepant requirements are examined and at times individually addressed.

References to Different Editions of the Same Standard in Equivalent Regulations

Even when regulators from different jurisdictions reference the same standard, they may use different editions. Standards are regularly updated to reflect advancements in the field. This has been highlighted as one of the benefits of referencing standards in regulations.⁴⁷ However, it can also be a challenge for regulators to ensure the latest edition of a standard is referenced in regulations.⁴⁸ As previously noted, if a regulation specifies an older edition of a standard, a producer may want to confirm whether they must demonstrate conformity to the older standard or whether the newer edition would also be accepted.

Our interviewees differed in their perception of the degree to which newer editions of a standard are accepted across jurisdictions. One provincial regulator noted that in his experience the newer edition was almost always accepted because it incorporates updates and improvements through revision and in response to new technology.⁴⁹ However, he acknowledged that there may be technical reasons why a regulator prefers the older edition. A representative from a conformity assessment body noted that training can also influence this decision. Based on his experience, provincial regulators may prefer older editions of a standard at times because their safety officers are well trained in the older edition and have not yet been trained on the latest edition.⁵⁰ Training can be a significant challenge both due to the cost and time involved.⁵¹

Whether an older edition of a standard is deliberately referenced, or continues to be referenced due to challenges in the regulatory environment (e.g. training, regulatory cycle, etc.), this can be an issue for manufacturers intra and inter-jurisdictionally. In these cases, producers must take the extra step of determining what the regulator really intends in each jurisdiction. Depending on the response from regulators, they may need to obtain multiple certifications.

45 STANDATA. “[Appliances and equipment require special certification for installation at high altitude.](#)” (2016) Government of Alberta: Gas Safety Information Bulletin.

46 Key informant interview, Provincial regulator, oil and gas sector, June 2017.

47 Key informant interview, Federal regulator, construction, June 2017.

48 If a regulator uses an “undated” or “ambulatory” reference to a standard, the reference automatically refers to the latest edition of the standard. In jurisdictions where this is permissible, ambulatory references decrease the incidence of references to outdated standards in regulations.

49 Key informant interview, Provincial regulator, oil and gas sector, June 2017.

50 Key informant interview, conformity assessment body, energy efficiency, June 2017.

51 Key informant interview, Provincial regulator, construction, June 2017.

The Impact of Misalignment

Regardless of the reasons for misalignment in provincial and territorial regulations, it poses an additional burden to businesses trying to trade internally. Although the cost of duplicate certification might only account for a small proportion of the whole production cost, the uncertainty and time commitment involved could act as a deterrent to introducing new products in new markets. Inconsistent requirements could be particularly problematic when timing is critical for a new product to obtain consumer acceptance and market share.

In addition, a representative from an industry association indicated that various certification requirements from provinces and territories could also interfere with the efficiency of the distribution network. Warehouses or distribution centers are usually built in locations to maximize their efficiency and minimize the cost of delivery. The additional labelling or testing requirements from different provinces could complicate the logistics chain and thus reduce the flexibility and efficiency of the distribution network.⁵²

While the actual cost of duplicative conformity assessment has yet to be estimated, due to a lack of data, an examination of the literature (see for example, ISO, Building Trust: The Conformity Assessment Toolbox) and our interviews with relevant stakeholders confirms that this is a salient issue to all parties. Differing requirements across jurisdictions can increase costs and decrease competitiveness. In the case study that follows, we illustrate how differences in the application of conformity assessment procedures can create barriers for the inter-jurisdictional distribution and sale of renewable fuels.

Case Study: Renewable Fuels for Transportation

As a key initiative to support Canada's commitment to reduce greenhouse gas (GHG) emissions, the federal government and five provincial governments have regulated the use of renewable fuels⁵³ for gasoline, as well as diesel fuel and heating distillate oil.⁵⁴ There is evidence that the regulations are having the intended effect. In 2014, it was estimated that regulations in renewable fuel and low-carbon fuel reduced annual carbon dioxide emissions by 4.3 mega tonnes (MT), the effect is comparable to decreasing the number of cars on the road by one million.⁵⁵ Additionally, Canadian renewable fuel plants are estimated to add \$1.47 billion to the economy annually.⁵⁶

⁵² Key informant interview, industry association, energy efficiency, June 2017.

⁵³ Renewable fuels refer to fuels that are "produced from one or more of the listed renewable fuel feedstocks", comply with "the maximum content of non-renewable substances allowed", or otherwise meet "the definition of renewable fuel as set out in the Regulations". (Environment and Climate Change Canada. *Federal Renewable Fuels Regulations: Biodiesel Suppliers*. [online]. 2017. [Accessed September 15, 2017]. Available from: https://www.ec.gc.ca/energie-energy/default.asp?lang=En&n=270244ED-1#toc0_0)

⁵⁴ Specialty fuels used in aircraft, competition vehicles, military combat equipment, unvented space heaters, wick-fed illuminating lamps, flue-connected stoves heaters and for scientific research, production of chemicals, export and space heating purposes are exempted from the requirements. (*Renewable Fuels Regulations*. SOR/2010-189. s. 6, (4).)

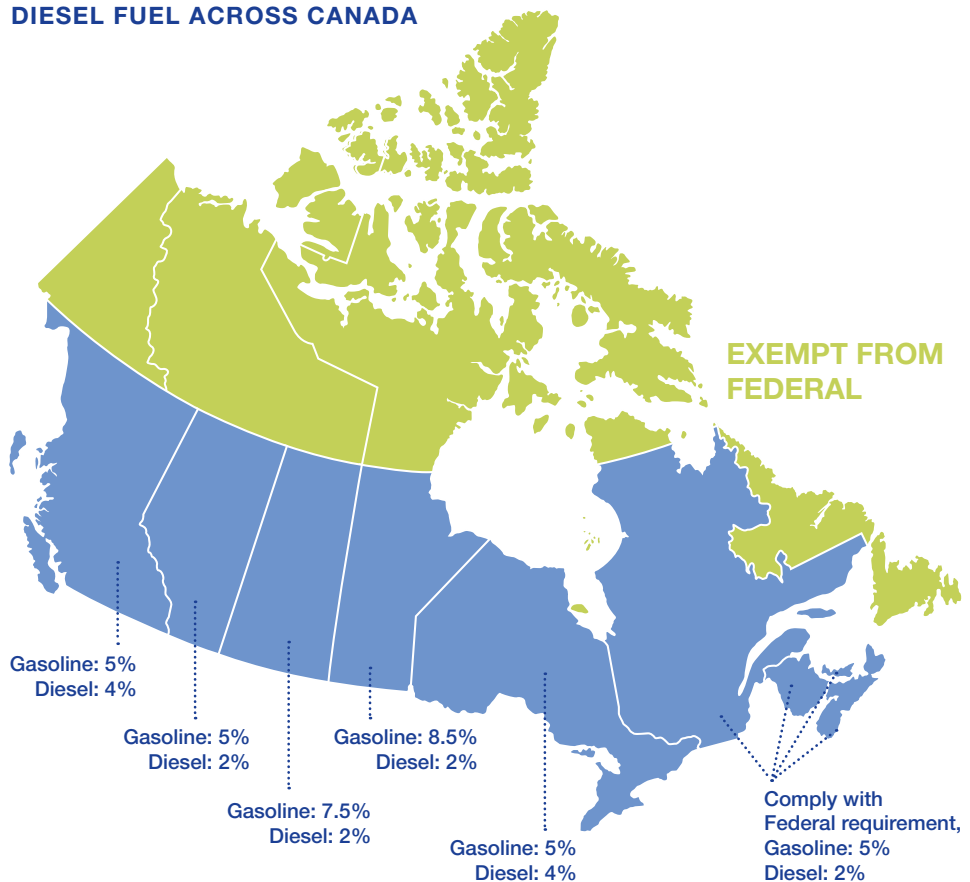
⁵⁵ Moorhouse, Jeremy and Michael Wolinetz. *Biofuels in Canada: Tracking Progress in Tackling Greenhouse Gas Emissions from Transportation Fuels – Canadian Biofuel Mandates, Volumes, Feedstocks and Avoided Greenhouse Gas Emissions*. [online]. 2016. [Accessed June 22, 2017]. Available from: <http://cleanenergycanada.org/wp-content/uploads/2016/03/FINAL-Report-Biofuel-Policy-Review-March-2016.pdf>

⁵⁶ Doyletech Corporation. *Total Economic Impact Assessment of Biofuels Plants in Canada*. [online]. 2013. [Accessed at June 9, 2017]. Available from: http://realneo.us/system/files/Doyletech_Total_Economic_Impact_of_Biofuels_Plants.pdf

Federal regulations specify that all petroleum fuel producers, importers and suppliers must include at least 5% renewable content (mostly ethanol) in gasoline and 2% renewable content (mostly biodiesel) in diesel fuel and heating distillate oil.⁵⁷ However, gasoline and diesel fuel in Yukon, the Northwest Territories, Nunavut, Newfoundland and Labrador, and the part of Quebec that is north of 60° latitude are exempt from the federal regulation (see Figure 3: Blending Requirements for Gasoline and Diesel Fuel across Canada).⁵⁸ This is a result of various factors, including poor performance of fuels with renewable content under extreme cold-weather, limited supply options and logistical infrastructure for fuel distribution, and factors related to availability of renewable fuel and security of supply in these regions.^{59,60}

At the provincial level, Alberta, British Columbia, Ontario, Manitoba, and Saskatchewan require renewable fuel content that is equal to or higher than what is federally regulated (see Figure 3: Blending Requirements for Gasoline and Diesel Fuel across Canada). Table 1 shows the list of standards that are referenced in federal or provincial regulations, the products they test, the latest edition of these standards and the editions that are referenced in respective regulations.

FIGURE 3: BLENDING REQUIREMENTS FOR GASOLINE AND DIESEL FUEL ACROSS CANADA



⁵⁷ *Renewable Fuels Regulations*. SOR/2010-189. s. 5, (1), (2).

⁵⁸ *Renewable Fuels Regulations*. SOR/2010-189. s. 6, (4).

⁵⁹ Environment and Climate Change Canada. *Revised Questions & Answers on the Federal Renewable Fuels Regulations*. [online]. 2015. [Accessed June 12, 2017]. Available from: <https://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=052B3FDB-1&offset=3&toc=show>

⁶⁰ Ethanol-blended gasoline "cannot be transported by pipeline. Ethanol can be shipped by railcar or truck but must be blended at the terminal for those locations supplied by marine or pipeline. Dedicated tanks are required to store the ethanol and the gasoline-blending component with which it will be mixed. The handling of ethanol-blended fuels also requires modifications to other aspects of the fuel distribution system, including trucks, retail storage tanks and service station pumps." (Natural Resources Canada. *Petroleum Products Distribution Network*. [online]. 2016. [Accessed June 12, 2017]. Available from: <http://www.nrcan.gc.ca/energy/crude-petroleum/5897>)

TABLE 1: STANDARDS REFERENCED IN REGULATIONS FOR THE TESTING ON GASOLINE AND DIESEL FUEL

Renewable Fuel Products	Standard Number	Latest Edition	Federal ⁶¹	AB ⁶²	BC ⁶³	MB ^{64,65}	ON ^{66,67}	QC ⁶⁸
Gasoline	CAN/CGSB-3.5	2016	2011	-	-	Undated*	-	2011
Gasoline (E1-E10)	CAN/CGSB-3.511	2016	-	Undated*	-	Undated*	2016	2011
Gasoline (E50-E85)	CAN/CGSB-3.512	2013	-	-	-	-	2013	2013
	ASTM D5798	2015	-	-	-	2007	-	-
Denatured fuel ethanol	CAN/CGSB-3.516	2017	-	-	-	-	2011	2011
	ASTM D4806	2016	-	Undated*	-	2007	2016	-
Diesel fuel	CAN/CGSB-3.517	2015	-	-	-	-	2013	2013
	ASTM D975	2017	-	-	-	-	2014	-
Diesel fuel (B1-B5)	CAN/CGSB-3.520	2015	-	-	-	-	2011	2011
Diesel Fuel (B6-B20)	CAN/CGSB-3.522	2015	-	-	-	-	2011	2011
	ASTM D7467	2017	-	-	-	-	2013	-
Biodiesel (B100)	CAN/CGSB-3.524	2014	-	-	2011	-	2011	2014
	ASTM D6751	2015	-	Undated*	2015	-	2012	-

Note: For provinces or jurisdictions that are not listed in the above table, Saskatchewan does not reference any standards in their regulations on ethanol fuels and renewable diesel; New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Labrador, Yukon, Northwest Territories and Nunavut do not have provincial-specific renewable fuel regulations.

*: The referenced standard is undated, in this case the latest version is intended.

With respect to the three ways that conformity assessment requirements can become a barrier to trade we find evidence of all three:

- **Variability in the use of standards within equivalent regulations:** Among 13 provinces and territories, only five of them have relevant regulations on renewable fuels. The rest of the jurisdictions are assumed to comply with the federal regulations. Producers would need to be aware that requirements are specified by two levels of government. They would also need to confirm how they must demonstrate conformity, whether through certification to a specific standard or by meeting requirements delineated in the regulation.

61 [Renewable Fuels Regulations](#). SOR/2010-189. s. 1, (1).

62 [Renewable Fuels Standard Regulation](#). Alta Reg 29/2010. c. 1, s. 3, (1), (2).

63 [Renewable and Low Carbon Fuel Requirements Regulation](#). BC Reg 394/2008. s. 2.

64 [Ethanol General Regulation](#). Man Reg 165/2007. Accessed at June 7, 2017. s. 4, (1), (2), (3), (4). S. 9, (1).

65 [Biodiesel Mandate For Diesel Fuel Regulation](#). Man Reg 147/2009. s. 3, (2).

66 [Ethanol in Gasoline](#). O Reg 535/05. s. 2, (1), (2).

67 [Greener Diesel - Renewable Fuel Content Requirements for Petroleum Diesel Fuel](#). O Reg 97/14. c. 2, s. 3, (1).

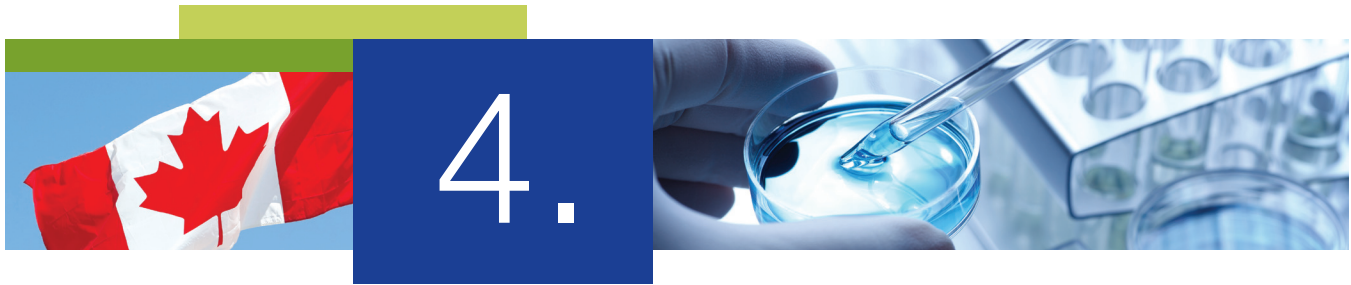
68 [Petroleum Products Regulation](#), CQLR c P-30.01, r 2. s. 2-17.

- **References to different standards in equivalent regulations:** With respect to denatured fuel ethanol, Manitoba requires conformity to ASTM D4806, while Quebec requires conformity to CAN/CGSB-3.516. Ontario allows producers to demonstrate conformity to either the ASTM or CGSB standard. Depending on their distribution, producers would need to demonstrate compliance to two different standards related to “denatured fuel ethanol for use in automotive spark ignition fuels.” While Ontario considers the two standards to be equivalent, other regulators have not deemed them equivalent in their regulations resulting in potentially duplicative testing.
- **References to different editions of the same standards in equivalent regulations:** Even when provinces list the same standards, there can be discrepancies in the editions, which may or may not be enforced by regulators. Specifically, Manitoba requires producers to demonstrate conformity to a 2007 standard, while Ontario wants conformity to the 2016 version of the same standard. A producer may need to demonstrate conformity to two versions of the same standard in order to distribute fuel in Manitoba and Ontario.

While ethanol regulations do allow for some flexibility, specifically these regulations all allow compliance on the aggregate amount of renewable fuel (ethanol or biodiesel) over each compliance period (usually refers to each calendar year). This gives fuel suppliers the flexibility to blend various amounts of renewable fuel into conventional gasoline and diesel as long as the overall percentage of renewable content in all fuel classes meet the federal or provincial requirement (whichever is higher) for the compliance period. This enables fuel suppliers to pick the combination of renewable fuel products and markets best suited to their businesses.⁶⁹ However, fuel suppliers will still need to monitor what is going where and adjust accordingly across jurisdictions, which is even more complex when fuel products are required to be certified to different standards or different editions of the standards in different jurisdictions. Presumably, this places an additional burden on those companies operating in multiple provinces and territories, in terms of the time and cost for multiple certifications, as well as staff time to coordinate the testing and appropriate distribution of fuel.

⁶⁹ Moorhouse, Jeremy and Michael Wolinetz.





Conclusions

In 1985, the Royal Commission on the Economic Union and Development Prospects for Canada (also known as the Macdonald Commission) recommended a process to address internal trade barriers in Canada.⁷⁰ Since then, the provinces and territories have committed to reducing internal trade barriers; first, through the Agreement on Internal Trade (AIT), and now with the Canadian Free Trade Agreement (CFTA).⁷¹ Commitment to the CFTA is an indication that provinces and territories are determined to resolve this issue.

With respect to conformity assessment as an internal trade barrier, discrepancies in requirements across provinces and territories are compounded by uncertainty around requirements within provinces and territories. Consequently, to facilitate internal trade, conformity assessment requirements need to be addressed in two ways. First, there needs to be absolute clarity of requirements in each jurisdiction. Specifically, is what's referenced in regulations actually accepted? Second, conformity assessment requirements need to be harmonized across jurisdictions, where appropriate. Due to their technical nature and the health and safety component, any changes in conformity assessment requirements need to account for context, they can't simply be unilaterally eliminated (see for example Blending Requirements for Gasoline and Diesel Fuel across Canada case study on page 24). Despite the complexity of the issue, progress is being made on both of these fronts.

Provincial and territorial regulators frequently field questions on conformity assessment requirements. These questions are often highly specific and very technical. Many such questions are dealt with on a case-by-case basis. The challenge with this is that the resolutions are largely undocumented⁷² and, as a result, other producers facing a similar issue may be unaware of accepted alternative conformity assessment solutions.

Depending on the frequency of requests for different conformity assessment requirements, regulators can issue umbrella solutions. Regulatory amendments can be adopted; however, this process is time-consuming and may not match the speed of business.⁷³ The advantage is that notifications of regulatory amendments are publically available, which increases certainty for producers.

70 Standing Senate Committee on Banking, Trade and Commerce. p. 23.

71 The new Canadian Free Trade Agreement (CFTA) came into force on July 1st, 2017. For more details, please visit the following URL: <https://www.cfta-alec.ca/canadian-free-trade-agreement/>.

72 Key Informant Interview, conformity assessment body, June 2017.

73 Key Informant Interview, Provincial regulator, oil & gas, June 2017.

SCC is Actively Helping to Reduce Technical Barriers to Internal Trade

Clarity of provincial/territorial requirements is essential to ensure alignment across provinces. SCC is continuing to work with provincial and territorial regulators to assist in the identification and alignment of standards and conformity assessment requirements. SCC is completing an inventory of standards referenced in provincial and territorial regulations, which is a critical first step toward achieving the goal of “one standard, one test, one certification accepted everywhere.” Through these inventories, regulators are well positioned to address gaps and inconsistencies.

In an effort to promote alignment, representative provincial and territorial regulators meet on a regular basis as part of the National Public Safety Advisory Committee (NPSAC), Provincial-Territorial Advisory Committee (PTAC), and Provincial Territorial Policy Advisory Committee on Codes (PTPACC). SCC works with these committees to support efforts to align standards, conformity assessment practices and regulations across Canada. A provincial regulator credited these committees, the federal government and SCC with helping to advance the alignment of regulatory requirements across jurisdictions.⁷⁴ The increased communication across jurisdictions and the identification of common priorities continues to be essential to reducing internal trade barriers.⁷⁵

While more work remains to be done, based on this research it is apparent that the use of standards and conformity assessment are an important means of reducing internal trade barriers. The nature of standards development, which relies on a consensus approach involving multiple stakeholders, ensures broader applicability and reduces the variability that arises when jurisdictions establish their own unique requirements. The consistent application of updated standards and conformity assessment procedures helps to reduce trade barriers, while safeguarding Canadians and Canada.

The Growing Value of Conformity Assessment in Canada

Given the value of third-party conformity assessment, it is not surprising to see evidence of the growth in its application and market share. Regulators, producers, and consumers trust in the extra credibility added by accreditation to protect health, safety and product quality. However, as discussed in chapter two, there is a significant need to improve data in this sector to accurately quantify the extent to which misaligning conformity assessment requirements across jurisdictions are a barrier to internal trade. More comprehensive data is necessary to determine the value that aligning conformity assessment procedures could bring to the economy and consumers.

⁷⁴ Key Informant Interview, Provincial regulator, oil & gas, June 2017.

⁷⁵ Key informant interview, Federal regulator, construction, June 2017.

Previous research has shown the economic contribution of standards to the Canadian economy.⁷⁶ Specifically, growth in the number of Canadian standards between 1981 and 2014 was associated with an increase of \$91 billion in real GDP over that time span. In 2014 alone, standards contributed nearly \$3 billion of the \$39 billion increase in Canada's real GDP. Further research is needed to quantify the contributions of conformity assessment to the Canadian economy. Given that conformity assessment is the practice of determining whether a product, service or system meets the requirements of a particular standard, one would assume its contribution to the Canadian economy would be significant. By determining the value of standards and conformity assessment to the Canadian economy we will be able to fully appreciate the importance of the whole standardization system.

As research continues to examine the role of conformity assessment in Canada, attention must be paid to the expanded application of conformity assessment, both in terms of new innovative products and services. To date, conformity assessment is largely directed towards products. However, the service sector, including the sharing economy, is a significant proportion of the Canadian economy, representing 70.8 per cent of GDP in 2016.⁷⁷ Standards and conformity assessment are more frequently being developed in this sector and it will be important to monitor and assess the impact of these conformity assessment procedures on internal trade.

The wide-ranging effects of referencing standards and conformity assessment procedures in regulation are reflected in Canadians' quality of life. Canadians are fortunate to live in a country within which most products, services and systems have undergone extensive evaluation. These evaluations ensure consumer safety, as well as product and service quality, compatibility, efficiency and effectiveness. From the qualification of medical professionals to the soundness of structural design, the labels on canned goods to the materials used in children's toys, countless regulations depend on third party assurance of product and service quality and consistency. Together, standards and conformity assessment affect virtually every aspect of Canadian society, and are vital to preserving and enhancing a standard of living that is well above the global average. By thoughtfully aligning conformity assessment requirements across provinces and territories, Canada will strengthen the economy while safeguarding the health and safety of Canadians.

⁷⁶ The Conference Board of Canada. *Getting Aligned. How Adopting Standards Affects Canada's Productivity and Growth*. [online]. Standards Council of Canada: October 2015. [Accessed September 28]. Available from: <https://www.scc.ca/en/about-scc/publications/general/getting-aligned-how-adopting-standards-affects-canadas-productivity-and-growth>

⁷⁷ Statistics Canada. *Gross Domestic Product at Basic Prices, by Industry*. [online]. 2017. [Accessed August 2, 2017]. Available from: <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/econ41-eng.htm>





Appendix A: Stakeholder Interviews

To better understand the effects of conformity assessment requirements on internal trade, SCC conducted interviews with relevant stakeholders. Interviews were scheduled between June 12th and June 30th, 2017. Among the interviewees were representatives from conformity assessment bodies, standard development organizations, industry associations, and both federal and provincial regulators (see Table 2 for the distribution of interviewees). The purpose of the interviews was to provide further clarity on the practical application of conformity assessment requirements from various perspectives, and their implications for internal trade. It is important to note that conformity assessment procedures are highly specific, while this report is intended to give a broad overview; there are times when a specific industry is highlighted, however caution needs to be applied in generalizing those statements. As a result, whenever an interviewee is referenced, we identify the type of organization and sector they represent.

TABLE 2: DISTRIBUTION OF INTERVIEWEES BY TYPES OF ORGANIZATION

Types of Organization Interviewed	Number of Interviews conducted
Conformity assessment bodies	3
Standard Development Organizations	2
Industry Associations	2
Federal Regulators	3
Provincial/Territorial Regulators	3



Appendix B: Acronyms

AIT (Agreement on Internal Trade) – A comprehensive agreement came into force on July 1, 1995 to “eliminate barriers to trade, investment and mobility within Canada.”⁷⁸ It was replaced by the Canadian Free Trade Agreement (CFTA) on July 1, 2017.

CAB (Conformity Assessment Body) – An independent body that audits and issues a written assurance (i.e. certificate) confirming that a product, service, system, person or process meets specific requirements. CABs are usually accredited by a recognized accreditation body (e.g. SCC, ANSI).

CALA (Canadian Association for Laboratory Accreditation) – “An internationally recognized not-for-profit accreditation body serving both public and private sector testing laboratories in Canada and abroad.”⁷⁹

CanLII (Canadian Legal Information Institute) – The databases on CanLII’s web site provide free online access to a significant number of federal and provincial statutes, regulations, legislation and case law. The site makes it possible to perform global searches of all the texts, and to access Canadian Acts and regulations. It can be accessed at <https://www.canlii.org/en/>.

CBSA (Canada Border Services Agency) – A Canadian federal agency responsible for border enforcement, immigration enforcement and customs services.

CFTA (Canadian Free Trade Agreement) – An intergovernmental trade agreement with an objective “to reduce and eliminate, to the extent possible, barriers to the free movement of persons, goods, services, and investments within Canada and to establish an open efficient, and stable domestic market.”⁸⁰ It came into force on July 1st, 2017.

GDP (Gross Domestic Product) – An indicator that measures the total market value of all final goods and services produced over a specific time period.

GHG (Greenhouse Gas) – Greenhouse Gas estimated in Canada’s national inventory includes “carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulphur hexafluoride (SF₆), nitrogen trifluoride (F₃N), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs)”.⁸¹

GLP (Good Laboratory Practices) – The guidelines for Good Laboratory Practice were developed by the Organization for Economic Co-operation and Development (OECD) with the goal of ensuring high quality and reliable test data on the safety of industrial chemical substances while harmonizing testing procedures between Member nations.

IAF (International Accreditation Forum) – The world association of conformity assessment accreditation bodies and others that are interested in conformity assessment in the fields of management systems, products, services, personnel and similar programs. Its primary function is to develop a single worldwide program for accreditation. The SCC is an active member of IAF and a signatory to a number of the IAF’s multilateral recognition arrangements (MLAs).

IEC (International Electrotechnical Commission) – The International Electrotechnical Commission (IEC) prepares and publishes international standards for electrical, electronic and related technologies. Its members, promote the use of international standards as a means of reducing barriers to international trade, and encourage international co-operation on all questions of electrotechnical standards and conformity assessment. The Standards Council of Canada sponsors the Canadian National Committee of the International Electrotechnical Commission (CNC/IEC), which is the Canadian member body at IEC. CNC/IEC is an SCC advisory committee.

⁷⁸ Industry Canada.

⁷⁹ CALA. About Us. [online]. [Accessed August 16, 2017]. Available from: <http://www.cala.ca/aboutus.html>

⁸⁰ Internal Trade Secretariat. p. 3.

⁸¹ Environment and Climate Change Canada. About Canada’s Greenhouse Gas Inventory. [online]. 2017. [Accessed September 15, 2017]. Available from: <https://www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=3E38F6D3-1>

IIOC (Independent International Organization for Certification) – is a trade body comprised of international certification bodies to represent their perspective on issues pertaining to management system certification.

ILAC (International Laboratory Accreditation Cooperation) – An international forum, founded in 1996, to promote cooperation between global accreditation models. The SCC is a member of ILAC.

IQNet (The International Certification Network) – A network of international certification bodies.

ISED (Innovation, Science and Economic Development Canada) – A federal government department mandated to increase global trade and build a fair competitive marketplace through support for scientific research, setting telecommunications policy and other activities. It was formerly known as Industry Canada.

ISO (International Organization for Standardization) – The International Organization for Standardization is the largest standards development organization in the world with members representing more than 145 countries worldwide. The Standards Council of Canada is the Canadian member body at ISO.

MSR (Monitoring Standards in Regulations) – A database developed by SCC to identify and track references to standards across Canada.

NAICS (North American Industry Classification System) – An industry classification system developed jointly by Canada, the US, and Mexico for the purpose of collecting, analyzing, and publishing statistical data related to the economy.

NPSAC (National Public Safety Advisory Committee) – The [National Public Safety Advisory Committee](#) plays a distinct role in the development and application of the codes and standards used in Canada. It is the only national body working at the policy level to promote the common adoption and consistent administration of safety codes and standards for the following discipline areas: elevating devices, passenger ropeways (i.e.: ski lifts), amusement rides; fuel (i.e.: oil, natural gas and propane), boilers and pressure vessels, and electrical safety.

PTAC (Provincial-Territorial Advisory Committee) – The Provincial Territorial Advisory Committee looks at standardization issues from the perspective of the provincial and territorial governments. It promotes cooperation between the provinces, territories and the Standards Council, as well as their participation in the national standardization network. Members are delegates appointed by the respective governments.

PTPACC (Provincial Territorial Policy Advisory Committee on Codes) – A committee that is overseen by the National Research Council of Canada and focuses specifically on policy and administrative matters related to the building, fire and, plumbing codes and standards.

SCC (Standards Council of Canada) – The national accreditation body for Canada with a mandate to promote efficient and effective standardization in Canada.

SDO (standard development organization) – Standards Development Organizations are bodies that specialize in the development of standards through the process of consensus and participate in the regional and international standardization process.

WTO (World Trade Organization) – The World Trade Organization (WTO) is the international body that oversees trade between nations. It facilitates global trade between its 150 members by administering trade agreements, giving technical assistance to developing countries, and in general, fostering international cooperation through trade-related activities. The WTO encourages standardization through its Agreement on Technical Barriers to Trade (TBT) which requires that national notification authorities and enquiry points be established.

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