

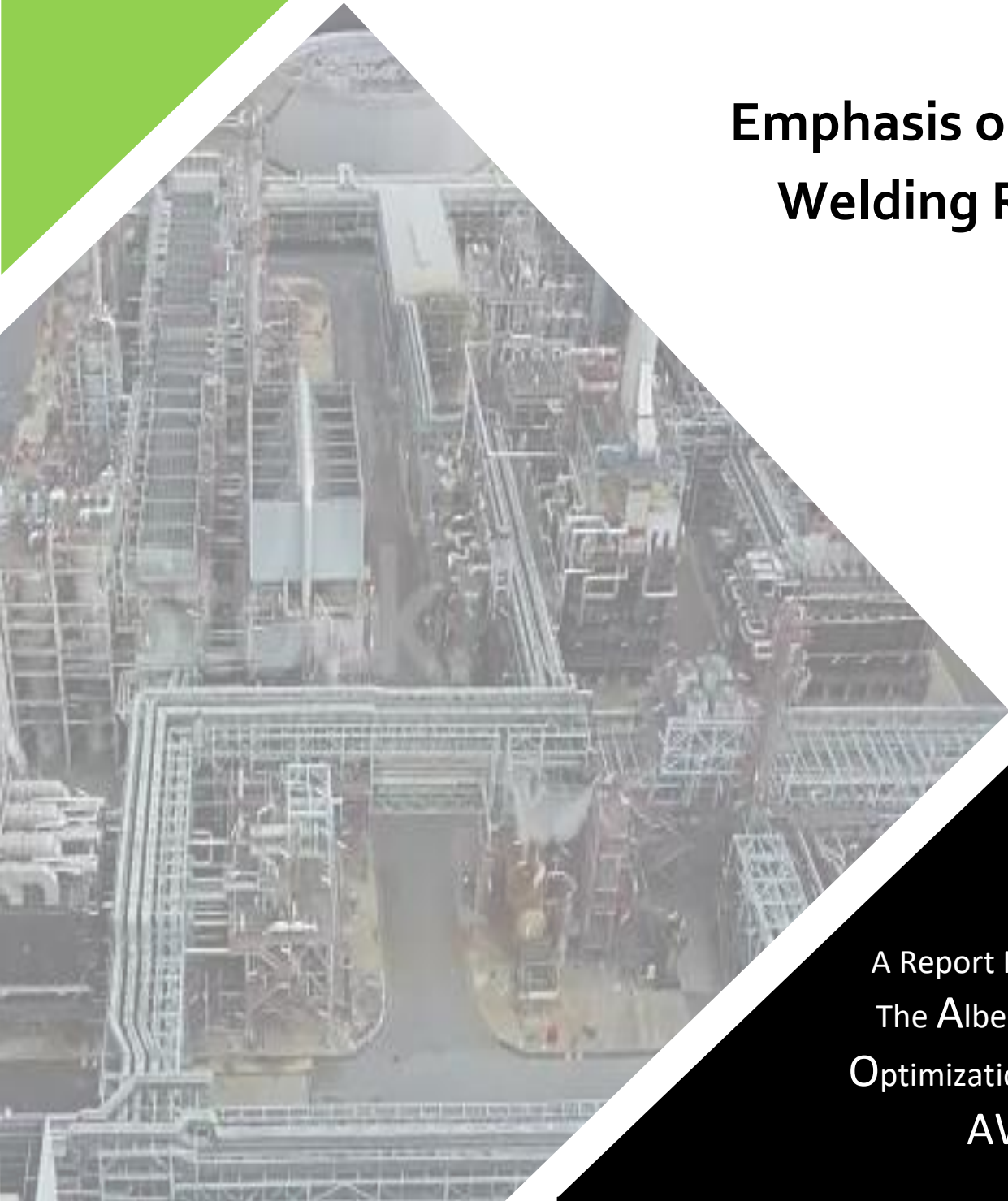
**ALBERTA WELDING
OPTIMIZATION
COMMITTEE**

Streamlining the Regulatory Skilled Trades Environment in Alberta

Emphasis on Pressure Welding Regulation

**Spring
2020**

A Report Produced by:
The Alberta Welding
Optimization Committee
AWOC

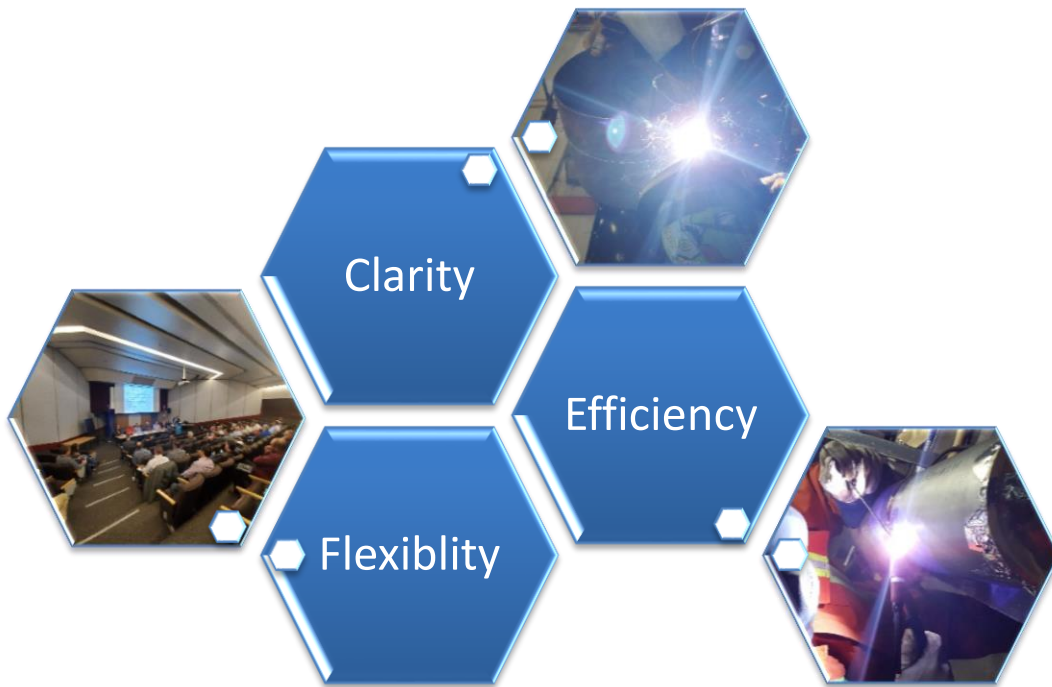




Streamlining the Regulated Skilled Trades Environment in Alberta - *Emphasis on Pressure Welding Regulation*

Prepared by:

Alberta Welding Optimization Committee



Revision 1

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Preface



AWOC is a grass-roots non-profit Society that has focused on shepherding positives changes in industry for the past 8 years.

Our objectives do not promote "change for the sake of change"; rather, to inject continuous improvement into the existing frameworks and systems of business and government.

AWOC has expertise from all sectors of the metal fabrication, engineering, construction, training, labour, and energy industry – AWOC was founded on collaborative relationships with government and regulators.

When we step out of the box, we challenge ourselves and others to do better. To thinking differently. To welcome thoughtful enhancements and learn from the best practices and guidance of other jurisdictions.

- Address gaps – solve problems.
- Eliminate waste – create value.
- Thoughtful change – adopt best practices.
- Advance lean systems so that the underpinning safety or competitiveness objectives are achieved.

"THE WORLD AS WE HAVE CREATED IT IS A PROCESS OF OUR THINKING. IT CANNOT BE CHANGED WITHOUT CHANGING OUR THINKING." — ALBERT EINSTEIN

This study seeks to inform industry and government stakeholders on the best practices involved in regulatory review and streamlining (i.e., "red tape reduction") and provides calls to action to invoke positive change.

Matthew Yarmuch, MSc, PEng, IWE
Chair, AWOC

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Vice-Chair, AWOC



1 Executive Summary

Since 2012, AWOC has worked closely with industry and regulators promoting balance in our regulatory environment. This study is the culmination of 8 years of industry engagement, research, and stakeholder deliberations to advance regulatory effectiveness.

As Albertans, we recognize the common desire to develop means and methods to *balance* regulatory safety intent with overall international competitiveness. With the current provincial government focus on "Red Tape Reduction", this study provides practical means and methods to enhance regulatory efficiency without compromising the underpinning safety intent.

What type of change is needed?

Striking the balance between safety and competitiveness does not simply occur with a singular change or policy. Rather, the adoption of an overall *continuous improvement* methodology to manage regulatory intent, structure, and outcomes. The underlying principles of such enhancements focus on ensuring *clarity, efficiency* and *flexibility* in the regulatory framework and process requirements. AWOC has developed expertise, vetted by industry and stakeholders, that can directly assist government, regulators and bodies thereof in their regulatory efficiency (red tape reduction) journeys.

Where do we start?

This study finds an overwhelming amount of research, recommendations and guidance readily available for use to enhance Alberta's regulatory environment. To strengthen outcomes of the provincial government's "Red Tape Reduction" program, or similar initiatives, a structured and transparent regulatory improvement process similar to that describe herein is recommended.

The provincial Red Tape Reduction Panel can examine, adapt and adopt findings herein to set and subsequently achieve regulatory efficiency goals. The AWOC team of experts in our network are willing and able to provide direct guidance and insights to ensure we achieve the safety and competitiveness balance.

What is our focus?

To thoroughly discuss the opportunity for regulatory reform, this study focused on skilled trades and the Pressure Welders Regulation, in particular. By contrasting the current regulatory system to other jurisdictions, **5 areas for enhancement** are described below, focusing on policy, review, process, language and structure, and continuous improvement.

These enhancements are built on the balancing safety and competitiveness, with the objective of injecting *clarity, efficiency, and flexibility* into our regulatory framework with *continuous improvement* built-in for the future.



Policy

Enhance current policy approaches to public safety in the skilled trades, such as the Pressure Welders Regulation (PWR), to reflect modern practices.

Call-to-Action: Convene a Task Force including AWOC, industry stakeholders, and with provincial agencies such as apprenticeship and regulators to collaboratively develop a roadmap to enhance the regulation of skilled trades.

Applications of precautionary principles or reactionary methodologies that institute “behavior controlling” regulatory systems fails to address socio-economic and other influential mechanisms affecting the regulated population. Additionally, current policies lack a structured approach to monitoring regulatory efficacy and performance, with insufficient presentation of key performance indicators (KPIs) to the public. In this study, further recommendations are provided in Section 6.3 and 7.1 for the regular development, review and public input to policy development, such that the efficacy and performance is simultaneously understood by government, regulators and the public.



Review

Adapt and adopt best practices of Regulatory Impact Assessment (RIA), including Key Performance Indicators (KPIs) and public engagement approaches.

Call-to-Action: Within the scope of the Task Force identified above, industry and regulatory bodies are to inject Regulatory Impact Assessment (RIA) protocols into current review processes, utilizing best practices for performance monitoring and public engagement.

Regulatory Impact Assessment/Analysis (RIA) protocols are readily available for adaptation and adoption in Alberta, including Colorado Department of Public Safety (Section 7.1.3) and the Australian model (Section 7.1.4). These RIA models will assist in the identification and development of KPI data collection, interpretation and ongoing refinement to support policy. RIA encourages continual improvement of policy and systems; this ensures that public safety goals are maintained while improving efficiency and reducing regulatory administration costs over time. The Government of Alberta is known to have made attempts to introduce some of these RIA concepts in the past. However, considering current worldwide trends, there is a need for a structured RIA system that permits the public to provide input and revision recommendations, and to subsequently receive a thorough response describing rationale for any decisions.

In this study, further recommendations are provided in Section 7.1 for the public input to RIA and KPIs, such that the impact of regulation on the public is objectively understood. Additionally, a documented process for regulatory input suggestions and responses thereto is strongly encouraged.



Systems

Enhance regulatory oversight systems and committee structures to examine economics, social implications, clarity, efficiency, and flexibility, in parallel to safety.

Call-to-Action: Within the scope of the Task Force identified above, Regulatory bodies and associated agencies introduce balanced regulatory management systems that reflect best practices of other jurisdictions.

Current regulatory oversight systems and regulatory review committees focus on assembling subject matter expertise for the regulatory topic under review. However, this can lead to narrowly focused assessment and decision-making processes that have unintended consequences. As discussed extensively in the literature review (Section 5.1), this can lead to (often unintentionally) regulatory abuse from singular or combinations of stakeholder actions. Whether or not such abuse is occurring in any regulatory environment is not for this report to state. However, even the perception of the potential for abuse directly effects investor and public confidence in Alberta.

In this study, further recommendations are provided in Section 7.1 to introduce a more balanced and structured regulatory management system that, in addition to public safety, provides due consideration of economics, social evolution, flexibility, efficiency, clarity, transparency, etc. The diverse opinions now added to the system can assess regulatory impact more holistically from differing perspectives. Coupled with improved training of government representatives, this can ensure that senior staff or Ministers are also more holistically informed in all areas of regulatory impact.



Language and Structure

Simplify the language used in regulatory documentation and streamline the structure to facilitate understanding and compliance.

Call-to-Action: Within the scope of the Task Force identified above, examine means to simply the language of regulatory documentation and enhance the organizational structure thereof.

Regulatory language (see Section 7.2.1) and structure (see Section 6.3) require simplification. Maintained government opinion on the use of legal language in regulations for application and enforcement by the courts has lost sight of the fact that these regulations also serve the people of Alberta and not solely the judiciary. Simply put, the regulated public is regularly required to review and implement regulations through the course of business; regulations are not the exclusive use of regulators and associated agencies.

Due to the complex regulatory language and non-intuitive structure, the response has been to publish multiple interpretations and informative documents. However, additional literature only adds to the burdens and creates further confusion. For example, there now exists *more pages* of interpretation than actual regulation under the Pressure Welders Regulation. The logistics of adequately sharing this information and

properly informing the regulated public of the vast library of requirements becomes challenging. Language simplification is now the normal trend in regulatory revision globally including comparable jurisdiction in the USA and UK – signalling the opportunity to simplify regulation language in Alberta.

In this study, further recommendations are provided for simplification of the regulatory language and structure. The use of plain language in regulations can be modelled from various jurisdictions (see Section 7.2.1). How the regulations are structured can also be improved by the introduction of “Annexes” that are subordinate to the Regulation itself (see Section 6.3). These Annexes would consolidate and unify regulatory requirements based on the principles of a regulatory framework that seeks *clarity, efficiency* and *flexibility* for all stakeholders.



Continuous Improvement

The philosophy of ‘incremental improvements over time’ ensures policy, review, systems, language and structure are enhanced pragmatically over time.

Call-to-Action: *Within the scope of the Task Force identified above, ensure all regulatory matters have foundational policies, review approaches, management systems, simplified language and structure with continuous improvement mechanisms built-in.*

Continuous improvement ensures that the regulatory framework pragmatically evolves over time. Dogmatic perspectives can lead to potentially negative consequences, often unintentionally, that can affect all stakeholders and the public. Continuous improvement also ensures nimble response to inter-ministerial alignment issues; for example, this study discusses regulatory conflicts between Pressure Welders Regulation (Municipal Affairs) and the Welder Trade Regulation (Advanced Education) and the need for collaborative resolution thereof (see Section 7.3.1). It should be noted that these conflicts evolved over time (decades) and are not solely based on actions of one department or individual. However, the intent of continuous improvement is that when such issues are identified, collaborative and balanced solutions can be developed.

In this study, recommendations are provided for a continuous improvement framework to be incorporated into regulatory development, review and implementation processes. Such an approach reinforces all recommendations described herein.

Summary – Next Steps

The balance between safety and competitiveness has and is being pursued by other jurisdictions using methodical, structured and transparent regulatory programs. We can adapt and adopt these best practices to enhance our regulation framework for the betterment of the province. AWOC and our stakeholders stand ready to assist the Red Tape Reduction Panel, and similar initiatives, to review and incorporate these *Calls to Action* and other recommendations wherever possible. By injecting novel ideas and continuous improvement, can the province benefit from the balance of safety and competitiveness in the future.

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Appendix 1 - Suggested Databases for Pressure Equipment, Welding Procedure and Welder / Welding Operator Performance

Appendix 2 - Colorado Department of Public Safety – Proposed Schedule for Comprehensive Review of Rules

Appendix 3 - Australian Government – Regulator Performance Framework

Appendix 4 - Safety Codes Council – Policy and Information Manual – Code Development Framework

2 2017 Competitiveness Study Summary

2.1 Study Scope

Starting in 2011, pressure equipment manufacturing and welding industry stakeholders began collaborating with government to identify improvements to their industry's outlook. Continued trends in boom and bust economic swings were thought to be impeding long term strategies toward the sector's growth. Significant issues surrounding the ability of the industry to attract, train and retain skilled labour became topics of regular discussion.

Programs that had either existed or had been initiated to address labour shortage through mobility and the flow of labour within Canada (and in some case internationally) were not well understood by industry or government. Significant time and expense were lost negotiating and developing processes that could have been in place for use by stakeholders, government and industry alike.

Alberta Apprenticeship and Industry Training were in the process of renovating the Welder Trade curriculum. The relatively new designated trade of "Wire Process Operator" had been developed as a second branch of the Welder Trade in 2007 due to industry needs to ramp up the local labour supply. The new curriculum saw the application of a common first year training alignment between the two branches of regulated journeyman welder training schemes that remains to this day (see Figure 1).

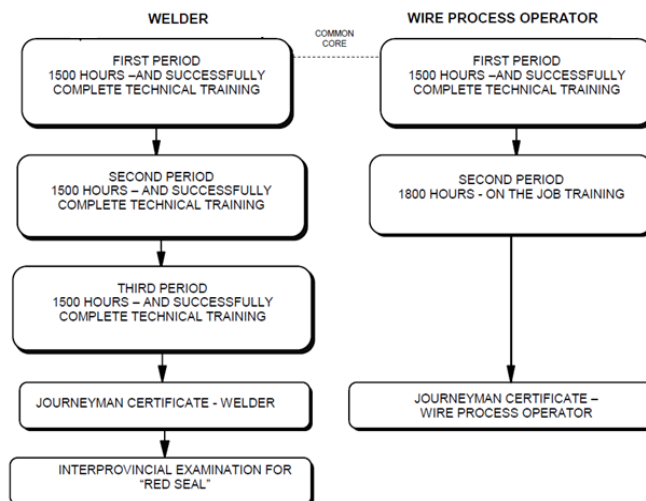


Figure 1 - Welder and Wire Process Operator Training Paths (AIT, 2014)

In parallel, the pressure welding industry stakeholders were aware that the Pressure Welder Regulation was due for renewal in 2014 and that there existed various industry concerns with respect to the training and availability of skilled labour. Therefore, out an effort to support Apprenticeship training improvements and simultaneously optimize the regulation of welding, AWOC (Alberta Welding Optimization Committee) was formed from grass-roots sector stakeholders who wished to better the industry.

During the regulatory review process and discussion, various topics that focused on economics were discussed. At times, such topics were deemed out-of-scope of the public safety-focused regulatory review process. Enough dialogue had taken place between industry and government that the then Ministry of Economic Development and Trade took notice. The Ministry identified several common anecdotal opinions brought forward by industry regarding the state of Alberta's economic prosperity and competitiveness, particularly in the Manufacturing Sector.

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Within a few years, AWOC had collaborated with government to significantly influence regulatory change, update welding certification requirements, and amend various regulatory-related items administered by ABSA. In parallel, AWOC conducted numerous industry events for fact-finding, industry education, information sharing and development of an industry consensus for change and improvement.

Economic Development and Trade, in joint recognition with AWOC of various anecdotal industry opinions, decided to better quantify and consolidate sector information. A project was then co-executed to:

- identify whether or not available data supported anecdotal industry opinion,
- establish key issues relative to available government programs and services, and
- itemize key issues relative to industry sector impediments to growth and competitiveness.

The following sections provides the key data collected and summarizes the crucial themes and opportunities for improvement in the future.

2.2 Emergent Study Themes

What evolved by 2016, was an intensive survey delivered to over 700 registered companies involved in some way with pressure equipment welding, manufacture and/or maintenance and repair activities. The industry survey was well received with over 140 respondents; a significant statistical percentage with which to establish the status of the industry as a whole. In parallel, a collaborative data gathering exercise was completed with ABSA with a focus on pressure equipment trends. All the data were collated and eight themes for action and/or further investigation emerged.

The first four themes developed from the data were to address anecdotal industry opinions summarized as; “Alberta’s regulatory environment and compulsory welding trade training and apprenticeship program produces a superior product”. This paradigm is largely responsible for continued support of the Safety Codes Act, Pressure Equipment Regulations and Pressure Welder Regulations remaining unchanged. The basic belief remains that regulation of pressure welder certification provides for a high level of product quality thus ensuring public safety.

The remaining four themes focus on economic factors relative to the local industries perceptions of barriers, competition, the status of skilled labour and globalization pressures on the supply chain.

2.3 ABSA Data Themes

2.3.1 Theme 1; Out-of-province design submissions

The first developed theme deals with pressure equipment design submissions and the deficiency rates of those submissions (Figure 2 below). These deficiencies are identified and catalogued during the design review process employed by ABSA. Out of province submissions show a demonstrably higher rate of design errors. ABSA further clarified that out of the totals for out of province deficiencies; 74% did not meet ASME Code while 26% were related to Alberta regulations.

ABSA also advised that their own observations of design applications demonstrated that as individual out of province applicants continued to gain experience, the rate of application deficiencies declines. The incidence of deficiencies is noted to typically improve by 20% over first time applicant as familiarity with the ABSA review process and requirements grows.

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The data was of statistical value in identifying international trends in the uptake of Alberta requirements by foreign engineering and manufacturing companies entering the Alberta pressure equipment market. Additionally, the data demonstrated that the ABSA Design Survey process strived towards consistency in the design of all pressure equipment entering Alberta, regardless of the location of origin.

However, no statistical data was available to conduct comparisons between nations or regions

with which to identify increased issues or specific risk concerns. Of themselves, these statistics do not indicate any real evidence of safety issues relative to the origin of engineering or manufacturing of pressure equipment brought into Alberta.

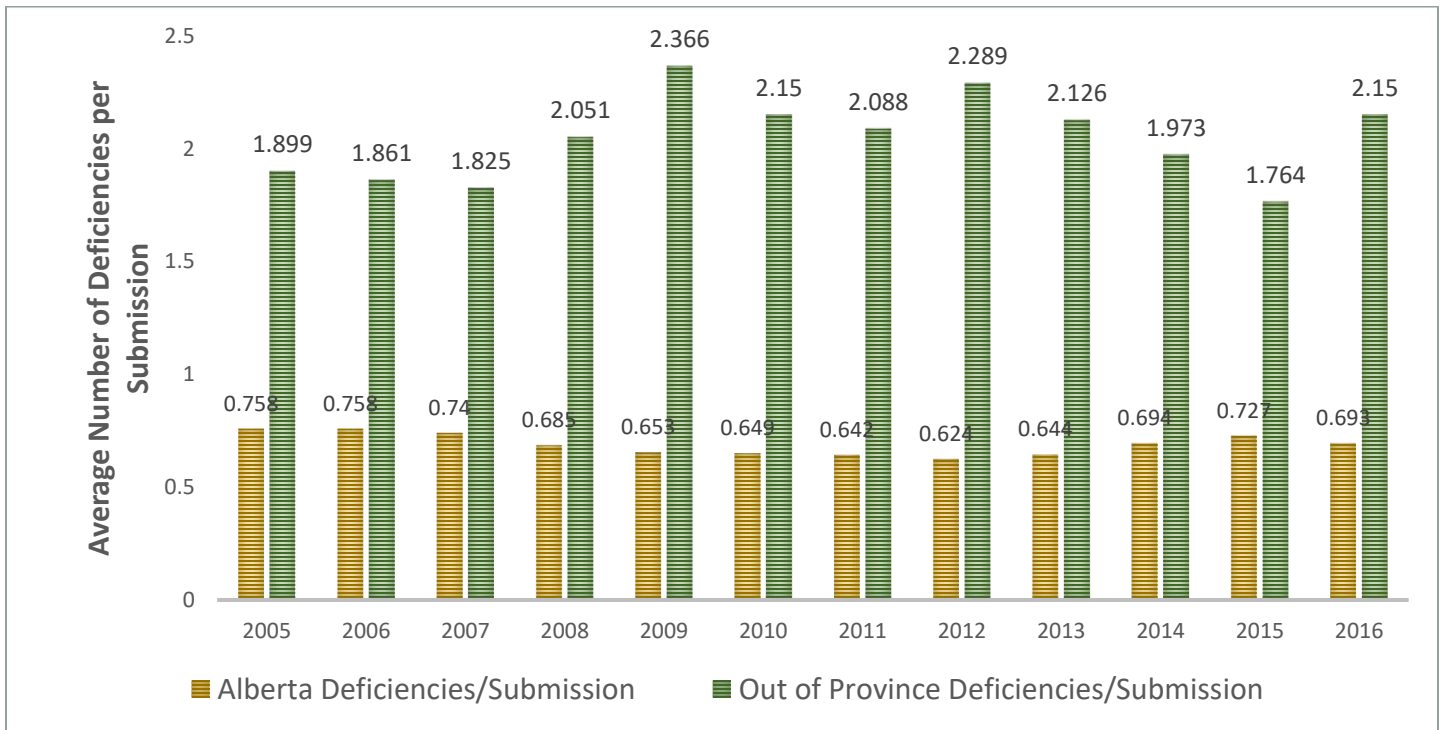


Figure 2 - Comparison of Deficiency Frequency during Design Survey Submissions by Alberta firms and Out of Province firms

2.3.2 Theme 2; Pressure Vessel Life Expectancy

This theme’s data utilizes decommissioning data to derive lifecycle averages of pressure equipment relative to manufacturing origin. As per ABSA’s data shown in Figure 3, though slightly over half of the vessels removed from service were of Alberta origin, it was also noted that the average lifespan of out-of-province manufactured vessels was some 4½ years or 16% longer relative to the Alberta manufactured average.

Anecdotally, one consideration to explain the increase in lifespan was that there is a higher rate of alloy steel pressure equipment fabrication out of province with longer intended design lives. Conversely, many Alberta produced vessels were manufactured of carbon steel and intended for shorter-term service lives. The data to further explore these topics was not available within the scope of this study and would require considerable resource commitment to research existing records.

This data does exist and is required by ASME code on data reports from manufacturers. This data has simply never been consolidated into useable database(s) for easy access or interpretation. It is proposed that future phases of this study continue this investigation to collect and evaluate the relevant datasets.

This data is felt to be a highly valuable resource not only revealing trends in the quality of pressure equipment but, as a key indicator of market tendencies for sourcing equipment based on complexity. Were the anecdotal sense of increased out-of-province sourcing for alloy steel manufacture be found true, then it is likely an opportunity for government and industry programs to better support growth and better utilization of local manufacturers of this market segment.

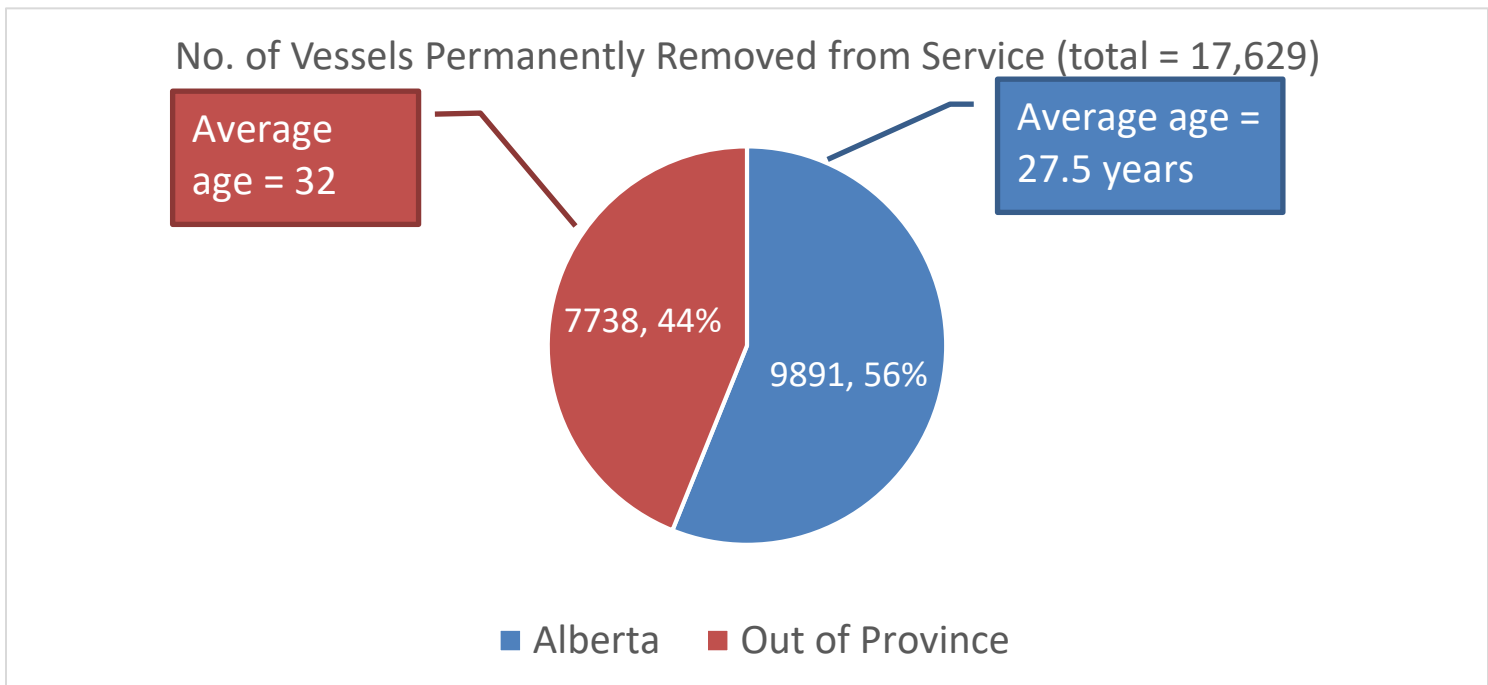


Figure 3 - Comparison of Pressure Vessel Service Life Manufactured in Alberta and Out of Province

2.3.3 Theme 3; Repairs and Alterations

This theme is derived from data available with respect to the number of documented repairs and alterations to pressure vessels in Alberta that are filed with ABSA. The data as collected, unfortunately cannot be filtered based on the age of the equipment or specific details relative to segregating “alterations” from “repairs”. Though the same basic form is utilized for the mandated reporting and documentation of repairs and alterations, the two are of distinctly differing statistical and technical importance. In short, a repair is typically resultant from some form of defect during manufacture or damage mechanism occurring during operations. An alteration conversely typically focuses on service life or operational modifications (i.e., re-rating a vessel to extend its service life or physical modification of the pressure vessel due to changes in operational process).

As shown in Figure 4, the available data demonstrate a significantly lower percentage of Alberta manufactured pressure vessels undergoing repair and alterations. The key reason(s) for this lower rate is unclear without further investigation into the types, rates and significance of the repairs and alterations. As discussed above, it would be important to segregate ‘repair’s vs ‘alternations’ to assess any type of quality trends vs routine operational changes. Such historical data is believed to exist but was outside the scope of this investigation. Further research is recommended to evaluate trends for quality ‘repairs’ vs operational ‘alterations’ based on the manufacturing origin. These findings could help quantify any potential quality enhancement and/or improvement opportunities available to local Alberta firms producing pressure equipment.

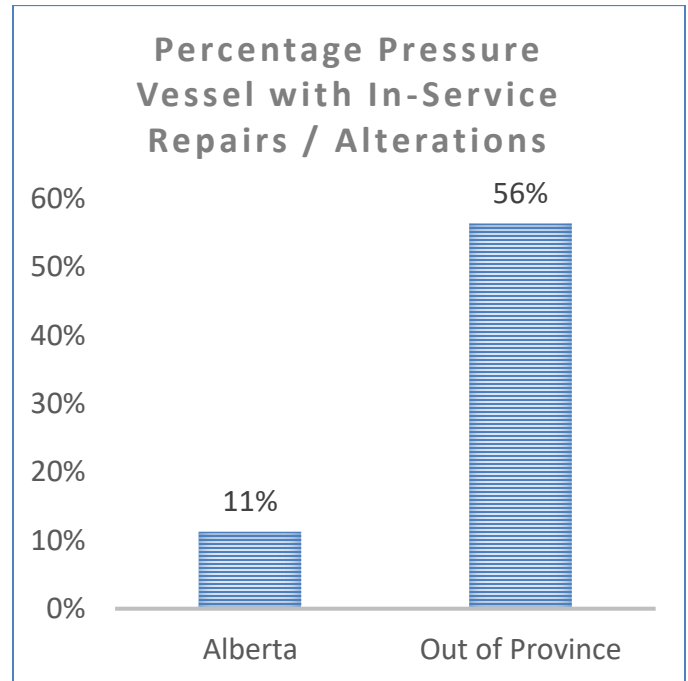


Figure 4 - Comparison of Pressure Vessels with In-Service Repairs/Alterations (table below provides supporting data)

	Pressure Vessels Repaired or Altered	Total Pressure Vessels Built	Percentage Repaired or Altered
Alberta	8843	78599	11%
Out of Province	5292	9389	56%
Total	14135	87988	

2.3.4 Theme 4; Supply Chain Trends

The last theme developed solely from ASBA data is that of trends in the ratio of procurements locally and out-of-province. As shown in Figure 5, for the time period noted, the general trend indicates a decline in Alberta supply and an increase in out-of-province supply of pressure vessels. Overall, the data suggests that Alberta’s role as a manufacturer of pressure equipment has changed in the global marketplace. Further refinement of the data is contemplated, including adding data from recent

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years to determine how economic challenges in Alberta may have further affected these trends.

The present data does confirm, however, that the opportunity for out of province manufacturers to secure a significant market share does exist. Hence, continued focus by industry and government to enhance local competitiveness is important to secure future pressure equipment procurement opportunities.

A recommendation would be government-sponsored survey of the supply chain to gather specific data on procurement trends. Such assessment could identify, for example, a direct percentage of actual orders placed providing improved data for a given time period.

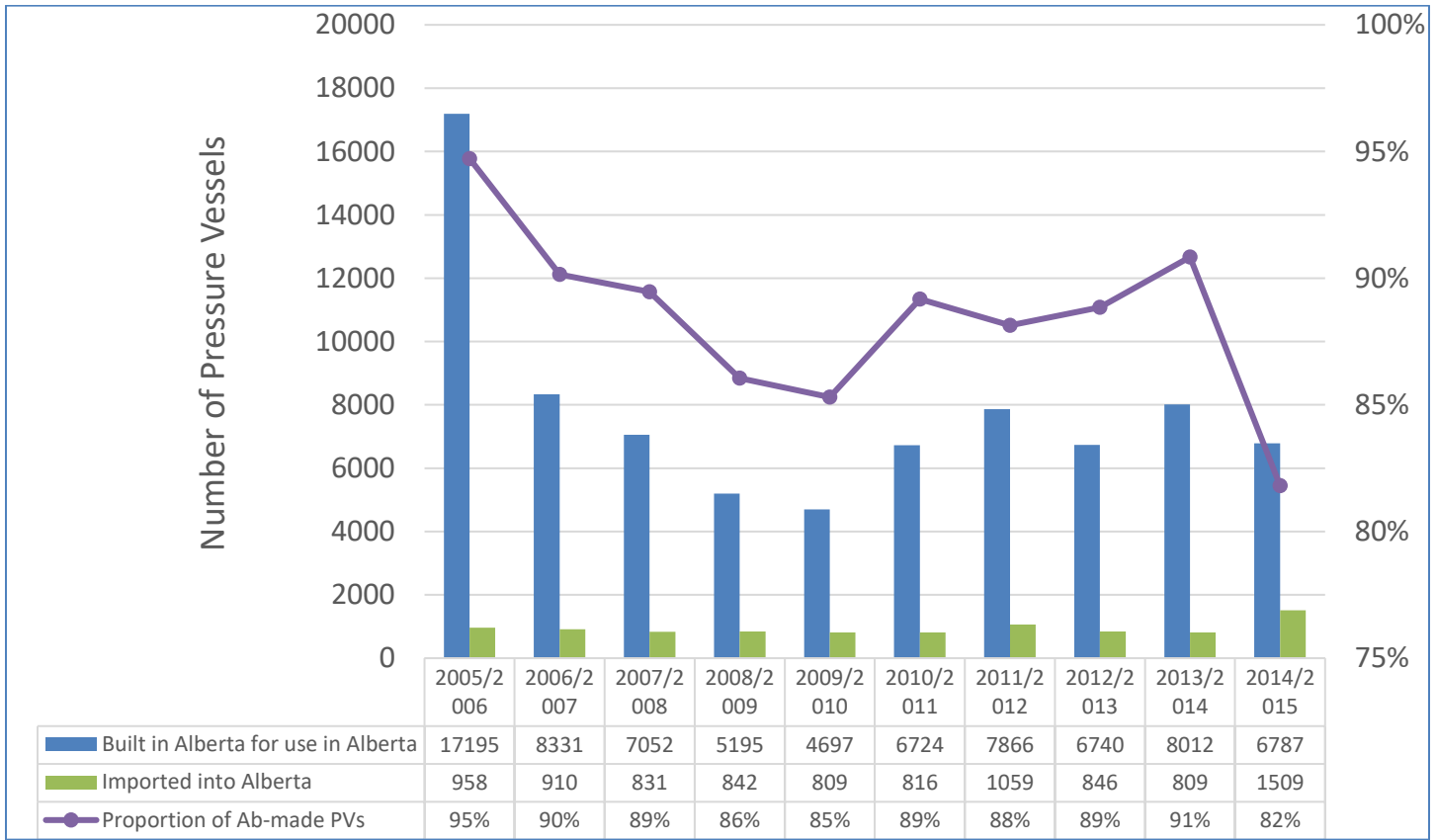


Figure 5 - Comparison of Pressure Vessel Manufactured in Alberta and Out of Province

2.4 Direct Supply Chain Survey Themes

The supply chain survey themes were developed through the direct survey of some ~140 firms involved in the manufacture, design, supply and operation of pressure equipment. When collected and collated; the responses offered some generally consistent need for targeted improvement in several areas of common concern. It is important

to appreciate that this supply chain is made up majorly of small and medium enterprises with 50% of respondents employing fewer than 50 people.

2.4.1 Theme 5; Market Fluctuation and Growth Affects

As shown in Figure 6, the cyclic nature of growth and decline in economic development and the often-severe swings in activity within the energy

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sector are routinely reported as significant factors limiting growth. Right behind this foremost opinion are related responses to labour costs and access to qualified labour. Other issues presented register modest responses and were largely not felt to be as major a concerning factor to business growth.

Later sections of this study will more directly address labour issues as a large amount of research

is available with respect to labour supply, apprenticeship schemes, etc. There are also known issues with the attraction and certification of out-of-province workers during spike demand periods and unresolved issues with acceptance of their certifications in Alberta. Though improvements have occurred at the national level, there has been a need to go outside of Canada to provide labour for major projects and this proved difficult for industry and government to manage.

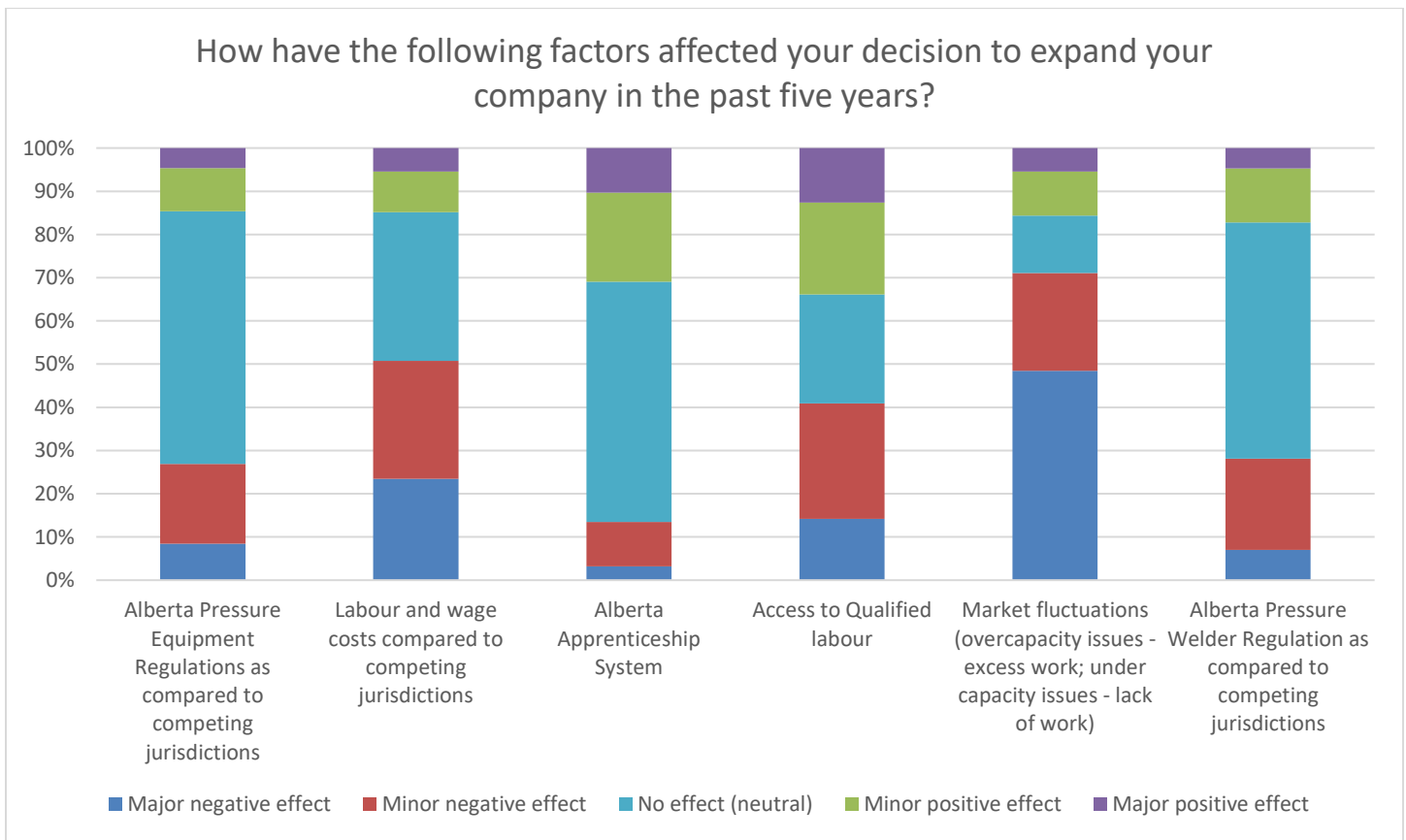


Figure 6 – Factors Affecting the Growth of Companies in Alberta

2.4.2 Theme 6; Technology Uptake Barriers

As shown in Figure 7, labour costs for training / implementation is the top cited barrier to the uptake of modern technologies. This theme ties directly to Themes 2 and 3 (see Section 2.3.2 and 2.3.3, respectively) in that better data segregation

and analysis could determine alloy/grade material, manufacturing complexity and other issue trends relative to technology barrier perceptions by industry. It also ties directly to Theme 5 (see Section 2.4.1) as the highest issue of concern reported was again related to labour qualification and the costs associated with training; though 92%

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of respondents feel “new technology adoption is important to their performance”.

Investment capital access was the second highest reported issue within this theme and also related closely to economic surges and declines in market activity. Uncertainty simply limits investment and risk is felt to be high or uncertain at best. Though government programs like the “Capital Investment Tax Credit” are designed in part to provide a technology investment incentive; this program requires a one-million-dollar minimum investment and is out of reach of the majority of businesses operating in this supply chain.

An interesting response is the limiting effects of codes and standards inclusive of customer specifications. ASME and CSA codes and standards are used in Alberta (and Canada) for the

manufacture of pressure equipment; however, ASME and CSA are in no way concerned with the cost associated with compliance. Only through efficient regulation and clear industry education and expectation can these costs be controlled. Given the value of the Pressure Equipment supply chain to Alberta’s energy sector development, the importance of regulatory efficiency has been reported on by the CME, Fraser Institute, CAPP, CFIB, OECD and others for some time with little noticeable uptake in regulatory reform at the provincial level. As such, AWOC have focused various efforts on ensuring regulations, codes and end user (customer) specifications are balanced with means for continual improvement while maintaining safety / integrity principles.

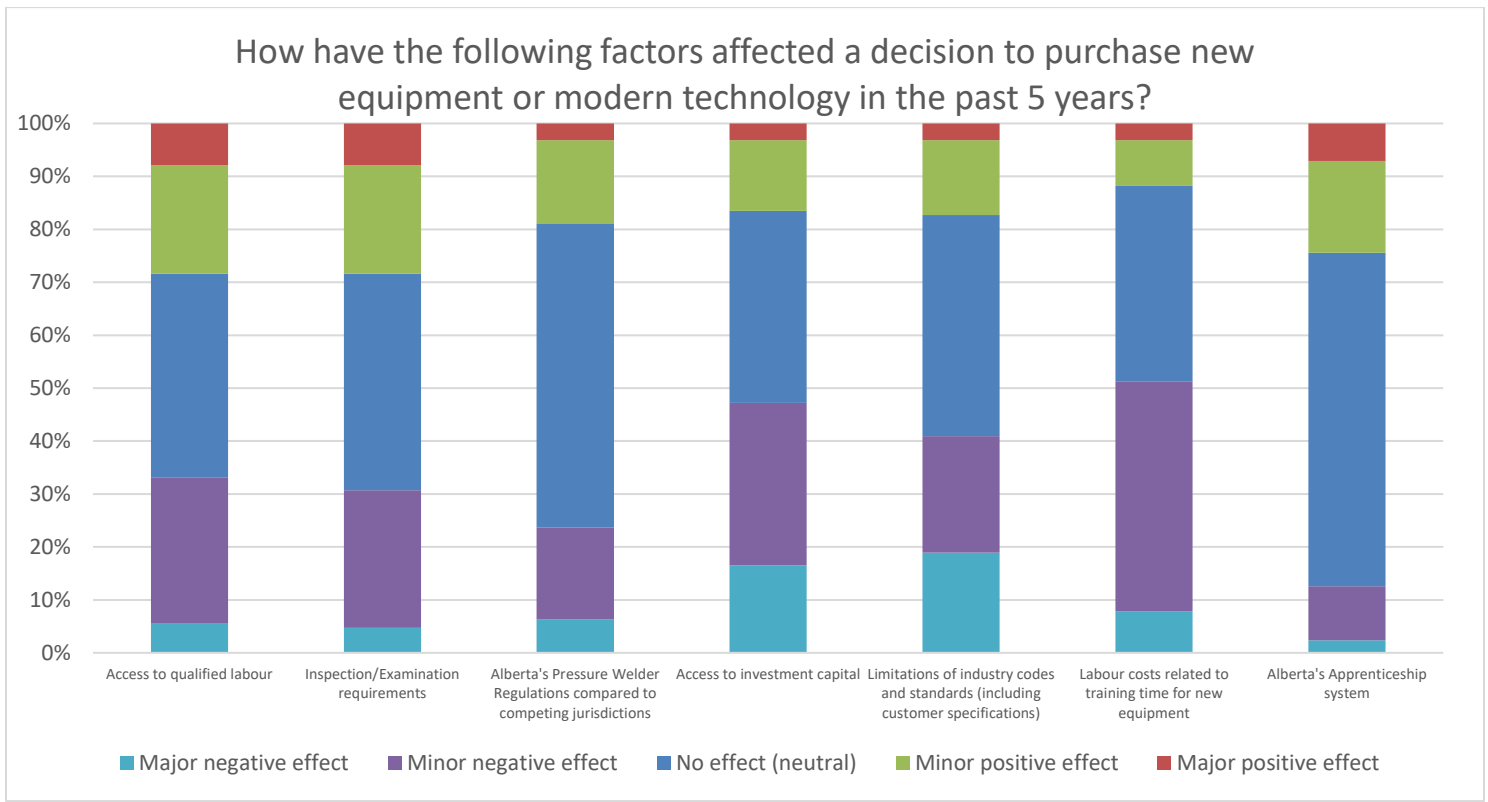


Figure 7 – Factors Affecting the Utilization of New Equipment or Modern Technology

2.4.3 Theme 7 & 8; Labour Challenges

As shown in Figure 8 and Figure 9, these themes are reported together as both illustrate the supply chain’s sense of competitiveness relative to costs. For the period of 2012 to 2016, the cost of labour was the most significant labour challenge reported. Alberta labour costs were felt to be high relative to other jurisdictions and have a strong effect on the local market share and competitiveness. Rising transportation costs and, once again, access to qualified labour rounded out the top three in these thematic considerations.

The cost of raw materials were also significant competition drivers reported in relation to advantages felt better afforded to out-of-province suppliers. It is important to note that at the time of this survey, significant issues of steel dumping were before the courts in Canada and international accusations of subsidization were being made in the global steel manufactured products markets including pressure equipment. These issues remain beyond the scope of the survey to deal with though the results require an understanding of the issues in play to be properly appreciated.

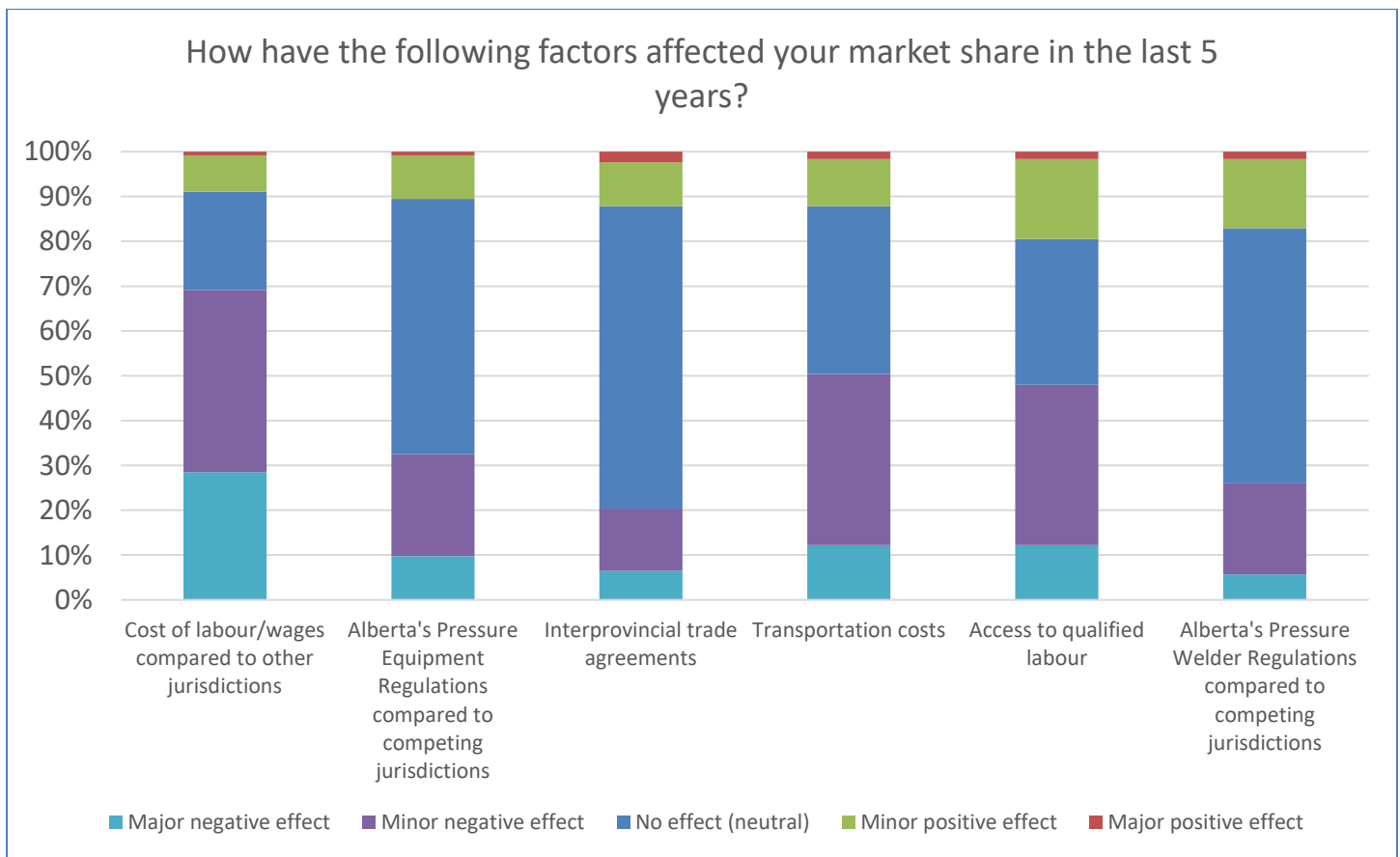


Figure 8 – Factors Affecting the Market Share on Alberta Firms

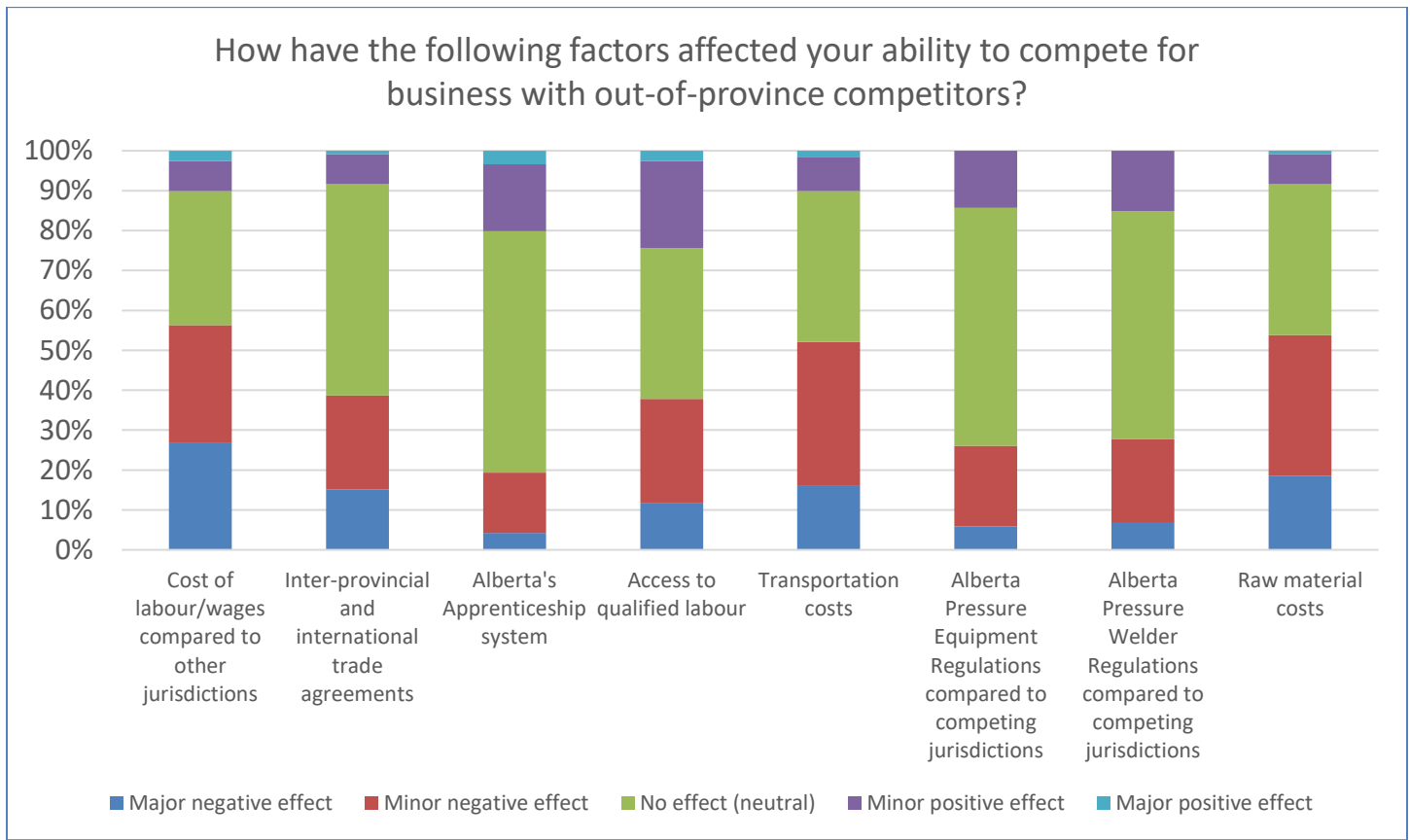


Figure 9 – Factors Affecting the Ability to Complete with Out of Province Competitors

2.5 Competitiveness Survey Study Recap

The themes presented here are a summation of the complete survey performed. Recapping the themes developed and in full recognition of the need for further refinements to the data and research, the following can still be summarized as valid findings:

- The technical and quality capabilities of global competitors is improving.
- The Alberta-based market share of fabricated pressure equipment is declining.
- The fitness for service of imported pressure equipment is largely indistinguishable from that of local manufacture.
- Local labour issues (attraction, retention, training, costs, etc.) transportation and

material costs are key factors limiting growth in the Alberta pressure equipment manufacturing sector.

It is of significant noteworthy mention that; a vast amount of data collected by ABSA for decades, contains within it extremely relevant information for use in the identification and mitigation of pressure equipment supply chain trends and issues. It is of equal importance to note that; it is wholly outside of ABSA’s mandate or resources to perform this level of data mining and analysis in the performance of their duties. Such an effort to further evaluate datasets and develop Alberta-focused KPIs falls to other branches, departments and ministries of the Government of Alberta to access and utilize this information for the betterment of all Albertans.

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3 Baseline the Alberta Regulatory Environment

3.1 Where we are

The 2020 Canadian Federation of Independent Business report card announced in January gave Alberta a "B-"; its highest grade in over 10 years. The grade acknowledges the government's renewed commitment to red tape reduction and regulatory improvements that the CFIB have sought for over a decade. Though this marks a significant improvement in the trends and perceptions of Alberta; it is still too early to rate economic performance and improvement outcomes observed from any actual changes made.

In 2018, the Canadian Federation of Independent Business gave the Province of Alberta a grade of "F" for regulatory accountability (CFIB, 2018), the lowest in all of Canada tied with the North West Territories. Alberta had actually declined over the past decade and in fact, Alberta had scored "D" or lower since 2011. The 2018 report card summarized Alberta's stated position on regulatory accountability as; regulatory reduction exposes Albertans to risk and government resources are unavailable to pursue measures for efficacy on existing regulations (CFIB, 2018). The Government of Alberta had also not declared any upper limit on the number of regulations, identified the relationship between the number of regulations and any burden on enterprise and defeated Bill 207: Regulatory Burden Reduction Act in 2017. By comparison, British Columbia, Saskatchewan and Manitoba received "A" or "A-" grades and federally, Canada scored a "B-".

In stark contrast to the 2018 reported position of the Government of Alberta, the Province had

previously established the Regulatory Review Secretariat under the then Minister of Finance and Enterprise portfolio which included; policy for regulatory reduction and simplification, a balance review framework based on those of other provinces (inclusive of economic impacts) and comprehensive guidelines for regulation impact reporting. Information on these programs and initiatives is still available (Government of Alberta, 2012) but largely archival in nature with no apparent uptake within current government policy and programs. Prior to the 2019 Alberta Provincial election, the file for regulatory reform rested with the former Ministry of Economic Development and Trade; however, no evidence of work on this file was noted (CFIB, 2018).

The Fraser Institute, CFIB and others have reported a decline in Alberta's economic growth and investment which they partially attribute to the current regulatory climate. Multiple entities including the Fraser Institute and CFIB recommend regulatory reform (not simply reduction) as one of the key factors for government to address in improving the Alberta economic outlook for the short and long terms (Eisen, 2019 and CFIB, 2018). Lack of a clear regulatory policy has also been directly linked to declines in investment in Alberta and an ongoing deterrent to attracting new investment (Eisen, 2019). This identifies that Regulations can impact the 'revenue' side of the business ledger as significantly as the 'expense' side.

Considering federal identification of the northern upstream oil and gas exploration and development industry as the largest single private investor in Canada (External Advisory Committee on Smart Regulation, 2004), any impediment real or perceived is concerning to Alberta's ability to

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attract and retain investors. In addition to the annual report card issued by the CFIB, they published an extensive “Canada’s Red Tape Report” in 2015 detailing the economic impact of regulatory compliance in Canada. The relevance of the CFIB data applied to pressure welding in Alberta can be shown when comparatively analyzed against direct survey data collected by AWOC in a competitiveness study from 2017 for Economic Development and Trade.

AWOC’s survey collected data solely on Alberta companies engaged in pressure welding operations. Relative to the sharp rise in cost per employee (Figure 10) and time spent on regulatory compliance by smaller firms (Figure 11), 50% of survey respondents identified as below 50 employees total with 65% of firms employing 25 or fewer pressure welders as per Figure 12.

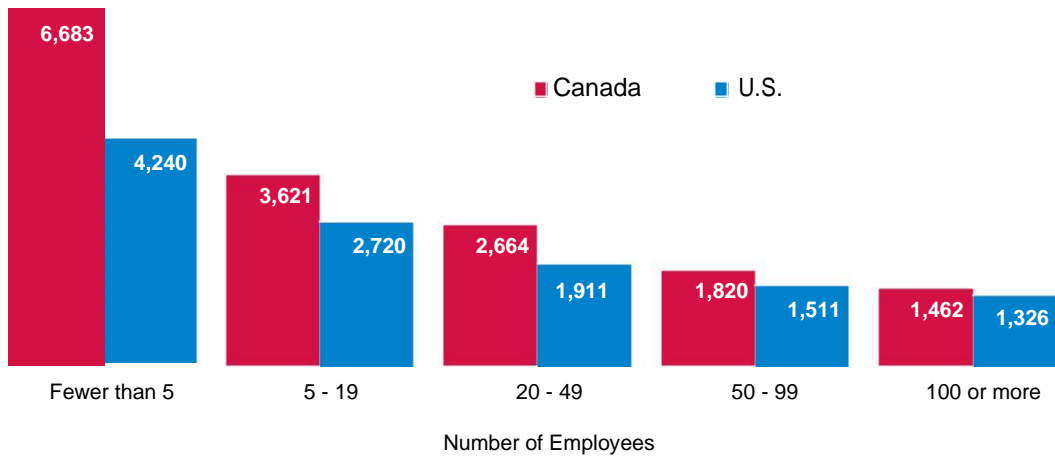


Figure 10 - Annual regulation cost per employee, by size of business (in 2014 dollars in Canada and the U.S.) (CFIB, 2018)

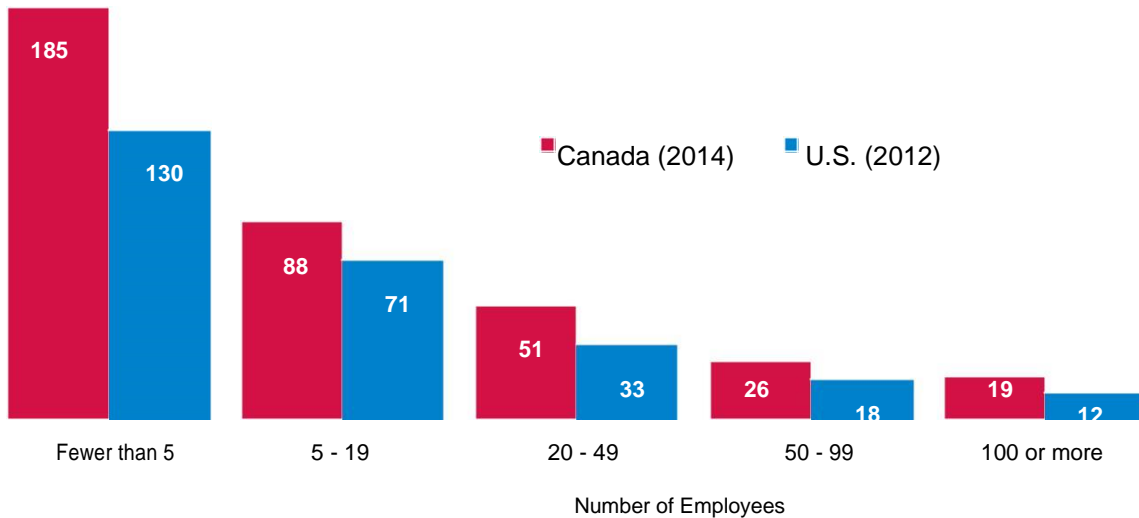


Figure 11 - Average annual hours spent on regulation per employee, by size of business, Canada and the U.S.

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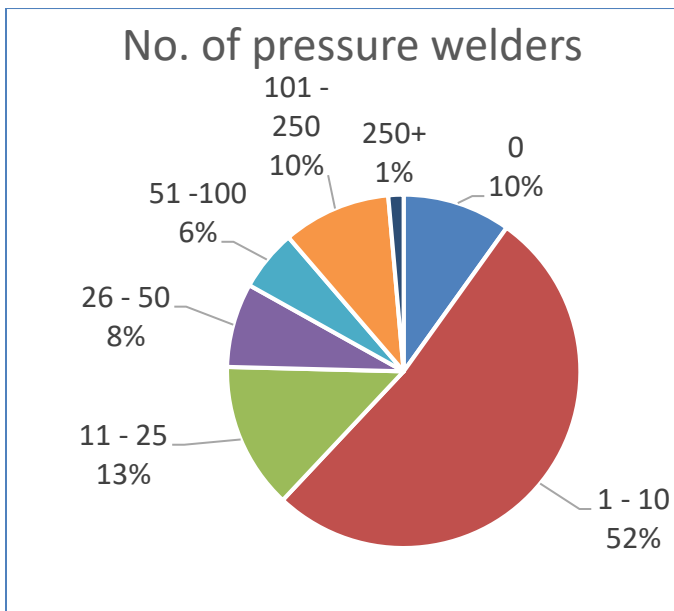
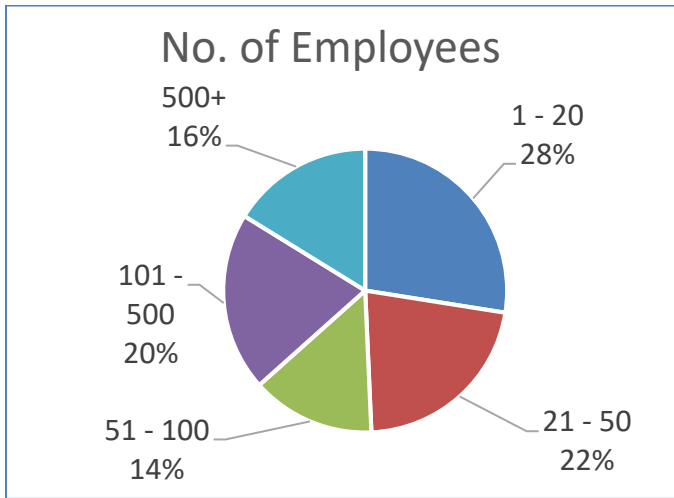


Figure 12 – Average Number of Employees (top) and Number of Pressure Welders (bottom) of Alberta firms surveyed by AWOC

Likewise, Alberta Apprenticeship and Industry Training produce a statistical report annually on the state of apprenticeship and training in Alberta. Figure 13 demonstrates the alignment of data relative to employer size and the majority of apprentice training opportunities in Alberta.

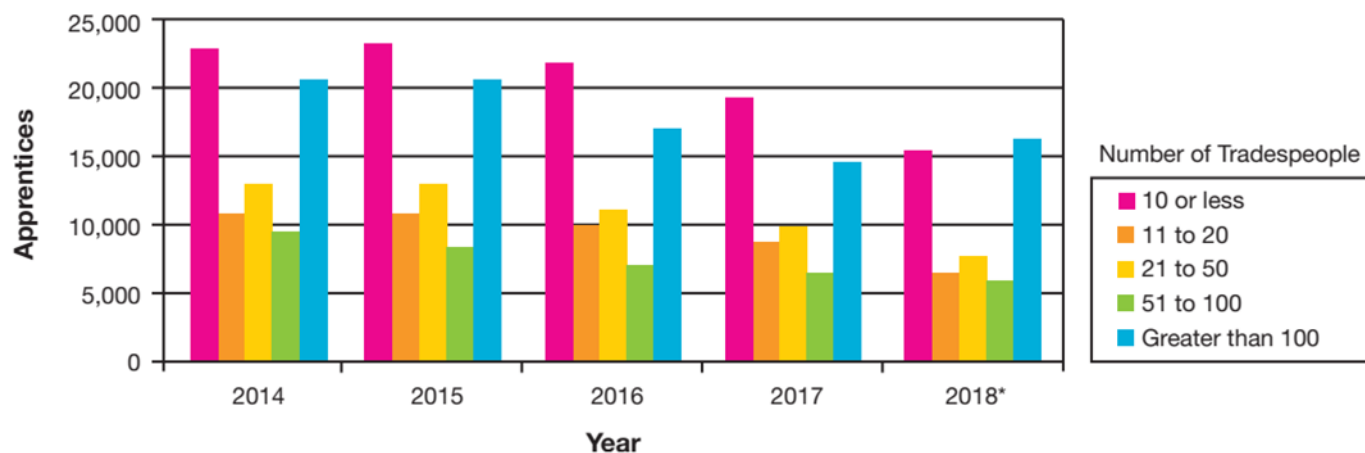
The significant disparity by business size in regulatory compliance cost and time spent is routinely discussed in the economic analysis of regulatory impact around the globe. Typical

conclusions reported of such disparate climates within a single regulated environment are those of unintentional negative outcomes (Tamkin *et al.*, 2013). Further analysis of market performance establishes clear evidence that disparities in uniform applications of regulatory cost impacts create unintentional competitive advantage for larger firms and increase barriers to market entry for new companies (Redbird, 2017).

This can lead to monopolistic behaviors to protect the advantage under the auspices of public safety arguments. In economic theory, these negative regulatory outcomes are termed dispersed costs and concentrated benefits (Fontinelle, *et al.*, 2016) and are generally concluded as harmful to the regulated industry and the overall economy.

Though not intended to sound in any way critical of any individual, the current regulatory oversight committee(s) tend to represent larger businesses or associations that have the potential to operate monopolistically in defense of their own interests. Unbiased considerations for regulatory reform would be unlikely whenever regulatory usage might have resulted in competitive advantages relative to regulatory compliance cost impact and the wage scales of regulated labour.

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Source: Alberta Advanced Education

* The size of an employer site is determined by the number of tradespeople.

* Prior to 2018, this chart reflected a count of 'sites' instead of 'employers'. If an employer had multiple work locations, each location was counted as a separate 'site'. As of 2018, the report counts 'employers' instead of 'sites'. All sites of a specific employer are combined and counted as a single 'employer'.

Figure 13 – Total Apprentices by Employer Size (AIT, 2018)

It is important to note that the required level of investment to effectively develop new energy projects (oil, gas, oil sands, etc.) is routinely sought out from international firms whose operating capital and cash flow statistics exceed those of many small nations. It becomes a significant foregone conclusion therefore that such entities have the resources internally to analyze Alberta's regulatory performance costs and assess them in terms of return on investment (ROI), risk associated expenditure or local negative economic inflationary mechanisms. Negative reviews in these areas can significantly influence the attractiveness of Alberta to investors.

3.2 How we got here

Regulatory policy and regulation development have existed as long as there has been government. The Canadian political structure has allowed the provinces to control several items related to public safety, employment standards, education and other portfolios with minimal federal oversight. Federal guidelines do exist for many items under provincial control and the

Welder Trade in Alberta is subject to the National Occupation Classification (NOC, 7237).

Many regulations implemented under the auspices of public safety have been born out of reactive methodology to events or conditions that caused or could cause loss of life or damage to property. The original basis for Alberta regulations on pressure equipment were in fact based on The Boiler Explosion Act passed in Britain in 1882 (ABSA, 2019).

The development and evolution of such regulations followed a basic legal tenet known as the **precautionary principle**. Loosely defined, the application of the precautionary principle in regulatory policy takes the approach of "better safe than sorry" (Sunstein, 2003). An overly conservative perspective of unchecked non-evidentiary regulatory policies based on the precautionary principle can have a debilitating effect on industrial productivity and growth with unsubstantiated value to public safety (i.e., a disproportionate regulatory scheme).

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Public perceptions of this principle's application by regulators are largely approving. Basic population behaviors such as insuring, using smoke alarms, CO monitors and similar behaviors are undertaken with the reasonable expectation these instruments will never be needed. The impetus for their acquisition is derived from an individual's assessment of risk should these instruments ever be needed and not possessed (Sunstein, 2003).

This is not to presume or imply that the precautionary principle is unfounded or unnecessary. In fact, the precautionary principle can be highly successful in select circumstances. Seatbelt laws and regulations have preserved life and reduced the drain on public healthcare systems by regulating individual behaviors to produce a positive outcome beneficial to all members of the regulated population (i.e., with culture now being as much of a 'referee' to compulsory seatbelt use as compared to regulation, fines, etc.). It is also relatively easy in such examples for a population to comprehend the link between regulation, outcome and the non-compliance penalties enforced. Where such systems come under criticism is in their application to industries and organizations not generally understood by a population. This is especially true in circumstances where significant public funding is required to develop and enforce the regulations. An extreme example of such a regulatory condition would be the Nuclear Energy industry.

Another term nearly interchangeable with the precautionary principle is **loss aversion**. Regulators and the general public are more apt to understand and accept loss aversion principles applied to more complex regulatory implementation and not weigh potential lost benefits which such regulations may inadvertently

lead too (Sunstein, 2003). For example, various programs designed to deter terrorist activities are almost impossible to measure economically against an outcome; however, the public is generally accepting of significant expenditure to avoid potential loss.

The government oversight of pressure welding qualification and certification in Alberta began in 1929 (ABSA, 2019) in response to adopted code and enforced regulation changes. This occurred as a natural progression of the laws of the day and predated inclusion of welding as a designated skilled trade in the province of Alberta. Once the Welder Trade became compulsory in 1936, a mandatory system of apprenticeship training and journeyman qualification was established to encompass various outcomes including those of "public safety". The continuation of pressure certification as a separate program became a form of "double dipping" by government regulations and thusly, welders for pressure became regulated in their education and performance by two separate and distinct Ministries of the Government of Alberta.

The perpetuated argument in favour of continued pressure certification remains safety focused; however, the Regulator has failed to provide any evidentiary support justifying the continuation of the program under its current framework or its efficacy relative to impact on industry. Additionally, these same regulations on pressure welding personnel do not apply to other jurisdictions which are producing a significant percentage of pressure equipment that have entered and are now operating in the province. This creates the impression of a 'double-standard' that undermines the value proposition of the safety regulation.

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Pressure certification is not the only addition to provincially regulated journeyman training employed to augment the welding trade. For example, structural steel and pipeline industries also have unique testing and qualification mechanisms in place to ensure compliance within their own regulatory environments. Due to the differences in provincial skilled trades qualification schemes, these programs do not provide exceptions, credit or qualification by recognition to any one province or program but simply perpetuate the continual testing and qualification within these programs.

The government, in response to the ever-increasing technical complexity of skilled trades, does seek out and appoint various advisory bodies with subject matter expertise to review and report on the technical aspect of specific regulations. However, no apparent balance of interests mechanisms are in place to ensure that intended and unintended regulatory outcomes are addressed and improved. Note that the unintended consequences of regulatory requirement may not be immediately apparent to the Regulator; hence, the need for thoughtful industry engagement and feedback.

Of all the areas of regulatory production focus over the second half of the twentieth century, regulations exerting control over occupations has been the single largest source of regulation production throughout Europe and North America (Berliner, *et al.*, 2017), with a measured 500% increase in occupational licensing in the US alone since the 1950's. Moreover, the continued production of such regulations has become a default mechanism for response to economic pressure and strains placed on any one sector (Kleiner & Vorotnikov, 2018).

Alberta is known to have over fifty regulations for skilled trades alone (mandatory and optional trades), as well as additional regulations for other occupations and professions such as those found in medicine, engineering, architecture, etc. With occupational licensing and regulation regularly capturing 25% or more of the overall economy (Berliner, *et al.*, 2017), it is clear that improvements in these areas are significant sources for economic improvement available to government.

Whether examining the Pressure Welders Regulation from an oversight perspective (the Safety Codes Council) or an administrative and enforcement perspective (ABSA) it has to be recognized that the overarching control rests with the Ministry of Municipal Affairs, who ultimately oversees both these agencies. Such singular concentrations of bureaucratic mechanisms are known to impede desires for reform brought forth from both the general public and more so from the elected officials in charge who desire reform and policy provisions (Berliner, *et al.*, 2017). Politicians and political leaders recognize their own lack of expert knowledge and therefore have become reliant on the government bureaucrat to effectively educate them and recommend policy. The predominant reality is a system of singularly focused expert policy that though sound for the specific subject matter, fails to represent wholistic interests or needs and fails to properly advise our politicians (Larkin, 2017).

3.3 Existing Oversight

The Pressure Welders Regulation is under the portfolio of the Ministry of Municipal Affairs who appointed ABSA as the Administrator for all matters related to Pressure Equipment certification and regulation enforcement, including Pressure Welders thereto. Municipal Affairs also

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appoints the Safety Codes Council (SCC) as an arms-length corporation to administer relevant regulatory systems for all matters of public safety under the Safety Codes Act. The SCC manages ten (10) technical sub-councils, with stakeholders representing a variety of industry groups with expertise in various fields, to provide input and oversight to regulations impacting public safety (e.g., Amusement Rides, Barrier Free, Building, Electrical, Elevators, Fire, Gas, Passenger Ropeways, Plumbing, and Pressure Equipment). ABSA participates in all SCC meetings related to "Pressure Equipment".

For the current expiration and renewal cycle, the Safety Codes Council have assigned the Pressure Welders Regulation to the Pressure Equipment Sub-Council (PESC) who in turn have established a Pressure Welders Working Group (PWWG) to deal with the review and recommendations with respect to amendments, revisions and updates to the regulation. The PWWG recommendations are then approved by the PESC and then forwarded to the Municipal Affairs Minister via the Safety Codes Council, in collaboration with ABSA.

What has actually occurred within this system of regulatory governance and oversight is the creation of an assembled group of subject matter experts on welding technology, code and standard requirements and industry representatives who all utilize the regulations in their professional roles. Though this may seem sound at first consideration, it does not serve the overall public interest as it fails to provide any oversight to regulatory considerations outside the specific subject matter with which the regulation is concerned (Commonwealth of Australia, 2014). In effect, the current process of review is singularly

focused on only the technical safety aspects of the regulation and does not consider:

- the regulations actual need,
- economics,
- ease of use,
- ease of interpretation,
- clarity of delivery,
- continuous improvement monitoring, and

a host of other criteria implemented and in use in other provinces, nationally and internationally with respect to regulatory review and regular regulatory impact analysis (Jacobs, 2006).

Based on past experience actively participating in regulatory amendment cycles, the review approach/system in practice has not followed best practices including (but not limited to):

- recognize or incorporate measures of effectiveness or key performance indicators (KPI's),
- establish transparency of the review process relative to government relations with the regulated industry,
- assess the current level of proportionality or balance of risk being managed against the regulation in place, or
- quantify any imposition or impact the regulation may have on businesses affected by the regulation.

(Parker & Kirkpatrick, 2012)

As a real-world example of just two diverse interests, consider the example. When employing community planning and Crime Prevention Through Environmental Design (CPTED) concepts for public safety to the design of a mixed-use high-rise building, it is common to find diverse, opposing and yet defensible viewpoints on

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something as simple as the number of exits. A fire marshal would stipulate the greatest application of safety planning is to maximize the number of exits to provide for the fastest possible evacuation in the event of an emergency. A police commissioner applying the same logic from their expertise would stipulate a minimal number of exits to control movement would offer the greatest public protection.

This example demonstrates how two different subject matter experts can both be correct; yet disagree on the best solution. It is not the function of a regulator to change the opinion of the fire marshal or the police commissioner but rather weight their expert opinions to devise the best proportional blending for the public interests. This is a balance of considerations for the National Building Code in arriving at a mandatory number of exits relative to building occupancy. In the case of the Pressure Welders Regulation, the government oversight appears to have been allowed to evolve from a singular biased viewpoint of the regulation for which the oversight is to provide expert opinion.

As an example of a regulatory failure, consider photo radar. Public outcry over this scheme required regulators to provide evidence in support of photo radar use to increase public safety. What research actually revealed in most any jurisdiction utilizing hidden photo radar in random unsigned locations was that, it was very good at generating revenue but had no measurable effect on reducing speed or the frequency of speeding behavior by the population that the system was intended to impact. Ultimately, the use of the system in this manner has no safety value to a population. Warning signs indicating the use and permanent camera locations; however, are showing statistical

evidence of improved compliance behaviors from the regulated population.

The Pressure Welders Regulation, as just one example of a specialized regulation intended to ensure public safety, is less criticized than photo radar only because its impact on the general population is less obvious. This does not however diminish the government's responsibility to either the regulated industry or the public in providing evidence of a regulation achieving its intended outcome within accepted measurable parameters for performance (De Civita, *et al.*, 2012).

Regulatory impact analysis has evolved substantially globally and federally within Canada. Recommended guidelines readily available include:

- *Government of Alberta Guidelines for Regulation Impact Reporting of 2012,*
- *A good practices Handbook for Managing Regulatory Impact Analyses (from the federal government produced in part by the University of Alberta),*
- *Multiple papers by the Organization for Economic Cooperation & Development, etc.*

These and others all include for a transparent interdisciplinary process that looks at all facets of regulation production, execution and monitoring for operational effectiveness. This includes for legal and policy development and revision, stakeholder consultation, economic considerations, public communications, and other considerations (De Civita, *et al.*, 2012). These modern regulatory management practices are simply beyond the current subject matter expert (only) approach utilized in the Pressure Welders Regulation oversight and likely the oversight of considerably more regulations in Alberta.

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3.4 Existing Policies

With specific consideration to only the experiences between AWOC and the various ministries and agencies responsible for the Pressure Welders Regulation; no known policy has ever been introduced, utilized or otherwise referenced for guidance during the regulatory reviews of 2011 to 2014 and 2017 through 2020.

Despite no apparent usage of an existing policy, there remain within the public realm at least three distinct policies for regulatory review.

They are listed and discussed below.

Government of Alberta Guidelines for Regulation Impact Reporting (Government of Alberta, 2012)

This document last updated in August of 2012 was intended for use by all ministries in the adoption of new, and review and reform of existing regulations. It went so far as to require a "Regulation Impact Report" be filed with the registrar along with any new or amending regulations and provided a definition of: "(a) *regulation*" means a regulation that is required to be filed under the act."

Review guidelines detailed in this document included for the evaluation of:

- necessity,
- effectiveness,
- proportionality,
- transparency,
- accountability, and
- consistency.

To our knowledge, none of these criteria was evident, discussed or utilized during the review of

the Pressure Welders Regulation prior to its re-issuance in 2014. It is further noteworthy that the revised regulation added two certificates and as such, also introduced additional fees for those certificates, ergo the changes to the regulation in 2014 by the government's own determination criteria were "substantive".

This regulatory review process was documented in the public realm via an announcement report titled "*Regulatory Excellence – Regulatory Review Secretariat*" published by the then Minister of Finance and Enterprise. The clearly stated objectives included:

- reducing regulatory burden on businesses,
- reducing overlap,
- simplifying compliance requirements, and
- revising or eliminating regulation.

Safety Systems Review – Final Report (Alberta Municipal Affairs, 2003)

This report though aged (2003), was published jointly by Municipal Affairs and the Safety Codes Council as the result of a province wide consultation on the effectiveness of the Safety Codes Act and its level of administration at the time.

Issues with the "Legislative and Regulatory Framework" were identified as one of eight major themes emerging from the report's production. It more specifically suggested "...improving the process for amending regulations...".

There has been little evidence of effective review and improvement relative to the Pressure Welders Regulation between the publication of this report and the present day.

Safety Codes Council Policy and Information Manual (Safety Codes Council, 2001 – Included in the Appendices)

The chapter within this manual titled “Code Review & Updates” was removed on July 15th of 2019 as a portion of the “Red Tape Reduction” initiative. The removal was sought as a large portion of the section dealt with National or International Codes and Standards that were duplicitously unnecessary for review by the Safety Codes Council. Portions of the sections that deal with regulatory review, however, remain in place as the formal policy of the Safety Codes Council though they have not been reproduced to date within the public realm.

Despite this, the policy had existed in written form from 2001 onward and should therefore have applied and been utilized in past and current regulatory review cycles. The policy provides a flow chart specific to the Boilers and Pressure Vessels (the broad heading under which the Pressure Welders Regulation would be found) that includes for eight sources of review issues to be considered (See Appendix 3). The current regulation review was however restricted by Municipal Affairs to only address issues of safety. To the knowledge of the authors, the other regulatory concern relative to these eight sources were not examined despite the prevailing policy.

It is of greater concern that no member of the Pressure Equipment Sub-Council or it’s appointed Pressure Welders Working Group industry members, seemed aware of, or referenced the policy in either the 2011 to 2014 or current ongoing review periods for the Pressure Welders Regulation. Without this awareness, industry and the public in general was unable to fully effect

Regulatory amendment to address evolving challenges and opportunities.

3.5 Contradictory Policy Evolution

Within the wording of the “*Guideline for Regulation Impact Reporting*” is advice for Ministers, government and agencies to find alternatives to regulation wherever possible including “...*guidelines, codes, standards, programs, policies, etc.*” (Government of Alberta, 2012).

Conversely, the Safety Codes Council Policy denotes the use of documentation additions to regulation inclusive of clarification, interpretation or others arising from use of the regulation, to be considered issues in and of themselves and advises that they be incorporated within any regulation during subsequent review cycles (SCC, 2001).

During past and current reviews of the Pressure Welders Regulation, the typical practice of Municipal Affairs, ABSA and others has been to add to the extra-regulatory documentation to further any requisite clarification or interpretive need. There has been resistance to incorporate existing extra-regulatory documentation (e.g., past historical clarifications, interpretations, etc.) into the regulation itself, despite the fact that this is the preferred means of reducing and maintaining a lean regulation while still adequately addressing any issues relative to industry use of the regulation.

This ad hoc and unchecked blending of these two policies has had the unfortunate result of creating the exact opposite effect of either policy’s intent. At times, the Regulator or Administrators have proposed issuing additional “AB” or “IB” documentation to address regulatory inconsistencies, as opposed to direct regulatory

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amendment. As a result, the “culture” of the current regulatory system is to add to the volume of regulatory documentation in lieu of direct regulation amendment. This creates the unintended consequence of creating additional industry burden (especially for small medium sized enterprises) in direct contravention of the outcome desired by or intended of either policy.

4 Pressure Welding in Alberta

4.1 Defining a Pressure Welder in Alberta

Nationally, every province and territory in Canada provides access to “Red Seal” certification to establish a recognized level of Journeyman competence in welding (or similar trades). The federal government does not establish how each province establishes a trade, provides training, establishes apprenticeships, defines journeyman to apprentice ratios or sets required hours of work experience and schooling to achieve the Red Seal certification. Significant differences in training schemes exist and are summarized on the Ellis Chart (ESDC, 2019). It remains an important distinction that despite access to Red Seal certification, attaining this certificate is not mandatory in every province nor does it establish any minimum entry prerequisite to pressure welding certification in every province.

Regardless of the national standard Red Seal certification, the provinces have often mandated additional testing and regulated programs to segregate pressure welding qualifications from those of welding skills in general. Most but, not all schemes have required the Red Seal certification for entry into pressure welding as a minimum. For Albertans, the entry route to long-term certification for welders under the current Pressure Welders Regulation requires the attainment of a provincial journeyman level certification with

respect to welding issued by the province of Alberta. (Note: there are some opportunities for apprentice welders that will be discussed in Section 4.2). Thereafter, a practical test administered by the provincial authority (ABSA) is conducted to award a certificate of competency for pressure welding (Pressure Welders Regulation, 2014).

The most common form of pressure welder in Alberta is the “Grade B Pressure Welder Certificate of Competency” (Pressure Welders Regulation, 2014). Once issued, this certification does not expire, and typically no further regulator testing is conducted to assess continued competency. Welders performing pressure work are further regulated by the adoption within Alberta regulation of the ASME codes and CSA-B51, recognized and enforced in all provinces for conducting pressure welding. To that end, as required by the Pressure Welders Regulation, a Performance Qualification (PQ) Card is issued to each Welder that further identifies the specific limitations/ranges of their qualification. The PQ card has an expiry date that necessitates renewal and/or retesting with consideration of the Pressure Welders Regulation and CSA / ASME codes.

As such, the onus for compliance is born by employers and companies to continually test, qualify and maintain records of qualification for all welders and the work performed by them. Nationally, jurisdictions including Alberta conduct compliance audits on employers of pressure welders who legally carry the ultimate responsibility for ensuring compliance.

In Alberta, the rest of Canada and most international jurisdictions; there do not exist unions, labour organizations, collective bargaining units, professional associations or other entities

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that solely represent welders in any manner similar to other skilled trades. For the most part, welders exist as Boilermakers, Pipefitters, Ironworkers, etc. Similarly, within the collective agreement between the Province of Alberta and its' own employees, there is no mention of welders as a classification of employment (AUPE, 2018).

In summary, for Alberta-based welders, the entry route to long-term pressure certification is through the completion of a welding apprenticeship, attainment of the journeyman welder level and successful testing to the "B" Pressure Certificate of Competency administered by ABSA. Subsequently, the employer then utilizes PQ Cards to manage and continuously renew/retest welder qualifications to governing construction codes and regulations.

To navigate this (often complex) qualification path requires application of the Safety Codes Act, Pressure Welders Regulation, Apprenticeship and Industry Training Act, Apprentice Program Regulation and Welding Trade Regulation, and the governing CSA / ASME Codes of construction. Additionally, there may be customer-specific specification requirements applied on a per-project basis. As such, industry input has expressed concerns with the overall complexity of the qualification and certification system and continually seeks means for refinement and simplification of these welder performance qualification processes.

4.2 Challenges for Welding Apprentices Entering the Pressure Welding Sector

Within the Pressure Welders Regulation there do exist avenues for pressure certifications available to apprentices.

These are summarized as follows:

- i) Pressure Tack Welder Certificate of Competency – Introduced in the 2014 issuance of the Pressure Welders Regulation in response to changes in the ASME codes. Requires application from a candidate's employer, perspective employer or a testing organization.
- ii) Grade C Pressure Welder Certificate of Competency – Only available to 2nd year or higher apprentices and typically limited to 2 years irrespective of an apprentice's ability to gain and retain employment. This certificate also requires employer application and generally expires or becomes invalid with a change in employment.
- iii) Machine Welding Operator Certificate of Competency – Restricted to mechanized and automatic welding processes as defined in the ASME code. By standard agreement with Apprenticeship and Industry Training for the Submerged Arc Welding (SAW) process only, this regulated certificate requires no formal apprenticeship and can be acquired based only on employer training, application and testing. By special application for exception, other welding processes may also be exempt from requiring any apprenticeship and may also be acquired based only on employer training, application and testing. These certificates do not expire.

This system of additional certifications with limitations / caveats thereto creates a barrier to

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actual hands on training of welder apprentices employed within the pressure equipment industry; as compared to welder apprentices employed and training in other facets of the welding trade. Discrepancies such as these that restrict access to effective training are defined in regulatory analysis as unintentional negative outcomes (Tamkin *et al.*, 2013). With respect to the current regulation's goal of ensuring public safety, it remains unclear how limitations to effective training aid in producing the desired regulatory outcome. A prevalent anecdotal industry opinion towards pressure welders is that their 'pressure welding apprenticeship' only truly begins after they have completed journeyman training and pressure certification. As such, there is industry desire to simplify an apprentice's entry, participation and training in the pressure welding industry.

Though significant training in general areas of safety, trade math, layout, material preparation and other focus areas listed in the Welder Trade Regulation are able to be provided by employers; actual arc time or welding operations on materials intended for eventual use in pressure application is strictly and severely limited for apprentices. In other trades such as machinist, electrician, bricklayer, auto mechanic, millwright and so forth; apprentices received equivalent on the job training in similar relevant generalized areas but, are not restricted by other regulations from gaining actual hands on experience in the primary functions of their trade craft.

The current required curriculum for 1st year *Welder* and *Wire Process Operator* apprentices in Alberta focusses on teaching the wire feed welding processes (GMAW, FCAW, MCAW & SAW). There is no further formal schooling on these processes after the 1st period schooling included in the

curriculum. To advance to 2nd year status, an apprentice must successfully complete the mandatory 8 weeks of 1st period schooling and 1500 hours of employment under an apprenticeship contract. As stipulated above; opportunities for apprentices in pressure welding employment are severely limited.

When closely examining the trade regulation for the *Wire Process Operator* against the Pressure Welder Regulation an inter-ministerial conflict becomes clearly apparent. Were an apprentice of the *Wire Process Operator* route to be employed in the pressure welding facet of the industry, the only hands-on available arc time training permitted by the Pressure Welders Regulation would be tack welding or the SAW process. In essence, such an apprentice could complete all their requisite schooling and hours without any employer training in GMAW, FCAW or MCAW processes that constitute the majority of the trade focus.

Not only does such a circumstance seriously undermine the effective training of any *Wire Process Operator* apprentice in this situation, it also causes a serious conflict for any employer in that they are both legally required to provide training (via Apprenticeship Regulation) that they are legally prohibited from providing (via Pressure Welder Regulation). Such an extreme example of a regulatory barrier requires apprentices in this route to simply find employment outside of pressure welding sector entirely. This complete form of regulated barrier is economically considered monopolistic market closure (Redbird, 2017).

The concerns for the traditional *Welder* apprentice are of a less extreme example but of equal importance. Specifically, in compliance with the Apprenticeship and Industry Training Act,

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employers bear 80% of apprentice training responsibility and are legally obligated to routinely sign off mandatory apprentice logbooks for *Welder* apprentices to accumulate training hours towards their apprenticeship. If it is even partially true that industry and regulators are aware and not acting to mitigate the circumstances of hands-on welding limitations outlined herein then; the resulting condition is defined as regulatory failure (Beales *et al.*, 2017). This specific circumstance is outside general public knowledge or understanding; however, the potential negative impact on the public trust of regulators cannot be understated (Coglianese, 2012).

Though not directly related to the Pressure Welders Regulation, numerous supporting reports and studies dealing with apprenticeship schemes are highly critical of their lack of economic progression.

Perhaps the most relevant current such report is the C.D. Howe Institute's "*Access Denied: The Effect of Apprenticeship Restrictions in Skilled Trades*". In the most simplistic terms, this and other studies find serious flaws and faults with Canadian skilled trades regulations in general. They argue that defined and enforced ratios of apprentices to journeymen promote uptake in good economies and often leave apprentices stranded when economic conditions decline (Brydon & Dachis, 2013). The addition of the Pressure Welders Regulation serving to further restrict labour market entry qualification is, in the views of such research, only exacerbating an already serious issue of labour attraction, supply and stability. These labour issues are widely accepted as problematic in Alberta and the government themselves have previously researched and published reports identifying these

concerns for years (See Yarmuch, *et al.*, 2012; CME, 2013; Eisen, *et al.*, 2019,).

The naturally occurring cycles of growth and reduction in economic conditions versus apprentice uptake and training in any skilled trade are therefore never aligned. It is a further noted and criticized fact that throughout Canada, Provincial government budgeting for funding apprentice training institutions and education programs often forecast on past data that is ignorant of current trends or future demands. Alberta's situation has been extreme in that a single multi-billion-dollar energy development project can effectively monopolize and over-tax the available labour supply and skew statistical data used to forecast labour training, funding and support for years. In Alberta, local market labour shortages have been directly linked to investor confidence in Alberta and in particular, the Energy, Oil and Gas sector's development (Eisen *et al.*, 2019).

Not only has this very condition played out in multiple growth and decline cycles within Alberta; it has also served to detract from uptake interest in apprenticeship programs that are directly impacting the current and future availability of skilled labour. The current Apprenticeship and Industry Training Statistical Profiles report (AIT, 2018) on apprenticeship contains all the historical and current data required to support this view.

The Welder Trade Regulation permits employment of up to 3 apprentices for each journeyman (Government of Alberta, 2018). Outside the pressure welding sector, this allows greater opportunity for entry and training in welding and apprentice arc time training during employment. It also allows employers in this sector to maintain relatively lower wage costs when higher levels of

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apprentices are employed. However, the restrictions on certification and limitations for actual welding permissible at the apprentice level with the pressure equipment sector, effectively limits employer's ability to achieve the same apprentice to journeyman ratios allowed elsewhere. Evidence collected with respect to the various labour and collective agreements in place, within the pressure welding sector, shows an average employer requirement at only one apprentice for every three journeymen. Or, the complete reverse of the ratio allowed for in the Apprenticeship trade regulation.

Whether inside or outside the pressure equipment sector, ratio levels for apprentices which are prescribed by regulation are largely felt to be flawed within current economic theory. At a minimum, entry opportunities can only grow as economic growth occurs and employment increases. Reactionary treatments of labour conditions within regulation causes a built-in lag for market required levels of journeymen equal to the regulatory mandated training times for the qualification under consideration (Brydon & Dachis, 2012).

The greater the number of regulations that exist between apprenticeship entry and training, and the final stage of certification required to perform the work, the greater the delay in labour availability relative to market demand. This is a relatively simplistic overview of the applicable economic theories however, the effects of such cyclic shortfalls in qualified labour have been observed in Alberta. The current level of regulatory burden is known to be at least one act and three regulations applicable to welder training combined with one act and two regulations specific to pressure welder certification.

4.3 Alberta Welder Employment

Relative to the apprenticeship and training schemes outlined above and the requirements for employer-based application to the available options for apprentice pressure certification; a significant portion of welders and apprentices are simply not employed in traditional single employer situations. Vast numbers of pressure welders are represented via the Boilermaker Local 146, Pipefitters Local 488, CLAC and other situations often acting as labour providers to multiple employers for short- and long-term projects. These organizations often also represent their members in collective bargaining.

Though there do exist more stable long-term employment opportunities in multiple shops, manufacturing facilities and other pressure welder requiring employment, these are also subject to the same market condition variations affecting their employment numbers and retention abilities.

Exact statistics on the number of pressure welders routinely practicing in multiple employer situations is not sought out or provided in this study. Such investigation is potential future work for industry to evaluate, as it would provide quantitative assessment of the conflict for apprentice training when employer-based applications and fees are mandatory.

In past and current Regulatory review cycles, the Regulator, Administrators, support organizations and regulation review committees have been advised of these barriers and conflicts. For example, requests have been made to change the pressure certificates availability to apprentices to allow for an individual to apply and hold the certificate. This would make the qualification transferable between employers, potentially

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...serving to increase hands-on training opportunities for qualified apprentices. Additionally, it has been proposed to also permit first year apprentices to pursue pressure welding certification (i.e., which they could do in other jurisdictions). This was not revised in the 2014 issuance of the Pressure Welders Regulation and it does not appear likely any revision to the existing requirements will occur in 2020.

“Licensing often requires aspiring workers and entrepreneurs to devote substantial resources—time, money and income forgone—fulfilling burdensome requirements that may not make them better at doing their jobs.”

(Kleiner & Vorotnikov, 2018)

5 Literature Review

Notes to the reader

In order to avoid confusion within this section, the authors, when referring to **this study** will segregate it through use of **this study** in bold italics. Any other reference to “this report, this study, this document” etc. will be a reference to the specific document under the section heading alone and no other document.

5.1 The literature – General Synopsis and Commentary on Regulation

This review examines various literature sources in alphabetical order. Included is commentary relative to the topics and themes examined in **this study**.

5.1.1 Alberta Competitiveness Council, (2011), *Moving Alberta Forward*.

This government of Alberta report provides some clear evidence of the previous identification of regulatory issues relative to sustaining Alberta competitiveness in the national and global markets. It also references regulatory reform programs; the results of which are unknown. Little evidence of reformation with respect to any skilled trade can be found. Further stipulations around issues of lacking establishment of assessment measures, increased regulatory coordination within government and quality based regulatory improvements were listed as problematic issues in need of change.

“Regulation is essential to a well-functioning economy, assuring environmental sustainability, and creating a safe and just society. But outdated, duplicative, and uncoordinated rules can also impose unnecessary compliance costs. For business and industry, this can lower efficiency and productivity, resulting in competitive disadvantages.”

Moreover, the establishment of assessment measure for regulatory efficacy was prioritized as an actionable item by this report and initiated through the Alberta Regulatory Review Secretariat.

Manufacturing and Petrochemicals/Chemical were two of five key sectors focused on in the report. Regulatory reform and issues of labour availability, training, mobility and sustainability were common to both these sectors.

Many of the programs and initiative that began in Alberta at the time of this report have either been abandoned, morphed into other programs or otherwise removed from focus. However, the issues relative to Alberta competitiveness which the report identified remain to this day.

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5.1.2 Beales, Howard, *et al.*, (2017), Government Regulation: The good, The Bad & The Ugly.

By their nature, the Federalist Society who generated this document, are exclusively concerned with legal originalist interpretation based solely on the U.S. Constitution. Made up primarily of lawyers, their membership includes multiple current members of the U.S. Supreme Court.

The 2017 report is highly critical of government policy in regulatory production. They cite numerous examples of highly politicized regulations on items such as pollution, education, medical research, etc. that, after winning public approval, fail to implement clear goals, measurable checks and balances or implement adequate budgetary oversight processes.

The group conclude that regulatory goals should always be based on wholistic enhancements for all. They point to studies of deregulated industries as having gained investment, growth, reductions in consumer pricing and improved overall market conditions. They also quote multiple economic studies which have attributed trillions of dollars in lost domestic growth since 1949 to poor regulation.

5.1.3 Brydon, R., and Dachis, B., (2013), Access Denied: The Effect of Apprenticeship Restrictions in Skilled Trades.

This study criticizes regulation of skilled trades in Canada and focusses on the impacts of apprenticeship regulation. It generally concludes that apprenticeship regulation focus is misplaced on entry, pre-qualification and restriction. The study recommends a wholesale change in focus to

those of apprenticeship training outcomes. Greater industry and public needs can both be met via greater concentration on skills, safety and interprovincial cooperation.

Market conditions naturally adjust employment numbers with or without regulations. However, attempts to regulate entry and growth in skilled trades via the establishment of ratios, incremental certifications and other similar programs routinely fail to align with market conditions. This has produced serious shortages or overages within a trade when regulatory schemes are unable to react to market changes.

The study recommends all provinces remove outdated and harmful apprenticeship regulation and support federal policies encouraging mobility and entry into trade programs.

5.1.4 Canada, External Advisory Committee on Smart Regulation, (2004), *Smart Regulation; a Regulatory Strategy for Canada.*

This aged report from 2004 reinforces a common issue with regulatory reform; that of the knowledge and means available yet no evidence of provincial government effort on reformation in Alberta. The issues and rational for revision and reform methodology suggested in this report are similar (if not identical) in nature to more modern reports and studies reviewed in *this study*.

The report cites globalization, mobility, scientific and technological advancement among its rational for regulatory reform. These topics and themes are relevant issues pertaining to *this study*. Extensive sections on manufacturing and oil and gas industries point to regulatory artifacts or historical legacy issues as impediments in these industries.

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In fulfilling its mandate, the External Advisory Committee on Smart Regulation provided outlines for regulatory accountability and policy that include for open and transparent evidence-based decision making, benchmarking and balancing of interests inclusive of the greater public interest and not any specific industry or group.

5.1.5 Canadian Federation of Independent Business (CFIB), (2018), Red Tape Report Card 2018.

The report card gave Alberta an “F” grade for regulatory reform noting that the stated position of government at the time of the report was:

“Government ministers have repeated that identifying regulations to eliminate is extremely time intensive and is not a good use of civil servants’ time. The government states performing comparative analysis for proposed and existing regulation takes bureaucrats away from drafting new policies.”

5.1.6 Canadian Federation of Independent Business (CFIB), (2018), Research Snapshot; The Cost of Government Regulation on Canadian Business.

This report deals primarily with the relative cost of regulation borne by small and medium businesses in Canada. CFIB identifies significant concerns for Alberta enterprises and the regulatory climate in the province. They make the following recommendations relative to red tape reduction:

1. Measure the regulatory burden
2. Institutionalize the measure by reporting it regularly to the public
3. Impose constraints on regulators
4. Make regulatory accountability a political priority and appoint a minister responsible

5. Ensure adequate communication of existing and proposed regulation
6. Focus on areas that will be most economically productive
7. Carefully consider the need for all new regulation and the impact on small business
8. Keep compliance flexible and provide basic examples and guidelines for what constitutes compliance and non-compliance
9. Improve government customer service
10. Improve accountability for regulators by instituting such measures as reverse onus guidelines for timeliness and communication”

5.1.7 Canadian Federation of Independent Business (CFIB), (2015), Canada’s Red Tape Report 2015.

Of the three CFIB documents utilized in *this study*, this particular report is the most detailed whereas the others report snapshots of specifics.

The CFIB have been surveying and reporting on the state of SME’s (small & medium enterprises) for over 40 years and continually place the cost of regulation second only behind taxation as a concern to SME’s.

It was in fact the CFIB, and not any level of government, who first reported on the cost of regulation to Canadian businesses at 33 billion dollars in 2005. Alberta’s cost by simple population percentage would have been \$4 billion and the costs have only increased over the years.

The report concludes with the same ten recommendations listed in 5.1.6. However, much greater detail and examples of statistical collection and methodology are provided for use.

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Perhaps of greatest interest is survey respondents' views on regulatory considerations by government. The vast majority of respondents do not feel government considers regulatory impact on their businesses at all.

5.1.8 Canadian Manufacturers & Exporters (2013), Manufacturing Alberta's Future; Driving Investment, Growing Exports and Creating Jobs.

This report's focus was primarily on the manufacturing sector in Alberta which, at the time of the report, accounted for 13% of all Canadian manufacturing. The CME produced the report to recognize and support growth in this sector within Alberta. CME also cautions the sector with respect to known issues and presents guidance for continued strong growth.

Regulatory and labour issue again were presented as dominant concerns and CME reminded businesses of their own roles and responsibilities in supporting and initiating improvements in these areas.

“Champion a regulatory modernization action act aimed at ensuring regulatory management in Alberta follows global best practices in efficiency and effectiveness by implementing a risk-based regulatory management approach that improves regulatory compliance, simplify compliance requirements by aligning regulations to best practices in other jurisdictions and reduces compliance costs.”

The report concluded that continued growth was possible and provided an outline for business and government policy to aid in achieving a nearly doubled capacity by 2020. Unfortunately, current economic conditions have eroded the manufacturing sectors output in Alberta and the cautions and advice offered in this report have been underutilized.

The sector is generally performing at slightly lower rate than 2012 when adjusted for inflation and accounting for reduced employment numbers (CME stats, 2018).

5.1.9 CAPP (Canadian Association of Petroleum Producers), (2017), A Competitive Policy and Regulatory Framework for Alberta's Upstream Oil and Natural Gas Industry.

Though this study deals primarily with the concerns of petroleum producers, the resounding similarity of issues relative to economic growth warranted its inclusion in **this study**. CAPP analyze and report on the differences in regulatory policy between the US and Canada relative to oil and gas production; including the growth that US policies have generated verses the decline in Canada and Alberta.

This report largely focusses on the regulatory impact to investment. However, upon reading the report one can apply similar and directly relevant conclusions and recommendations to the status of skilled trade regulation as per the focus of **this study**.

5.1.10 Coglianesi, Gary., (2015), Listening – Learning – Leading; A framework for Regulatory Excellence.

This report was produced for the Alberta Energy Regulator by one of the foremost authorities on regulatory policy and reform we have today. The report examined global trends in regulatory reform and modeled recommendations specific to Alberta inclusive of regulatory efficacy measurements.

Utilization of a strategic management approach in regulatory review, reform and improvement is emphasized, as well as deliberate planning phases

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for engagement and measurement. The report clearly requires that regulators have strong leadership and guidance as keys to success in regulatory excellence. Regulators when left alone to manage or fend for themselves often default to the gathering only the “low hanging fruit” in terms of assessing their own performance. As in agriculture, this approach leaves the richest, and most valuable outcomes unharvested and unrealized.

“When it comes to being strategic about measurement, the regulator must take pains to avoid what is known as the “lamppost problem” This problem’s name derives from an old joke about a drunk who at night looks under a streetlight outside a bar for the keys he knows he dropped in the parking lot, well away from the lamppost. But the drunk person says he is looking under the lamppost “because that is where the light is.””

The report provides very clear and up to date guidance for the creation of effective regulatory bodies and not just regulation. Once these two paths are developed and merged then continuous improvement methodology is added to keep the system evolving and meaningful for the long term.

An important part of the process recommended for Alberta is the introduction and use of Regulatory Impact Assessment (RIA). This has been touched on in numerous literature and existed at one time under the Alberta Regulatory Review Secretariat. Regardless of the current state of RIA in Alberta; the majority of global best practice in regulation now utilizes some form of the methodology.

5.1.11 Coglianesi, Gary., (2012), Measuring Regulatory Performance; Evaluating the Impact of Regulation and Regulatory Policy.

This is one of several OECD (Organisation for Economic Co-operation and Development) reports sourced for **this study**. Though the OECD concerns are more wholly focused on provisions for economic and employment growth and rising standards of living for member nations, the means for achievement relative to regulatory policy are applicable at all governmental levels.

The report notes policy revisions within several member nations to the way new regulations are developed. However, the OECD is highly critical of the lack of re-evaluation applied to existing regulations. They further point out that it is the existing regulatory environment that dominates the GDP of member nations and requires immediate attention to remedy.

The conclusions and recommendations of this OECD report follow suit with resounding similarity to the CFIB and others cited herein. Where the OECD report excels is in the details for framework development and reference material made available for member nations to utilize. It is noteworthy in any OECD paper cited in **this study** that; application of their recommendations at all governmental levels within member nations is wholly supported and encouraged.

5.1.12 Colorado Department of Public Safety, (2018), Proposed Schedule for Comprehensive Review of Rules.

This document is a public domain published schedule for regulations due for review in the State of Colorado. The document has a clear set of guidelines to be utilized during any review and is a very good example of the adoption of modern regulatory theory and policy into action by a regulator.

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The complete document is included in Appendix 2 and utilized in *this study* as a case study (see Section 7.1.3) as it demonstrates a sharply contrasting and modern approach to the current regulatory review processes typically used in Alberta.

5.1.13 Commonwealth of Australia, (2014), *Regulator Performance Framework.*

This document is perhaps the most effectively developed regulatory performance framework implementation plan available. See Appendix 3 for the full document and Section 7.1.4 for analysis. The framework is written more like a “handbook for regulators” without reams of academic consideration supporting it. It exists as the roadmap for use and is enforced by the Government of Australia in part to provide cost reduction to any regulation utilized in Australian.

It provides simple flowcharts for development at Ministerial levels, data collection recommendations, KPI (Key Performance Indicator) development and examples at a minimum. The guide further imposes transparency requirements, review schedules, best practices and reporting guidelines for regulatory bodies to adopt.

It is a noteworthy consideration that in producing annual reports, regulators are required to self-assess and provide external reviews of their performance. As a KPI of its own, increased alignment of internal and external assessments is an indicator of regulatory review success that drives alignment between regulator policy and industry needs.

5.1.14 De Civita, P., et al., (2012), A Good Practices Handbook for Managing Regulatory Impact Analysis.

This document is a product of the Government of Canada and reiterates the evolution of Regulatory Impact Assessment (RIA) to include a great many factors not typically noted or reported in Alberta. Public consultation, economic impact and decision analysis tools are just a few of the items not regularly undertaken in Alberta when renewing or introducing regulation.

Though largely intended for federal regulators, the handbook’s development was predicated on marrying the latest independent academic theory, existing varied ministerial policies and technical guides in the public domain into an implementable and useable regulators handbook. This handbook does suggest a detailed breakdown of responsibilities relative to federal ministerial department structure.

Like the previously reviewed Australian performance framework (see Section 5.1.13), the key points of this Canadian example are quite similar in nature. However, some users may find this handbook to be less ‘user friendly’ for implementation and more academic in nature, as compared to the Australian counterpart.

5.1.15 Economic Insight, (2012), A Methodology for Assessing Regulatory Failure Risks.

This paper is one of very few that focuses on regulatory failure risk, anticipation and mitigation methods. Though produced for the UK Department of Environment, Food & Rural Affairs, it does also provide commentary on regulatory failure in general terms applicable to a multitude of environments, including topics of *this study*.

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A classical example discussed was that of de-regulating Royal Mail pricing. Rather than a detailed analysis supporting the decision, the regulator in this case succumbed to market / external pressures and rather than risk a system failure within the regulated sector. Though not specifically discussed; one is led to believe external un-regulated competition from 3rd party delivery services were significantly pressuring the Royal Mail pricing structure.

What was specifically discussed was the Royal Mail's self-actualization of their monopolistic behavior over the years. The internal development of pricing models had neglected to consider what would have occurred in a fair competition market environment. Profits under the regulated pricing scheme had led to the Royal Mail overinvesting without clear evidence as to a fair market rate of return.

The Royal Mail example followed the theoretical prediction for regulatory failure in evolving costs higher than any public economic benefits that could be expected from the service at the price point it was being provided.

Though a seemingly radical move to de-regulate so quickly; such circumstances are occurring with greater frequency considering global influence and competitive factors previously not encountered within a given market region.

Commentary: Recent allowances for ride sharing services in Alberta are also examples of regulators being forced by public pressures even though the changes were harmful to the economics of the otherwise regulated and insulated monopoly of taxi licensing.

5.1.16 Eisen, B., Clemens, J., and Veldhuis, N., (2019), Alberta Prosperity; A Plan for Opportunity and Growth.

This report is entirely produced from an Alberta perspective addressing issues specific to Alberta though common to others discussed in **this study**. The report goes so far as assigning responsibility for the current economic climate in Alberta on poor policy decisions of the provincial government.

The report provides similar if not identical solutions as seen elsewhere within current policy and regulation theories. Where the report excels is in its use of Alberta specific economic examples and evidence supporting regulatory reforms.

Of specific note in this report are the examination and conclusions with respect to external investor confidence in Alberta's oil and gas sector with global investment continuing to move away from Alberta. Investor survey respondents cite Alberta's regulatory policy environment as one principle concern for investment. Labour market regulation was given specific mention as an investor deterrent.

Many recent regulatory changes made during the latest period of economic decline have been viewed as counterintuitive and reactionary, further undermining investor confidence. Some of the conclusions and observations in this report have been instrumental in formulating **this study's** concerns with current regulatory or red tape reduction programs.

Continued reactionary policy and regulation without evidence-based decisions will not improve investor perspectives in the long term. However, opportunities for abuses to the detriment of Alberta's citizens are of legitimate concern.

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Smart regulation discussion in this report follow many previous works in recommending regulatory revision inclusive of the measurability of efficacy, transparency, etc. In short, the recommendations of the CFIB (see Section 5.1.6) would align with many of the conclusions and recommendation of this report.

5.1.17 Fleming, Mark & Scott, Natasha. (2015), A Regulator's Guide to Safety Culture and Leadership.

This report's inclusion in *this study* is designed to provide regulators an evidentiary example of external regulatory policy considerations. The report was commissioned by two Canadian offshore petroleum boards to identify or refute safety culture commonalities in major global oil and gas incidents and how regulators might address any findings.

This study finds the report's conclusions to be of paramountcy in developing an effective regulatory framework in Alberta where any desired outcome is that of public safety. The report agreed with incident investigations which found safety culture shortcomings as a significant contributing factor in all the incidents.

In recommending regulatory approaches the report is less clear. Measurement and analysis of a safety culture is less technical and far more social science in nature thus, beyond current regulatory experience. As previously mentioned, the regulated review of safety programs is now mandated in Alberta's OH&S Act of 2018. This provides a bases for regulators in Alberta to align technical regulations designed for public safety outcomes with regulatory policy treatment of organizational safety culture issues. For example, how safety culture measures and improvement

methodology are dealt with which could provide local regulators a basis for continued study and program implementation.

Emphatically, *this study* recommends that any Alberta regulator dealing with public safety issues read this report. The incidents examined are ones in which significant loss of life and/or property occurred and the authors feel the gravity of these incidents is best absorbed personally.

5.1.18 Government of Alberta, (2012), Government of Alberta Guidelines for Regulation Impact Reporting.

This guideline is the only evidence found for *this study* that provides a formal process for regulatory review and development in Alberta. It is now aged and no longer easily found in the public domain.

Despite lack of evidence relative to its recent use, this guideline utilizes numerous examples of the methodology for regulatory review discussed throughout *this study*. Though apparently not consistently used by the Alberta Government over the last seven years; the methodology was a part of policy in place during the last Pressure Welders Regulation review. However, no evidence of its use during the review process at that time was noted.

The following "Guiding Principles" were published with this document by the Government of Alberta in August of 2012:

Necessity

We will require strong evidence of need before regulating.

We will ensure that existing regulations remain relevant through on-going review.

Effectiveness

We will strive to use a results-based approach in the design of regulations.

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We will ensure that regulations can be adequately complied with and enforced.

Proportionality

We will regulate as lightly as possible and use alternatives when possible.

We will ensure that both the burden of complying and the penalty for not complying are fair.

Transparency

We will consult widely before regulating or changing regulations.

Regulations will be stated in clear, simple language and properly communicated.

We will be responsive to what we hear from Albertans

Accountability

We will promote mutual accountability with both public sector and private sector stakeholders.

The Regulatory Review Secretariat will be accountable for measuring and reporting on our work.

Consistency

We will ensure that regulatory requirements in different sectors are consistent and coordinated.

5.1.19 Government of British Columbia, (2017), Achieving a Modern Regulatory Environment; B.C.'s Regulatory Reform Initiative.

This is an annual report (6th such report) for British Columbians on the progress of BC's regulatory reduction and reform programs also called "Red Tape Reduction".

Though a very broad overview in nature, the report does clearly stipulate and itemize rational for regulatory modernization inclusive of monitoring. It strives to eliminate burdens created by "...overlapping, confusing, and outdated requirements" (Government of BC, 2017).

The report further identifies past imbalanced burden on small business, the growth within BC of this sector and addresses regulatory inefficiencies to strengthen BC competitiveness in attracting businesses and investment.

BC has been working toward reduction and reform since 2001 and report a 2001 regulatory baseline reduction of 48% as of this report's publication in 2017.

5.1.20 Hanebury, J., (2006), Smart Regulation – Rhetoric or Reality?

Despite the age of this article, it deals with the historical nature of regulatory reform, Canada's leading role as a founding nation in the OECD and a longstanding history of good intention at the federal and provincial levels within Canada.

The article specifically points to systems like ISO and increased use of management systems in Canadian industries that rely on performance-based metrics, adaptive management and continuous improvement methodology. It further concludes that the tools exist, and a great deal of international information sharing was taking place for any nation to adopt in their migration towards "Smart Regulation".

The article concludes in support of performance-based regulation but does caution about legal, political and practical implementation issues that require effective planning and consideration. The article was published locally in the Alberta Law Review.

5.1.21 Humphris, Amy., & Koumenta, Maria., (2018), Regulating the Three C's: A Report on How to Regulate Labour Suppliers in Care Cleaning and Construction.

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This report was commissioned by the British Government to establish rational in decision making for regulating three sectors of UK labour. For direct application in consideration of **this study**, only specifics germane to construction or generalization applicable to all have been considered.

The report provides definitions and examples of standards within occupations as; licensing, certification, accreditation and registration with only the first two part of any regulatory scheme.

While the authors recognize a case for public safety-based regulation with the construction sector in the UK, they do not recommend licensing in construction. They suggest the available evidence indicates undue burden on smaller enterprises and individuals.

They caution that improperly imposed schemes can “dramatically impair” individuals and contractors operating over a wide variety of jobs. Licensing fees also tends bias towards urban areas neglecting either the increased social costs of remote enforcement or the individual costs of remote compliance. Any unilateral fee structure is subject to criticism of one region somewhat subsidizing another.

5.1.22 International Atomic Energy Agency (IAEA), (1999), Assessment of Regulatory Effectiveness; Peer Discussions on Regulatory Practices.

This aged report is included in this literature review due to its treatment at an international level of co-operation within an industry in the assessment of regulators and regulatory effectiveness. In a manner similar to OECD treatments of economic regulatory considerations, this group approaches

nuclear industry regulation through peer discussion and idea sharing for the betterment of the industry and public safety perceptions.

The report is resultant of efforts originated in 1989 to collaboratively adopt best practices and continuous improvement methodology to the nuclear industry via the sharing of information and experiences. The IAEA continues these efforts to this day.

The report reaches beyond what has been discovered and discussed thus far in regulatory development and implementation theory by suggesting performance indicators, measures and monitoring of regulatory bodies themselves.

In observing and developing best practices recommendation for regulatory bodies, the report stresses the importance of any body’s institutional independence from the industry it regulates. In support of improving public perceptions through open transparency, the report recommends:

“The regulatory body needs to have an internal quality assurance system to cover such items as internal rules, planning, budgeting, delivery of work to an acceptable level, audit and review.”

The IAEA are open in pointing out that the theoretical models they have utilized in developing their approach and recommendations are neither new nor unique to their industry. Such methodology is now common throughout regulation worldwide.

5.1.23 Jacobs, S., (2008), Regulatory Impact Analysis: Benefits and Application.

This literary source is a PowerPoint© presentation given to the World Trade Organization on Regulatory Impact Analysis (RIA). It is offered in

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this study due to the evidence presented of global uptake in the use of Regulatory Impact Assessment (or Analysis), relative to nations both OECD members and not (see Figure 14).

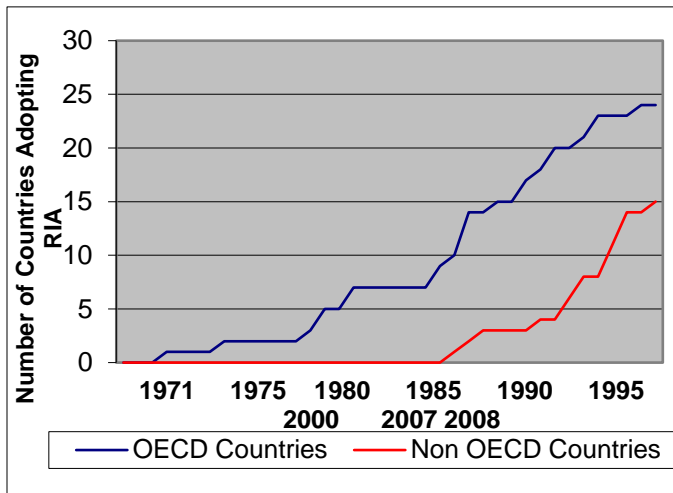


Figure 14 – RIA Adoption Trends Globally (Jacobs, 2008)

The presentation summarizes RIA as an evidentiary process for regulatory development, reform or review and offers some startling examples of the economic benefits. One example proved a net social economic return on investment of 10,000:1, reducing potential regulatory impact by over €8 billion for a €1 million cost of RIA.

5.1.24 Jacobs, S., (2006), **Regulatory Impact Analysis in Regulatory Process, Method, and Co-operation; Lessons for Canada from International Trends.**

This report was prepared for the Canadian government and largely parallels **this study** in the identification of longstanding regulatory theory and how implementation outside of Alberta and the rest of Canada that have aided the economic development of those regions.

The report focus is chiefly concerned with Regulatory Impact Analysis (RIA) and the analytical methods to be effective in RIA. It further cites

examples of achievements in other nations that Canada is lagging behind.

This report again reiterates the application of data collection and measures in regulation review. The authors further advocates for RIA training of regulatory body staff and of civil servants in general.

Readers are again introduced to benchmarking and evidence-based decision-making requirements in effective regulation policy, development and review. The report is approving of general federal regulatory policy but highly critical of lacking systems for monitoring and report on regulatory performance.

This report is highly technical and academic in nature and worthy of review. Its value to **this study** is the reiteration of common themes for effective regulation policy development and review from a wholly Canadian perspective.

5.1.25 Jones, L., (2015), **Cutting Red Tape in Canada: A Regulatory Reform Model for the United States?**

This summary report was generated for the US government as evidence supporting their initiative for removing regulations every time a new one is introduced. This program has been largely adopted at the federal level in the US but the basis for it is Canadian in origin. The US regulatory reduction policy now in place was modeled after a Canadian federal law developed almost entirely after the British Columbia program for red tape reduction in place since 2001.

The report refutes arguments against such “red tape reduction” systems and the criticism of the current US model for regulatory reform. The key

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factor that such regulatory reform be based on evidentially supported successes used in the Canadian based program. The Canadian program itself is not merely a 1 new in - 1 old out trade off but rather a more intensive wholistic treatment of regulatory burden. In the Canadian scheme even the introduction of a new form within a regulatory framework would require an old one be deleted, or a merger of documents occur resulting in a net-zero effect on the regulated population.

The report observes how the BC economy that lagged the rest of Canada in the 1990's has evolved into one of Canada's strongest provincial economies due largely to their regulatory reform policies. They also note that via a relatively simple process, BC was able to eliminate 37% of their regulatory requirements in the first 3 years after benchmarking their regulatory environment.

5.1.26 Lee, Maria., (2009), Beyond Safety? The Broadening Scope of Risk Regulation.

This paper explores the growing use of risk management in the development of regulation. It is critical of many past and current regulatory developments (at the time of the paper) and cites the politicization of risk as a means to produce regulation where none may be required.

The paper further explores how limited fixations on the technical componentry of risk has been erroneously and irrationally used to drive regulation; citing general public lack of understanding relative to the issue(s) being regulated. The author presents arguments supporting the view that new regulation may in fact develop out of a desire to capture new or emerging technology for no other reason than the ability to apply future control and realize potential economic benefits for regulators.

Technical objectivity is often suspect when offered as evidence of regulatory need. Such reports and studies are often funded by the regulator or the industry itself and may contain biases that would cause effects not in the public interest. Government and political reluctance to invest in independent analysis leaves little opposition to well-presented technical arguments.

An additional facet of risk-based regulation is that of changing social norms. The acceptance of risks by any society is largely influenced by that societies culture; what may be acceptable in one part of the world is banned in another. Regulatory ignorance of social trends is something populations are growing more aware of and less tolerant of simultaneously.

The paper develops some interesting case studies relative to emerging technology and the regulations developing around it from global and local perspectives. The legal trend within regulatory frameworks however retains the practice of shunning consideration of factors outside "safety" in regulatory decision making.

5.1.27 Lodge, Martin., (2015), Managing Regulatory Failure.

Though largely an editorial article, the piece does reiterate the views of multiple studies and propose some serious concerns for regulators with respect to changing social norms. The discussion starts by emphatically pointing out that negative incidents that occur in spite of regulation are in and of themselves, regulatory failures.

Regulatory evolution considering such occurrences has generally been that of additional measures of control, compliance initiative, raising fines or implementing other penalization methods. The

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article stipulates that public perceptions have moved beyond simply correcting wrong-doing and now seek addressing the root causes directly.

This requires blending regulatory frameworks with modern social science and examining the culture of a regulated industry and the organizations within it. Addressing root causes requires assessment of behavior issues not governed in control and compliance systems of regulating.

Mr. Lodge made a unique literature observation in asserting the reluctance of a regulator or politician to deal with the immediate demands of the media in the wake of any major incident. He concludes that media and public demands for answers are unwilling to wait for lengthy investigations and pressures to respond often spur politicized policy and regulation prior to actual evidence of causality.

5.1.28 National Audit Office, (UK), (2016), Performance Measurement by Regulators.

This document is a “best practices” guide for regulators in the UK to measure regulatory performance. The intent of the publishers is improved use of public funds and government accountability in public services. The guide’s inclusion in *this study* provides additional guidance models for Alberta regulators to adopt. Additionally, the existence of a wholly segregated organization focused on regulatory monitoring demonstrates the advanced state of regulatory performance measurement in the UK.

The National Audit Office (NAO) is independent of government and exists to scrutinize public spending. Within the UK regulatory framework, they also audit and certify the accounts of all

government departments and some public sector bodies.

The NAO collaboratively developed the regulatory measurement guide with various regulators within the UK. The NAO recognize the diverse and complex nature of establishing effective measures to any regulated sector. Furthermore, they identify the need for continuous revision and modification to any programs established. In arguing the defense of continuous improvement methodology, they point out the external factor effects outside regulated control and the outcome which often do not become evident for years.

The guide, in recognition of diverse regulation and application, does not suggest a single catch all model. Rather they propose framework development consideration that link indicators and data collection to the effective measurement of regulatory outcomes. The guide also includes for the overarching consideration by regulators of consumer protection, government spending, market competitiveness and regulatory clarity of all these features.

Supplemental to the guide, the NOA have made available a nine-page flow chart style document that illustrates the key consideration concepts of the report. The flow chart guides regulators through an effective decision-making process for developing their frameworks inclusive of open efficacy measurement and reporting criteria.

5.1.29 Parker, D., and Kirkpatrick, C., (2012), Measuring Regulatory Performance: The economic Impact of Regulatory Policy; a Literature Review of Quantitative Evidence.

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This publication from the OECD is another of their evidence reports on the status of available research into regulatory policy economic impact. In short, the volume of available research is limited yet, stark differences are noted between member nations with regulatory improvement initiatives and those without.

Complementary to findings in *this study*, this OECD report finds global evidence linking poorly designed and outdated regulatory environments reduce economic growth.

As the intent of the report is to summarize the available literature on the topic at that time, it provided direction for locating additional review literature and research on the links between regulatory environments and economic performance.

5.1.30 Radaelli, C., and Fritsch, O., (2012), Measuring Regulatory Performance: Evaluating Regulatory Management Tools and Programmes.

This paper is the last of the expert papers published by the OECD in 2012 and used in *this study*. In conjunction with other OECD works, this paper culminates the findings of their advanced academic treatment of regulatory management and performance measures. It builds upon previous works to develop “smart regulation” programs and refines performance measurement criteria thereof. The report further recommends the best use of various indicators and their application in specific regulated sectors.

The authors of this body of work specifically give thanks for contributions and support to the Government of Canada. See the; Treasury Board of Canada Secretariat., (2012), *Regulatory Reform*

and Administrative Simplification: The Canadian Experience, Presentation to the OECD Global Forum on Convergence, Available Online; <https://www.oecd.org/site/govgfg/39610455.pdf>

The report presupposes regulatory policies in place that are inclusive of “key principles of regulatory reform, e.g. effectiveness, legitimacy, fairness, simplification and comprehensiveness” (Radaelli & Fritsch, 2012). The principle treatment within the report is the refinement of indicators and analysis tools regulators can utilize to further the advancement of “smart regulation”. Their research focuses on developmental methods for regulators to capture quantitative data from a system of indicators.

Rather than further summarize, the report itself defines its principle contributions and importance thusly;

“This report examines and appraises the state of play with a range of regulatory quality indicators. It thereby contributes to the specialised body of work on measuring regulatory reform performance and the usage of tools like consultation, the standard cost model, and regulatory impact assessment. Measuring results is important

- for communication purposes;
- because data are indispensable to manage the regulatory system and plan reform, including termination of programs that are not producing the expected results, and
- to establish accountability and show the value for money of regulatory reform.”

(Radaelli & Fritsch, 2012).

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5.1.31 Thomsen, Carlo., (2010), Regulatory Performance Indicators.

This PowerPoint© presentation during a 2010 OECD global workshop on regulatory performance summarizes the global best practices development of regulatory performance indicators. Not only does it discuss indicators and their individual pros and cons in a broad sense; it further supports findings in other literature as to the behaviors of the various players in the process.

The presentation summarizes the roles of citizen and business as similar though differently motivated. Both groups desire protection either from poor quality or unsafe goods and services from market instabilities and risks of the unknown. Both groups also strongly desire low costs and less burdens placed on them when providing the protections desired.

Politicians are typically interested in reforms and taking steps to provide a balance of interests; motivated partly to demonstrate leadership abilities and popular initiatives that improve re-election opportunities. Government bureaucrats, conversely, often demonstrate resistant behaviors and shun change.

In focusing on regulatory indicators, the presentation offers two distinct indicator types for regulators to utilize. The first are internal indicators providing feedback on regulatory management effectiveness. The second are external market indicators analyzing the regulatory effects on competitiveness and burden.

5.1.32 Treasury Board of Canada Secretariat., (2007), Canadian Cost Benefit Analysis Guide; Regulatory Proposals.

This document references high level considerations for regulatory policy development and the comparative cost benefit analysis that should be performed in selecting an appropriate policy. The significant finding in this guide is the recommendation for multiple scenario analysis and forward projection for policy selection.

Essentially the guide provides routine recommendations found elsewhere in literature and regulatory guidelines for baselining. It then suggests development and analysis of varying policy proposals and the forecasting of cost benefits over time. By utilizing appropriate performance indicators, sector economic growth or decline trends and risk assessment methodology, the individual cost benefit models of various policy approaches can be predicted. The scenarios are then measured against one another to provide evidence to policy makers in selecting the best option relative to cost benefits for all stakeholders.

In recommending accounting statement development to define cost benefits, the guide segregates direct deterministic analysis of policy options from any stakeholder analysis. The stakeholder analysis itself clearly establishes policy cost impact on business be separated into small, medium and large businesses and appropriately weighted relative to the distribution of business sizes within any sector under consideration.

It also includes for comparative analysis across various levels of government and provinces within Canada.

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5.1.33 Yarmuch, Matthew., Perras, Thomas., & Meszaros, Kimberly., (2012), *Alberta Metal Manufacturing Sector Development Strategy.*

This local report was commissioned by the then Alberta Treasury Board and Enterprise to develop a strategy supporting the metal manufacturing sector in Alberta. Government's own awareness of the link between this sector's performance and energy development projects had been previously established. This strategy focused on efforts to support local manufacturing sector were explored in part to aid the growth of a local sustainable supply chain.

The recommended initiatives for government focus once again reflected those found in other literature. Key issues around the attraction, training and retention of skilled labour suggested early youth engagement and support for entry into skilled trades training and apprenticeship programs. Simultaneous development of programs to support training modernization, technology uptake and technical innovation were also recommended.

Key observations on the interrelated nature of the sector relative to the powerful influences of energy sector development led to recommendations for government facilitated collaboration and regional networking. The thought was to foster improved supply chain communication to expand utilization thus encouraging greater productivity and innovation with reduced investment risk.

The opportunities for Alberta improvement still exist today as the economic trends of the past several years have led to a lack of progress on the

recommendations in this and many other studies recommendations.

5.2 The Literature review – Occupational Licencing Synopsis and Commentary

Notes to the reader

The literature reviewed is presented in alphabetical order and deals with occupational licensure, including its impetus and economic effects. ***This study*** asserts that, the numerous treatments of occupational licencing parallel the treatment of skilled trade regulation in Alberta, with the generalized issues and solutions being consistently similar. The literature provides links as to how government bureaucrat behaviors, regimented policy and endogenous 'culture' can directly affect regulatory burden and economic challenges facing the public and industry in Alberta and Canada.

5.2.1 Berliner, Dana., et al., (2017), *Occupational Licensing Run Wild, Released by; the Regulatory Transparency Project of the Federalist Society.*

This report deals with bipartisan (Republican and Democrat) recognition of the "out of control" state of occupational licensing in the US. Both sides have recognized and agreed as to the harmful effects being perpetuated on American citizens and the entire US economy.

The study notes that occupational licensure since the 1950's has increased by 500%, now encompassing 25% of the overall economy and has become the largest single form of regulation in existence.

This work takes an almost unique approach to the growth of licensure as that of "Licensing Creep".

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The concept is that policy determination made for regulating services in which the general public had little choice in service provider (EMT's, Firefighters, Policing, etc.) would remain valid policies in all other occupational regulation development.

Thus, regulatory development typically ignores public interests while favouring the endogenous interests of the profession or market under consideration. The net result has been regulatory complicit monopolies to fair market competition, even under public pressures to expand competition.

Perhaps the most economically harmful abuse noted is that of using regulated licensing to impede innovation by:

- creating barriers to external competition (thus keeping external new technology out of the local market), and
- regulating occupational training (thus controlling which technology is adopted for a specific occupation).

“Reform efforts should aim to change policymakers' attitudes by using the facts to increase skepticism toward the use of excessive occupational licensure. As explained above, there is an overwhelming consensus among experts that occupational licensing imposes substantial economic and human costs for little if any demonstrable benefit.”

The report concludes in recognizing bureaucratic barriers within government that often impede even the most well-intentioned initiatives to effect change.

As more industries suffer the pressures of globalization and the public becomes increasingly better educated and aware; pressures to change traditional outdated policies are increasing towards a tipping point for regulators.

5.2.2 Department of the Treasury Office of Economic Policy, Council of Economic Advisers & The Department of Labor, (2015), *Occupational Licensing: A Framework for Policymakers.*

In the most general terms, this report neither advocates for nor against occupational licensing. It does however strongly rationalize how such schemes should function and criticizes existing issues in economic terms. The strongest criticisms are formulated around:

- outdated regulations,
- lack of skill set synchronization with the licence required,
- mobility across State lines,
- economic impact to consumers, employment effects, and
- restrictions to innovation.

“Moreover, in a number of other studies, licensing did not increase the quality of goods and services, suggesting that consumers are sometimes paying higher prices without getting improved goods or services.”

Despite these concerns, occupational licensing is on the rise on the United States. The report indicates that over 1,100 occupations are licenced in at least one state, while fewer than 60 are licenced in all states. *Note that this would be an interesting data set to collect for Canadian Provinces.* The effects on labour mobility and burden on regulated professions is widely criticized. Specific population groups are known to be adversely affected economically within these schemes. For example, the US military spouse population suffer greater regulatory burden when mobility requires the acquisition of multiple state licences in a normal career lifespan relative to other population groups.

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5.2.3 Fontinelle, Amy., Mitchel, David., & Snyder, Thomas. (2016), *Unnatural Right in the Natural State; Occupational Licensing in Arkansas.*

This report was produced by the Arkansas Center for Research in Economics and is highly critical of the state of occupational licencing in Arkansas and other States. The report points out the intended outcomes for State licencing laws as public health and safety protection and increased work quality. The report states that though this approach may justify occupational licencing in some circumstances, often the programs implemented do not prioritize these goals nor provide structured government oversight to a licenced industry.

The authors point out that State licencing boards formed to oversee licencing schemes are almost solely made up of members of the licenced profession. In this way they are (potentially) able to:

- limit licence issuance,
- restrict entry, and
- utilize legal requirements for a licence to dominate market share and drive up pricing for their practitioners.

Other studies have demonstrated that many such abuses exist with no measured effects on improved public safety or standardization of skill levels. State collected fees often fall into general revenue accounts without the clear ability to measure program costs against outcomes or enforcement.

The report also estimates licencing costs Arkansas residents an estimated \$400 to \$800 dollars per year in hidden taxes for services due to occupational licencing.

Arkansas remains the second most burdened state with respect to licenced occupations yet an underperforming economy relative to the national average and neighboring states.

“Occupational licensing harms both producers and consumers in several ways. It reduces employment and entrepreneurship, hurts economic growth, concentrates power in established firms, increases the prices consumers pay, leads to wasteful lobbying efforts, and exposes states to lawsuits.”

The report makes numerous recommendations for licencing reform with similar frameworks to those presented in Section 5.1 for regulations.

5.2.4 Forth, John., Bryson, Alex., Humphris, Amy., Koumenta, Maria., & Kleiner, Morris., (2011), *A Review of Occupational Regulation and its Impact.*

This report was produced as evidence for UK policy makers on the nature and impact of occupational regulation in the UK. Though generally dealing with professional licencing schemes (doctors, lawyers, engineers, etc.) it does include analysis of Canadian and US schemes for comparison.

As of 2011, the report cited knowledge of only one Canadian study on the influence of licencing on wages in Canada. That study was published in 1980 and largely based on census data from 1971. The report relies heavily on US and Canadian data simply due to a lack of occupational licencing studies in EU nations including the UK.

“... in Canada. As we noted earlier the detail and depth of analysis on occupational regulation is sparse and, in drawing conclusions about the level of regulation, wage effects, employment consequences, mobility and prices, we are generally reliant on a single study in each area, rather than many for the US. Therefore, the ability to draw policy conclusions from the Canadian case is limited because there has been little rigorous analysis and much of it is dated.”

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Based on available evidence, they conclude that licencing:

- increases wages,
- reduces employment growth, and
- raises consumer pricing for licenced participants.

However, without any measurable improvement in the products or service offered when compared to unlicensed regions.

“The overall conclusions from the US studies on the impact of licensing are that, in general, occupational licensing increases the wage of licensed workers, reduces employment growth and raises the price of goods or services but without overall improvements in the quality of service or product offered.”

The report further points to evidence of monopolistic behaviors from licenced groups, where the control of licencing programs is within vested parties thereof.

A significant additional conclusion offered in this report is that of upskill motivation sharing. The greatest uptake to skills advancement noted in the UK was in occupations in which the employer and employee shared costs and benefits.

In reviewing other literature, it was noted that Forth *et al.* (see Section 5.2.4) are heavily quoted and drawn on within the study of occupational licensing economics.

5.2.5 Kleiner, M. M., and Vorotnikov, E., (2018), **At What Cost? State and National Estimates of the Economic Costs of Occupational Licensing.**

This paper is perhaps one of the most academically robust treatments of occupational licensing examined in *this study*. The authors in this work

collected vast data and were able to apply current and predictive economic forecasts to the effects of licensing at US state and national levels.

“The calculated misallocation of economic resources due to occupational licensing is more than \$170 billion. We consider the estimate of the misallocation of economic resources to be an accurate assessment of the effect that licensing regulations have on the US economy.”

Economically, the report summarized erroneous assumption common in regulation and the hidden costs borne by taxpayers. One such assumption is the envisioning of a costless supply of unbiased regulatory enforcers. Ultimately there does not exist any balance sheet, accounting protocol and financial reporting readily available to stakeholders or the general public providing insight into the cost benefits. Such analysis would be a consideration to administration of the skill trade regulations under consideration in *this study*.

This study concludes that in situations similar to skilled trade regulations where the stakeholders and regulators share self-interests (i.e., the regulatory review committee members are almost exclusively from within the industry for which the regulation applies):

- their actions can become monopolistically and protectionist,
- lead to higher costs, and
- lower quality for the same services outside the market under consideration.

“Licensing often requires aspiring workers and entrepreneurs to devote substantial resources—time, money and income forgone—fulfilling burdensome requirements that may not make them better at doing their jobs”

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This research also clarifies a common definition for occupational licencing as distinct and separate from certification. The 'licence' provides the only legal means for an individual to practice and non-holders would be in violation of the law were they to perform the same service. The 'certification' (or qualification) is typically subsequently derived from industry-specific codes and standards. This is the exact circumstance under consideration with respect to skilled trades under consideration in *this study*.

5.2.6 Larkin, Paul J. (Jr.), (2017), A Public Choice Analysis of Occupational Licensing.

This work expresses some of the foundational origins of occupational licensure as emerging in direct opposition to the relevant economic theory. Though "Public Interest" theory did predict licensure, it simply did not become the source for the majority occupational licencing and regulation which has subsequently emerged. Contrastingly, private interests and industry have historically been the strongest supporters and drivers of occupational regulation and licensing.

"Economist and Nobel laureate George Stigler was the first to explain why that odd scenario is so widespread. He found a simple explanation for companies' otherwise irrational conduct: incumbent businesses endorse licensing requirements because it protects them against competition."

Such oppositional behavior to prevailing theory became standard operating practice amongst policy makers in the 1970 and has continued to this day. However, economists have moved beyond this concept with increased international trade, economic cooperation and global competitiveness.

This work also identifies the extreme difficulty encountered by the public, politicians and industries in repealing such regulations. This fact is evidenced by the existence of numerous laws and statutes, throughout the world, remaining to address issues no longer existing or in direct opposition to current socially accepted standards.

5.2.7 Plesca, Miana., (2015), The Impact of Introducing Mandatory Occupational Licensing.

This work is a rare Canadian academic source for occupational licensing study originating from the University of Guelph. It also provides some specific treatment of occupational licensing relative to skilled trades gaps in Ontario and an aggregate treatment of the rest of Canada.

The work combines consideration of training schemes with licensing and identifies that the two systems augment one another's problems rather than offer any relief. During growth periods, delayed training harms business, whereas during declines, lack of training or skills funding helps create future shortages of skilled labour.

"Mandating training to all levels of trade people would reduce the quality signal, while decreasing the number of practitioners reduces overall quality of service."

The issue becomes difficult to effectively study as Canadian data sources for skilled trades are typically provincially generated, inconsistent between provinces or not collected at all. Detailed examination of the Ontario construction market (particularly the GTA), and the need to unburden the industry from restrictions affecting labour availability, can be effectively compared against Alberta's past and future labour demand issues to energy development projects.

5.2.8 Pye-Tate Consulting., (2018), License to Build: A Pathway to Licensing UK Construction.

Contrasting other literature herein, this independent study makes the case for the national licencing of construction throughout the UK. It is privately funded by the UK Federation of Master Builders using an independent consultant.

The evidence used and arguments made in favour of licensing are first and foremost endogenous (i.e., entirely within the industry). This is a noted flaw in occupational licensing schemes in virtually all other literature reviewed in *this study*.

The report is very well written and without contrasting academic information would be difficult if not impossible to refute in its findings relative to UK construction. The statistical data is accurate and highly detailed; however, its use is contrary to economic theory and often lacking the 'whole picture' that economists and proponents of regulatory best practices recommend. *This study* is neither supporting nor discounting any claims/conclusions made in the document. Rather it provides an exemplar of the (often) conflicting desires of industry, regulators and the public when balancing licensing and economic growth.

5.2.9 Redbird, Beth., (2017), The New Closed Shop? The Economic and Structural Effects of Occupational Licensure.

The study approaches issues of occupational licensure from a sociological perspective. It recognizes the vast development of US occupational licensing programs as relational to *modern* societal norms and shared cultural objectives. It is also highly critical of the lack of regulatory and economic progression with respect

to licensing programs. Additionally, the study stipulates how current sociological and cultural commonalities no longer support the practice.

"In advanced industrial societies, social closure occurs widely in the occupational context, where members of an occupation may see the construction of a monopoly as a means to achieve market control."

Interestingly, this study finds similar issues with the continued practice of licensing actually reducing quality across the three hundred professions reviewed. The study also observed wage benefits to licenced workers but, only realized when the occupation is fully closed or licensed.

Very interesting observations on individual competition and improvements in human capital are noted. Where non-licenced individual freely competes; increased incentives for education and investment in upskilling were common. Conversely, licencing reduced individual competition through the application of standards. As far back as the 1960's, licensing was observed to negatively influence innovation, experimentation and knowledge growth.

5.2.10 Shackleton, J. R., (2017), Current Controversies No. 56: Conspiracy Against the Public? Occupational Regulation in the UK Economy.

This study examines economic and sociological considerations of occupational licensure in the UK with some consideration of European Union perspectives.

Similar to conclusions offered by Redbird (see 5.2.9), this report offers evidence of intentional training deficits produced by industries in an effort to retain workers and their investments in them

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from poaching competitors. The effect is short term employment stability at the expense of innovation and training, which are directly linked to quality reduction observations in licenced occupations.

In the treatment of UK specific historical issues regarding regimented apprenticeships, skills recognition, training standards, and licencing, the study notes historical examples of denied recognition between townships only 30km apart. In the past two hundred years, regulation has only managed to advance standard recognition to state or provincial levels for most occupations.

“Occupational regulation is usually justified by the need to protect an uninformed public from harm caused by incompetent or unscrupulous practitioners. However, regulation has increased at a time when consumer information has been expanding rapidly and there are new ways of ensuring quality and value for money.”

The study also criticizes government regulators who have been informed by academia since the 1960's of:

- their shortcomings of in-house expertise, and
- over-reliance on licenced members of an occupation to oversee regulation.

Without external and disparate observation and input, regulated occupations often and naturally operate in protectionist manners. This 'culture' can be counter to what may be the best economic or sociological interests of the nation.

Even the most defensible licencing examples accepted for doctors, dentists, lawyers, architects, etc., can be easily shown to have monopolistically driven prices up beyond the reach of society without insurance, government financing or pro bono practitioners. Moreover, access to these

professions is outside the means of many in society; thus, furthering barriers based solely on socio-economic ability as opposed to competence and skill.

5.2.11 Tamkin, Penny., Miller, Linda., Williams, Joy., & Casey, Paul., (2013), *Understanding Occupational Regulation.*

This group continued the previous work by Forth *et al.* (see 5.2.4) in providing evidence to the UK government to understand the economics of existing occupational licencing and its effect on government employment and skills development programs.

The report further delved into case study analyses of public safety, segregated the treatment of skilled trades and professional schemes. Additionally, they added treatment of training providers to the discussion as their interests are directly linked to regulated training requirements (i.e., they are stakeholders in any regulated occupation). UK regulated occupations have been in the process of revision since the 1980's and now include wholistic treatment of employers, employees, training providers, consumers and a host of other integral stakeholders.

“For example, the development of national occupational standards is overseen by different organisations to those responsible for examining them and those organisations who train are not responsible for examining competence or capability) and for assessment against those standards.”

The quote above is accurately representative of current local issues with respect to discussion in **this study**. This illustrates the influence and objectives of more than one government ministry, agency or department in managing regulations affecting skilled trades in Alberta.

5.2.12 Young, S. David., (2002), *Occupational Licensing*.

This entry is from one of the largest independent bodies for economic research and discussion online (the Concise Encyclopedia of Economics, econlib.org). Their economic encyclopedia section article on occupational licensing though definitional in brevity, has remained in place for nearly twenty years. The article retains its validity with respect to defining occupation licensure in general, though referencing the US regulatory environment.

Though well ahead of more robust studies by Forth *et al.*, Kleiner *et al.*, Larkin, Redbird etc.; it is one of the first know articles to infer codependent systems emerging from occupational licensing. System for education and training, licensing examination, the establishment of oversight groups, etc. are all linked to the original occupational license and evolve from it.

The article also offers early criticism of these codependent groups as made up of members primarily from the same industry or professional from which the licensing emerged. This risks the expansion and support of potentially harmful monopolistic behaviors.

6 Alberta Regulatory Theme Proposals for the Pressure Welders Regulation (PWR)

Based on stakeholder input and engagement over the previous eight years, three regulatory theme proposals have consistently emerged. They are reported here only as discussion points and not intended as suggestions for adoption without further policy consideration.

No single concept has been accepted as superior or most robust from economic and/or technical safety

perspectives. Ethnographic or endogenous bias within the current population of regulatory oversight must be considered before any of these concepts be adopted or rejected in the future. Though it remains for the government to balance the needs of industry with the needs of Albertans, the economics and effects of regulation on any industry requires wholistic and balanced review.

Whether any of the proposed regulatory themes becomes policy in Alberta cannot be predicted. What can be stated emphatically is the need to thoughtfully examine current and proposed approaches with a Regulatory Impact Analysis (RIA) methodology that will provide the unbiased data and produce informed decisions and policies (De Civita, *et al.*, 2012).

6.1 Reducing Administrative Burden Through Regulation Reduction - Deregulation

“Deregulation”. The word alone generally sparks heated debate amongst industry stakeholders. Accusations of internal abuse for economic gain, union busting, wage reductions, etc. are the norm during deregulating discussions. What remains is a defense of status quo, despite lack of evidence from industry and government justifying that existing regulation is meeting its intent (Coglianese, 2012).

Reviewing the existing Pressure Welders Regulation (PWR) through an RIA format is not possible without the prerequisite development of key performance indicators (KPIs). Collaborative development of KPIs with critical review of different regulatory / economic theory applied to the PWR is beyond this study scope. Rather, we will attempt to define an overview of what the industry might look like today were the PWR not to exist.

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6.1.1 Apprenticeship Without the Pressure Welders Regulation

Apprenticeships, administration, education and training on the formal government side of the contract would be unaffected. On the employer side, early detection of skills and abilities within the apprenticeship pool could be better supported and encouraged by employers through the offering of upskilling opportunities, training, and qualification testing. At any apprenticeship level, if the apprentice could pass a requisite ASME qualification test, they would realize a significant improvement in “hands-on” arc training compared to the existing format.

This would effectively align pressure welding apprenticeship training and opportunity with the apprenticeship practices of other Alberta welding sectors.

Apprentice aptitude would further allow for greater early career exposure to alloy steels (or similar) materials and advanced welding technology. Currently, such exposure for apprentices is generally denied until after attaining the “Grade B” pressure certificate as a Journeyman. The pressure equipment industry is currently reporting shortages in alloy steel (or similar) welding qualifications; such skillsets are not developed in the current training curriculum and are not commonly afforded to apprentices under the current regulatory structure. In essence, employer training would become instantly adaptable to industry need.

Apprentice mobility (between employers) would only be restricted by the requirements of the ASME and other mandatory codes, standards and engineering designs. Any apprentice capable of proving previous qualification with one employer

would be more likely to gain similar qualification with another. The existing “C” pressure certificate is employer specific, non-transferable and imposes additional testing/costs not required of the ASME Code.

Early identification of skills deficiencies through actual “arc time” would provide for a natural re-alignment for additional apprenticeship training or employment routes outside of pressure welding. In this way the natural economic factors within the entire welding industry would play a more significant role in apprentice career path placement development.

Hypothetically, graduates of such an apprenticeship would effectively have:

- more hands-on arc training,
- improved skill sets and/or qualifications, and
- enhanced economic value to employers and for their own career development.

By virtue of their increase training opportunities at the apprentice level, it is also possible to argue the scheme would actually enhance public safety. That is, improved welder production quality (and safety) via higher caliber tradesmen developed at the end of an apprenticeship.

This model of apprenticeship without the PWR would essentially equate to:

- the welding apprentice program for apprentices employed outside of pressure equipment sector (in Alberta),
- other trade apprenticeship programs currently active in Alberta, and
- a common program utilized in other jurisdictions across North America and globally.

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6.1.2 Employers Without the Pressure Welders Regulation

Employers of trades are typically bound to ratios of employment between journeymen and apprentices. Without the freedoms to utilize welding skills in the pressure industry in the same manner as other skilled trades, employers suffer unmeasured economic harm. Without the PWR, employers can utilize the full skillsets they are obligated to pay for and better provide training and relevant arc time to apprentices.

Apprenticeship regulation currently allows for as many as 3 apprentices to a single journeyman (Welder Trade Regulation, 2018). This ratio is rarely, if ever, seen in the pressure welding industry simply due to the PWR restrictions on apprentice welding qualifications. By contrast, the Boilermakers Local 146 in Alberta in their agreement with the Boilermakers Contractor's Association invokes a journeyman welder to apprentice welder ratio of 4 to 1 (i.e., completely opposite of the trade regulation) simply to ensure a minimum number of apprentices gain employment and training.

Employers remain bound by the requirements of CSA, ASME and other codes and standards. Additionally, organizations are obligated to maintain Quality Management Systems (QMS) and complete mandatory audits thereof by ASME and ABSA. ASME Code requirements are adopted under Alberta law for pressure equipment design, construction and welding. However, ASME is not concerned with welder apprenticeship or training in any way, only performance qualification testing thereof. Employers ability to adapt to changing market dynamics and demands would still be bound by the Apprenticeship and Industry Training

Act; however, the following improvements would be anticipated:

- the ability to onboard employees,
- assess their skills relative to welding,
- register them as apprentices, and
- subsequently train them for pressure welding certification.

6.1.3 Regulators Without the Pressure Welders Regulation

This section will only discuss ABSA as the recognized administrator of the PWR and other related pressure equipment regulation.

ABSA would maintain their role of auditing and inspection with respect to employer QMS systems. This is inclusive of auditing welder performance qualification testing and records in compliance with the ASME and other applicable codes and standards. All duties and responsibilities defined for an Authorized Inspector (AI) within the ASME codes would remain applicable to ABSA.

Additionally, any duties assigned ABSA by the Government of Alberta in support of any other code, standard, act or regulation would not alter in any way. ABSA would also continue assessing and registering Welding Procedure Specifications (WPS) and the Performance Qualification Records (PQR) supporting them as this function is exclusive of the PWR.

6.1.4 Public Safety Without the Pressure Welders Regulation

It remains difficult to establish any public safety effects directly linked to the PWR, as empirical data has not been regularly collected or analyzed. However, with consideration of programs outside of Alberta, the following may be inferred:

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- 1) The existing regulatory system requires no additional skills acquisition or training on the part of apprentices or journeymen to attain pressure welding certification.
- 2) The adopted ASME (and similar) codes administered would continue to provide a similar oversight of pressure welding qualifications. Only government testing (i.e. above Code minimum) would be eliminated.
- 3) Increased employer use and training of apprentices would not create any additional risk to public safety. To the contrary, this would more likely enhance pressure welded equipment safety.

6.1.5 Economics Without the Pressure Welders Regulation

Adjusted for 2019 dollars, the following can be estimated:

- Since the inception of the “Grade B” certificate, ~12 million dollars in fees have been collected.
- Employers, conversely, have invested over ~4 billion dollars on apprentice wages for those same “Grade B” pressure certificates.
- Industry has invested ~5 billion dollars in the “Grade B” certified pressure welders, inclusive of education costs, and labour burden associated with insurance, benefits, etc.

As a whole, this is an example of the economic principle of *misallocated resources* (Kleiner & Vorotnikov, 2018) as the investments of time and expense are largely forced upon industries in the satisfaction of regulatory burdens, rather than directly proportional to productive output. It should be noted that these figures do not include

any consideration of travel, food and accommodation expenses of apprentices actively involved in remote living situations (i.e. far north development projects, etc.)

From this perspective, a regulatory system that conflicts with, limits, or restricts apprenticeship training and subsequent utilization is ultimately harmful to the overall sector’s economics and competitiveness (Forth *et al.*, 2011).

Training school economics would be significantly impacted were apprenticeship training to include materials beyond typical carbon steels (i.e., alloy steels, nickel alloy, etc.) These industry alloy grades cost as much as 20 times typical carbon steels. Additionally, the welding equipment, tools, inspection devices, etc. would require investment to upgrade. Though not the intended scope of this study, data and research tend to reveal that greater exposure to advanced training often only occurs during employment. Therefore, any regulatory limitations to training ultimately economically harm those individuals and their respective industry sectors (Beales *et al.*, 2017). In this case, such investment should include contribution from government, training institutes, and the various industry sectors that have the need and realize the endgame value.

6.1.6 Testing the hypothesis

An applied practice available and recommended within Regulatory Impact Analysis (RIA) is that of a return to the original arguments that produced the regulation in the first place (Coglianese, 2012).

It is a recommended exercise for government and regulatory administrators to periodically approach any regulation under consideration as though it were *brand new* and being introduced for the *first*

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time. Only then can it be truly determined if any issue requiring regulation still exists and if the proposed (existing) regulation will indeed address that issue.

6.2 Global Application of Alberta Pressure Welding Regulation

6.2.1 Externally - Applying Alberta Regulatory Standards to Imported Pressure Equipment

At the onset, applying Alberta regulatory requirements to imported pressure equipment or componentry sounds “difficult”. However, such a practice is not that uncommon as demonstrated by the following example case studies.

For many CSA code-specific structural steel applications, the Canadian regulatory and code requirements are applied to organizations outside Canada. The Canadian Welding Bureau (CWB) audits and qualifies consumable manufacturers, fabricators, structural steel welders, etc. all over the world per CSA requirements prior to fabricated components being imported.

Additionally, for applications other than ‘welded goods’, CSA standards are applied to products from global manufacturers to ensure a standard of safety and quality (e.g. CSA certification of electrical components, etc.).

Even at the provincial level, requirements exist in some industries for steel from sources outside Canada to be tested and MTR’s (Mill Test Reports) generated from a recognized Canadian Laboratory, regardless of originating source testing and reporting.

ASME & CSA pressure equipment codes and standards do require aspects of design and

engineering to be reviewed. Code and regulation authorize the province of Alberta (via ABSA) to conduct design reviews, audits and registrations. Internationally produced pressure fittings require Canadian Registration Numbers (CRNs) or similar in order to be permitted for use as pressure equipment in Canada.

These and other programs applying Canadian standards to foreign manufacture have been in place and mandatory within their respective industries for years. Like the PWR, these programs exist ostensibly to ensure the public safety of Canadians / Albertans. The key challenge if adopting the PWR to pressure equipment imports in Alberta, is simply that the regulation is not a inter/nationally recognized standard. Hence, new/alternative means of enforcing the PWR with consideration of the existing codes and standards adopted for use would be required.

The exact best approach(es) for international implementation and enforcement is beyond the scope of this study. Hypothetically, however, a national standard could first be developed that is followed by consideration of international trade agreements and similar requirements.

In summary, the approach of applying Alberta regulation to foreign imports would be:

- challenging to implement, maintain and enforce,
- generate no clear economic or technical safety enhancements, and
- require extensive review of international trade agreements.

Therefore, this approach is not recommended for continued debate or development. The history, however, of allowing foreign manufactured pressure equipment into Alberta is very well

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established and there is no known “drop” in public safety. Therefore, this trend should be strongly rationalized by government and industry who favour continued PWR implementation as-is based on safety outcome intent (only).

6.2.2 Internally - Applying a single regulatory standard to all Welding Qualifications

Structure steel, pipeline, rail, automotive, mining, pressure vessels, pressure piping, aircraft and many more industries all utilize welding. Any industry in the process of manufacture, maintenance, fabrication or construction that uses metals of any kind, likely uses welding or welders.

Discussions relative to the entire welding industry’s pool of labour note that some, but not all, of the various sectors share some common recognition of skills and standard welder qualification testing requirements. However, single qualification testing for compliance to multiple sector’s codes and standards is rare (if impossible). Typical testing programs favour code-specific compliance where cross industry recognition allowances are uncommon and not always clearly understood.

A portion of this issue relates to national standards for the various industries and trade practices thereof. Internationally and nationally, individual requirements for welding qualification have evolved independently and are typically ‘product focused’ (i.e., after becoming a journeyman, the welder is the certified to product-specific codes and standards such as structural steel or pressure equipment, etc.). There is a desire in Alberta to further promote the trade of welding. Similarly, there are working groups that discuss how training and certification could be harmonized across multiple industry sectors (and their relevant

codes). However, with respect to jurisdictional limits, Alberta alone cannot standardize requirements to permit reciprocity of welder qualification between industry sectors; such a program would require a national standard first.

However, for the betterment of industry, the needs of the welding trade could be better served through the development of a broader range of harmonized standards across Canada. Such reciprocity would require collaboration between federal and provincial regulators. The adoption of the Canada Free Trade Agreement has provisions for greater national labour mobility and skills recognition. Therefore, recognizing welding skills requirements for specific trades and professions seems a logical continuation of those efforts.

6.3 Maintaining and Improving Existing Regulation

The option of regulatory reform or revision is by far the most understood amongst industry stakeholders. Rightly or wrongly, the vested members of the industry simply don’t feel comfortable that they have the resources, research data, or strategic experience to plan forward for a deregulated environment at this time.

***“The challenge today is not deregulation
but Smart Regulation.”***

Jacobs Cordova & Associates from a presentation to the World Trade Organization.

6.3.1 Regulatory Structure Change Proposal

AWOC have developed a regulatory framework based on well known continuous improvement methodologies such as ISO, Six Sigma and others. This draws upon best practices that may not be regularly employed by government or regulators.

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AWOC also advocate for a change in naming convention of several sub-regulation supporting documents from “Syllabus” to “Annex”. Syllabus is typically defined as an outline of the subjects in a course of study or teaching. However, PWR syllabi go well beyond that scope, thus creating confusion to users of the syllabi. Annex is typically defined as a document subordinate to higher-level documents; case in point, annex would be subordinate and support the regulation.

For the Pressure Welders Regulation (PWR) specifically, AWOC propose a simplified hierarchy of documents as shown in Figure 15 below. Safety focused requirements are retained in the legal Regulation, whilst consolidating technical and administrative supporting documentation structure (i.e. “Annex”) currently in use. Further refinements will reduce the volume of forms and documentation and allow continuous improvement to become a built-in and easily managed component of the PWR. Within the Annex, an appropriate oversight process will permit timely updates based on evolving industry practice, changes to reference codes, new technology, etc. as discussed below.

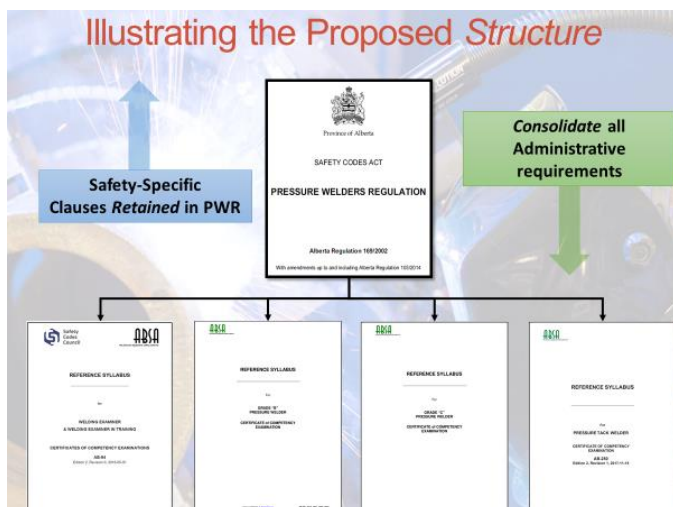


Figure 15 – Proposed PWR Structure

6.3.2 Why Change the Structure?

The risk of conflicting and contradictory clauses between Regulation and the enforced Code exists simply due to differences in publication cycles thereof. Simply put, ASME/CSA code and standards are ‘living documents’ continually changing, and the PWR framework should be nimble and dynamic to respond appropriately.

The PWR and ASME/CSA code are intended to function collectively but exist on disparate two-, three- and five-year+ publication cycles. It’s a matter of when (and not if) they will eventually conflict whenever they repeat requirements rather than referencing each other accordingly. Removing any such clauses to the supporting document structure (“Annex”) outside the PWR allows for timely, non-legislative revision in response to changes in any hierarchy of enforceable documents.

It should be emphasized that this approach does not impair the validity of any technical safety or administrative requirements. Rather, to *meet* the safety outcomes intended, this structure ensures that users of the PWR have the appropriate “clarify, efficiency and flexibility” to understand and implement requirements appropriately. If requirements are unclear or conflict, and PWR users may become apathetic, then the PWR framework itself can undermine the public safety outcomes it is written to uphold.

Furthermore, this continuous improvement regulatory framework ensure public safety outcomes are managed will still evolving with:

- new publication of codes and standards,
- any change or improvement in technology,

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- evolution in regulatory administration,
- trade training and advancement,
- industry labour demand strains, and
- other internal and external factors.

Understandably, there can be opposition to continuous improvement based on unknown costs associated with the management and administration thereof. However, it can be illustrated that a committee meeting, debate and revision to an Annex (or similar) document from time to time is a faster, simpler, and far more cost effect versus full PWR amendment via provincial cabinet and legislature processes.

Interestingly, this practice **has been** in place within this regulatory framework for over the past seventeen years. The Welding Examiner syllabus (and not the PWR) contains most requirements relative to administration, eligibility, qualification, examination and renewal. Moreover, the government has deliberately segregated ownership of this syllabus to the Safety Codes Council. This example provides precedence for the *shared oversight* between Municipal Affairs, ABSA and Safety Codes Council for all new “Annex” documents under the proposed new regulatory framework.

6.3.3 Streamlining Document Burden

The following sampling lists are provided as evidence of regulatory burden and inefficiency. They itemize the sheer number of forms that exist relative to only six (6) certificates issued under the Pressure Welders Regulation.

Sample 1: Pressure Tack Welder Certification

1. Pressure Welders Regulation (169/2002 with 103/2014)
2. Variance No. VA15-010 (IB15-010)
3. Temporary Tack Welds bulletin (IB13-013 R2)
4. Permanent Tack Welds bulletin (IB17-021)
5. Information Bulletin for Pressure Tack Welders (IB18-13)
6. Tack Welders Syllabus (AB-250)
7. ASME Code Section IX, B31.1, B31.3, Section VIII, etc.
8. Additional forms / submittals including:
 - AB-91
 - AB-247

Sample 2: "B" Pressure Certification

1. Pressure Welders Regulation (169/2002 with 103/2014)
2. Variance No. VA03-001 Rev.1 (IB03-001)
3. Alert Information Bulletin (IB14-011)
4. Grade B Welder Syllabus (AB-61)
5. ASME Code Section IX, B31.1, B31.3, Section VIII, etc.
6. Additional forms / submittals including:
 - AB-68
 - AB-76A
 - AB-77
 - AB-80
 - AB-91
 - AB-129
 - AB-129A

Sample 3: "C" Pressure Certification

1. Pressure Welders Regulation (169/2002 with 103/2014)
2. Grade C Welder Syllabus (AB-252)
3. Grade C Interpretation (IB18-020)
4. ASME Code Section IX, B31.1, B31.3, Section VIII, etc.
5. Additional forms / submittals including:
 - AB-76A
 - AB-77
 - AB-91
 - AB-129B

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Sample 4: Machine Welding Operator Certification

1. Pressure Welders Regulation (169/2002 with 103/2014)
2. Machine Welder Application (AB-70)
3. ASME Code Section IX, B31.1, B31.3, Section VIII, etc.
4. Additional forms / submittals including:
 - AB-76B
 - AB-77
 - AB-91

Sample 5: Welding Examiner Certification

1. Pressure Welders Regulation (169/2002 with 103/2014)
2. Welding Examiner Syllabus (AB-94)
3. Information Bulletin (IB16-009)
4. ASME Code Section IX, B31.1, B31.3, Section VIII, etc.
5. Additional forms / submittals including:
 - AB-72
 - AB-74
 - AB-91
 - AB-92
 - AB-93
 - AB-95

Sample 6: Welding Examiner in Training Certification

1. Pressure Welders Regulation (169/2002 with 103/2014)
2. Welding Examiner Syllabus (AB-94)
3. Information Bulletin (IB16-009)
4. ASME Code Section IX, B31.1, B31.3, Section VIII, etc.
5. Additional forms / submittals including:
 - AB-74
 - AB-91
 - AB-95
 - AB-249

Note that there does exist additional forms and requirements beyond this first level listing. Any Administrator issued document alphanumerically coded with the prefix "IB" is an information bulletin designed to provide interpretation, clarity or

general information regarding usage¹. Though the volume of such documentation is equal to the regulation itself; no meaningful discussions relative to incorporating the IB documents into the next regulation publication has occurred during the last two regulation review cycles. Such reviews provide the opportunity to reaffirm and consolidate valid requirements into one location; thus, improving clarity, efficiency and flexibility for users. This a foundational element of continuous improvement. However, recent talks with government and the appointed review committees did not generate consideration for such action.

As of the time of writing, it is expected the PWR will be re-published in 2022 and the IB documentation will remain in effect and separate. Thus, maintaining a higher level of regulatory burden on Alberta businesses. It is a wholly counterintuitive practice relative to any safety intent to continue adding documentation when simplification or reduction is possible.

The following passages are taken from the only (known) documented regulatory review process relative to the PWR. It is from the *Safety Codes Council's Policy & Operation Manual, Chapter: Code Review & Updates, Subject: Code Development Framework*.

The scope thereof to include regulation development and/or review.

From the section on Policy:

"a. source - (representing the user, and identifying the common items driving the need for either regulatory change or clarification)"

¹ Under pressure equipment regulations, there are five (5) different types of bulletins: Alert, Interpretation, Notification, Variance and Withdrawn.

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From the Descriptive Information on “Source”:

“The term “source”, relating to a code, code requirement, standard, or regulation is the starting point of a process to adopt a new code edition, requirement, or an amendment to an existing requirement. The initiating action is from activity within the public, industry, or a safety incident, which identifies a need for improvement. This “need” may stem from use, evolutionary development within a discipline, or developing new technologies / strategies.

Standata’s (Director’s Rulings, Director’s Interpretations, Information Bulletins, and Variances) are included within the source element. These are items arising from use, which require clarification, interpretation, or result in a provincial wide variance. They are a means of addressing items during the active cycle of a code or regulation and are also included in the process of changing code or regulatory items. They are monitored in conjunction with each code or regulation development stream to ensure their subject matter is either incorporated into a regulatory change, re-issued as a continuing Standata, or is removed if no longer needed.”

The document containing these passages was removed on July 15th of 2019 as a part of the recent Red Tape Reduction initiative. Therefore, the process for examining IBs and similar documents was in effect during the PWR review prior to the 2014 re-issue and current review cycle. The policy’s removal was precipitated by recognition of duplications of efforts with respect to national codes and standards; however, the procedure for Alberta regulatory review remains in place though not yet formally re-published.

In 2019, a “safety-only” restriction was placed on the SCC, Pressure Equipment Sub-council and duly appointed PESC Pressure Welders Working Group during the PWR review. However, a safety-only focus did not holistically align with this policy and were likely not within the authority of any individual(s) who brought such restriction forth. It also remains unclear as to how the various committees within the SCC were not aware of the

Policy during either the 2014 or current regulation review periods.

It is therefore, one necessary conclusion of this study that the continued separation of variance, clarifying and interpretive documentation is contrary to existing policy and should be re-examined for future regulatory review cycles. Additionally, it is proposed that the regulatory review process is formally reviewed by government, regulators, SCC, and industry stakeholders. Once reaffirmed, training should be provided to all review participants to ensure the process (including government, regulator, stakeholder, etc.); such that objectives and outcomes are consistently understood and followed.

7 Discussion and Recommendations

7.1 On the Existing Regulatory Administration

7.1.1 Safety Policy Review

Previous discussion on existing regulatory policy in Section 3 of this study dealt with risk-based development drivers that remain common in public safety considerations. Risk-based decision making however, cannot always be relied upon for long term application. In assessing risk, regulators and the public make decisions from commonly held societal perspectives and opinions regarding consequences, avoidance and limitations on risk acceptance (Lee, 2009). Those perspectives and opinions, however sound at the time decisions were made, continue to evolve and change as societies evolve and change.

Sociological evolutionary trends may not be so obviously applied to skilled trade regulation. However, their effects on tobacco, asbestos, alcohol, firearms and other regulated areas have

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obvious correlations with revision pathways; complete with evidence of policy dependence on changing social norms. When we witness disastrous events unfold in developing nations, we quickly conclude substandard regulation and feel confident that such events could not occur in our part of the world. What we may fail to recognize is the significantly higher levels of risk acceptance in favour of immediate economic gain that occurs in emerging nation economies. In the past, North American regulators chose industry economics over human life when failing to effectively regulate asbestos exposure despite decades of mounting direct medical evidence of disease.

In an age of instant global communications, the pressures on developing nations governments to increase individual standards of living is a far greater driver for risk acceptance than we tend to think of in western cultures. Within our own society, public awareness and knowledge is vastly superior today than when the first pressure welders were certified in 1929. The contributions and drains of any specific industry on the economic performance of the province are within the understanding of most Albertans.

Longstanding policy for public safety regulation will remain inclusive of imposing 'control methodology' to demand conforming behaviors from any regulated population. This is functional in establishing links between violations and penalties which are clearly understood and enforceable. All control measures in regulatory drivers, however, contain an inherent flaw in their methodology in that they assume the regulated population will obey the rules 100% of the time. Regulators must also exercise caution to ensure that the control asked of a regulation, does not extend beyond the needs of that regulation. For

example, a regulated speed limit has never required an automobile manufacturer to limit the top speeds of their products.

The reality of general public and specific regulatory population behaviors is not nearly so simplistic in nature. Additionally, such control measures are not easily adaptable in an increasingly complex society. Psychological, sociological and philosophical convention do reveal a fundamental desire on the part of majority groups to conform to rule based social order and behaviors. However, the percentage of compliance achieved in such systems is highly dependent on the system being *clearly understood* by the population. Current trends in sociological evolution attribute nearly equal emphasis on understanding "What" needs to be done and "Why" it needs to be done.

Within our own societal structure in Canada today, when "bad things" happen in a regulated environment, simplistic investigative reporting is no longer satisfactory or desired by the general public. When a plane crashes or a financier absconds with millions of dollars, people don't want to know what happened; they demand to know why and how it will be prevented from recurring.

Alberta's current regulatory oversight for skilled trades is found lacking by many in support of the "why" component of regulatory rational. Simply stating "Safety", without a clear link between that regulation requirement and a safety outcome, no longer provides sufficient evidentiary support thereof. The clear link between regulatory requirement to safety outcome(s) need to be rational and understandable by both the regulated and general populations.

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7.1.2 Structured Review and Oversight

Based on direct experience during 2014 through 2020 committee work on the PWR, there lacked a holistic framework to guide regulatory performance evaluation; i.e., no formal KPIs, documentation or training was provided by government or assigned-agency to communicate the entire review process, objectives, measures, etc. It is unclear if a standard structured review or basic Regulatory Impact Assessment/Analysis (RIA) is regularly employed. Alberta government literature (public domain) would further indicate that no formal process or review structure is regularly employed for most regulated skilled trades.

This should be concerning to Albertans considering Canada is a world leader in the development of RIA methodology implemented globally (Jacobs, 2006). There is precedence for RIA in Alberta, with implementation thereof announced in their Regulatory Excellence report, and the previous establishment of the Regulatory Review Secretariat with published review guidelines (Government of Alberta 2012). For the betterment of industry, an improvement in “Structured Regulatory Review and Oversight” is a recommended goal for direct transparent government uptake.

“Canada is described as a vigorous innovator in the areas of good regulatory governance.

- Its regulatory culture is open and good ideas from elsewhere are fed back into the system
- Efficient regulatory policies and procedures, such as the regulatory impact statement, have resulted in a more market-oriented and transparent regulatory framework

- The regulatory quality management has permeated the policy-making process to an extent matched by few if any OECD countries
- Canada was also a leader in the dialogue that led to the creation of OECD regulatory best practice principles in the mid-1990's and the country remains at the forefront of regulatory development.”

(OECD, 2002)

The general stance purported by Alberta Municipal Affairs and, by extension the SCC-PESC, was a willingness to only examine safety centric industry issues during the Pressure Welders Regulation review. Any other industry concerns regarding efficacy, economics, performance indicators, actual regulatory outcomes, etc. was not objectively examined. The net effect was denying industry and the Alberta public access to a holistic review forum.

Interestingly, the Safety Codes Council (and by extension, Municipal Affairs) did have a written Policy & Operations Manual detailing a specific regulatory/codes review process. Although partially removed in July of 2019 as part of recent Red Tape Reduction (due to overlapping issues with national codes), the use of this documented regulatory review process remains in place with SCC.

The lack of past and present process could seriously impair current “Red Tape” or regulatory reduction programs. That is, the government will have to study any regulatory environment before it can confidently make recommendations or improvements. The evidence to support any regulation alteration/amendment must be in place to satisfy the regulated population and the general public that government decisions are based on sound rational (Radaelli and Fritsch, 2012).

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Looking forward, an area of improvement is that such evidence to support regulatory amendment become more 'holistic in nature'. Past bias of many stakeholders concluded that regulatory efficacy was achieved with a safety-only perspective. Without formal training in Regulatory Impact Assessment (RIA) it is understandable how such a narrowly focused 'culture' can develop in government bureaucracy and appointed bodies. This study does not intend in any way to single out individual or departments. Rather, that by examining approaches from around the globe we can learn and evolve regulatory assessment practices. And with that, enhance the culture of regulation review and management to become more holistic in nature.

While public safety is the end goal, this study literature and discussion has illustrated that *unintended consequences* can arise if other factors are not addressed. For example, if regulations are not *clear, efficiency* and *flexible*, the resulting apathy or confusion can undermine the safety outcomes intended. Compounding this effective "drop in safety" due to unclear regulation is the unintended negative economic consequences.

To address these issues, it is recommended that regulatory review process in Alberta evolve to meet modern practice (also see Section 7.2 for additional details). Fortunately, regulatory review programs are pre-established at international, national, state and provincial levels around the globe. The following two sections examine the approaches of the Colorado Department of Public Safety and Australian Model for Regulator Performance.

7.1.3 The Colorado Department of Public Safety Model for Regulatory Review

The entire 2018 version of this document is available in Appendix 2 of this study. This holistic regulatory review process requires both regulatory efficacy analysis and public input beyond the typical 'subject matter experts' assigned to such committees. Note that adopting such a systematic review in Alberta would require new data collection and analysis processes not currently assigned to many Alberta regulatory oversight bodies. The overarching guidelines of this recommended model generally align with Alberta's Regulation Review Secretariat guidelines. They are, however, even more simplified in their use for all public safety regulation in Colorado leaving the details for key data to the individual bodies to consider uniquely for their areas of concern. These considerations are listed below:

- Whether the rule is necessary
- Whether the rule overlaps or duplicates other rules of the agency or with other federal, state, or local government rules
- Whether the rule is written in plain language and is easy to understand
- Whether the rule has achieved the desired intent and whether more or less regulation is necessary
- Whether the rule can be amended to give more flexibility, reduce regulatory burden, or reduce unnecessary paperwork or steps while maintaining its benefits
- Whether a cost-benefit analysis was performed by the applicable rulemaking agency or official in the principal department pursuant to section 24-4-103(2.5), C.R.S.
- Whether the rule is adequate for the protection of the safety, health, and welfare of the state and its residents

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Examining the Alberta Pressure Welders Regulation against these criteria, the following responses are produced;

- Whether the rule is necessary –

Unclear. The rule began predating welding as a mandatory trade in Alberta and does not promote or require any upskilling or training requirements beyond the apprenticeship or employer training schemes currently in effect. Employer responsibilities remain paramount under adopted ASME, CSA and other codes/standards. ABSA remain the Provincial AI (Authorized Inspector) and are required to inspect and audit employers and welder qualifications as the provincial certification does not replace ASME or CSA requirements.

- Whether the rule overlaps or duplicates other rules of the agency or with other federal, state, or local government rules –

Yes. Generally speaking, employers of pressure welders continually qualify and renew welders in compliance with the ASME, CSA, etc. This practice remains mandatory with or without the Pressure Welders Regulation. The minimum entry requirement for “Grade B” certification mandates Journeyman status per the Apprenticeship and Industry Training Act. After “Grade B” certification, no further government testing is required, and adopted ASME, CSA, etc. codes govern subsequent performance qualifications.

- Whether the rule is written in plain language and is easy to understand –

No. The regulation is written with a legal approach as discussed further in Section 7.2.1. The Administrator has issued multiple variance, interpretations, information bulletins, etc. over the years to assist industry with implementation of the regulation. The current ratio of forms/documents vs. certificates available under the PWR is 5 to 1. There also exist over 16 published pages of interpretation for 15 pages of actual regulation text (cover pages etc. not counted). Hence, the Administrator provides clarification likely, in-part, because of the PWR’s language style.

- Whether the rule has achieved the desired intent and whether more or less regulation is necessary –

Unclear. No key performance indicators (KPIs) have been regularly measured or analyzed (if they have, then not shared with the public) to address efficacy. Alberta does, however, allow the import of pressure equipment not subject to the Pressure Welders Regulation. No known differences in overall safety performance of imported equipment has been established to support or challenge PWR effectiveness.

- Whether the rule can be amended to give more flexibility, reduce regulatory burden, or reduce unnecessary paperwork or steps while maintaining its benefits –

Yes; see Sections 6.3 and 7.2 of this report.

- Whether a cost-benefit analysis was performed by the applicable rulemaking agency or official in the principal department pursuant to section 24-4-103(2.5), C.R.S. –

No known KPIs or cost benefit analysis (that is shared in the public domain) have been managed for the PWR. Note that cost benefit analysis is commonplace in Colorado and globally for regulatory efficacy determination. See Section 6.1.5 of this study for an appreciation of pressure welding industry investment in training and skills development.

- Whether the rule is adequate for the protection of the safety, health, and welfare of the state and its residents –

Unclear. No key performance indicators (KPIs) have been regularly measured or analyzed (and shared with the public) to public safety outcomes. As previously mentioned, there are no known differences in overall safety performance of imported equipment (not subject to the PWR) as compared to similar Alberta-produced pressure equipment.

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7.1.4 Recommended - The Australian Model for Regulator Performance

This document was chosen since it has developed principles for regulatory best practices in performance monitoring, with balanced consideration of modern economic principles. This framework provides for review of regulation policy and also periodic review of the regulatory body's performance. The full version is provided as Appendix 3 of this study.

Australia developed this system in partial recognition of regulatory burdens and the subsequent effects on the Australian economy thereof. Such an approach aligns with current focus in Alberta on "Red Tape Reduction" initiatives.

"Regulatory costs do not just come from the design of the regulations. Poorly administered regulation can impose unnecessary costs that reduce productivity. These costs inevitably flow through to business more widely and to the community even where their initial impact is on a particular business. These costs may negatively impact the viability of domestic businesses, especially those exposed to overseas competition."

(Commonwealth of Australia, 2014)

The 28 page framework clearly and concisely identifies:

- data collection,
- accountability/transparency,
- self-assessments,
- external reviews,
- reporting, and
- details six areas of KPI development, utilization and continuous improvement.

Ultimately the Australian model contains many challenges that similarly already exist in Alberta Regulatory Review guidelines have been produced and published but not used by every ministry. Best practices have been provided previously in various commissioned reports for specific ministries but not shared/implemented by other applicable ministries. The ability to employ the Australian model is likely within the expertise of Alberta government employees with proper training and human resource deployment. The following examines the six KPIs of the Australian model with consideration of the Alberta Pressure Welders Regulation.

KPI 1 – "Regulators do not unnecessarily impede the efficient operation of regulated entities"

Considerations included possible segregated approaches to regulatory administration relative to business size; thus, addressing the small and medium enterprise regulatory burden issues discussed in Section 2 and 3 of this report. Further stipulations of regulator concern are the needs to constantly optimize and harmonize regulations across government departments or ministries thus, addressing training, apprenticeship and inter-ministerial alignment issues discussed in Section 7.3.1 this report.

Additional rational and insight into measures and "Activity-Based Evidence" requires ongoing continuous improvement strategy. Additionally, external peer review should be demonstrated on a continual basis and not limited to a more regimented stakeholder exclusive regulatory review format. Annual internal and external stakeholder engagement and review is recommended as a minimum. Comparative investigation of similar programs internationally is recommended.

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KPI 2 – “Communication with regulated entities is clear, targeted and effective”

Issues of language, education, cooperation and a clear understanding of regulatory performance have been discussed at length within this report. This KPI further supports the proposed improvement initiatives to address these issues.

This KPI’s measures and evidence sections link communicated policies and expected outcomes, with public consultation, prior to introducing changes. There is also strong advice for ensuring that any regulatory operations, enforcement, review or consultation mechanisms be maintained in conjunction with the regulation; with such mechanisms known to the regulated public. For example, this would mandate a review of Alberta “Standata” or “Information Bulletins” alongside regulatory reviews, which was previously included in Alberta policy.

In Alberta, as previously discussed, the procedures in the public domain were not employed during recent and current PWR review. Not following process erodes the industry-government regulatory relationship related to issues of public trust and government transparency.

KPI 3 – “Actions undertaken by regulators are proportionate to the regulatory risk being managed”

This involves a comprehensive risk analysis inclusive of minimal burden to the regulated population. Extra-regulatory options are possible through cooperative plans with industry.

In the case of the PWR, for example, would it be possible for industry alone to test and qualify their own welders in the same fashion as they comply with adopted codes and standards? Then simply

have regulatory oversight via ASME, ABSA and other routine audits and inspections. These and other questions should not be answered until a risk assessment has been adequately produced.

Public sharing of documented evidence is key to risk assessment policy and procedure. Validations from sources outside direct regulatory oversight are encouraged to establish validity and openness. Regulatory staff must have clear procedures in place and stakeholder feedback is encouraged and acted upon in a timely manner.

KPI 4 – “Compliance and monitoring approaches are streamlined and coordinated”

These processes allow regulators to examine, for their regulation framework, what level of compliance is necessary. A principle focus herein, is the cost of regulation planned for and methods to minimize those costs.

Without open reporting of cost recovery, the public may become concerned about potential shortfalls in regulatory administration. Though a certain amount of tax base support for safety/risk controlling regulation can be justified; currently the public has no line-of-sight to the overall PWR cost burden (or other similar skilled trades regulation).

Measures for this KPI include recommendations for the use of existing data as shown in the suggested database examples as per Appendix 1 of this study. These recommended databases generally use available pressure equipment and welder data currently gathered. Hence, efficiently and effectively using existing datasets as opposed to creating new burden for data analysis. The operational needs of the regulated population are always a consideration when seeking data.

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Evidence of the effectiveness for this KPI includes:

- documented regular reviews,
- evidence that information is acted upon in a timely manner,
- validation of data relative to the risk under consideration,
- publication of findings, and
- a feedback mechanism for stakeholders on the reports and actions taken.

Additional considerations for data from outside sources such as economic trends within a regulated group and comparative performance analysis from international examples are also recommended.

KPI 5 – “Regulators are open and transparent in their dealings with regulated entities”

The principle point of focus is the identification of a direct link between clear/open communications and an increase in compliance behaviors from the regulated population. The higher level of open transparency also provides for increase confidence in regulators and ultimately of the government in general.

Open communication is always advised to be evidence-based. This disabuses the legacy bias opinions and culture that can often develop. Additionally, clear communication aligns the regulated groups mindset towards greater commonality and improves overall stakeholder relations.

A general recommended guideline is that all communications can be shared with and understood by the general public, and not just the regulated sub-population.

The measures and evidence commentary are centered around the regulator’s ability to:

- provide effective timely responsiveness to requests on regulatory operations, and
- the proven ability to act on continuous improvement initiatives.

Conversely in Alberta, current regulatory review practices are typically not considered easy or cost effective by many stakeholders; regardless if drive comes from the regulated population, code change, the general public or technology changes.

As with the other KPI’s discussed, feedback mechanisms are recommended between regulators and regulated public to ensure effective stakeholder communication.

KPI 6 – “Regulators actively contribute to the continuous improvement of regulatory frameworks”

The underlying principle encouraged throughout the Australian model is the active role of continuous improvement methodology. Active participation is the recommended best practice for regulators.

Past Alberta regulator practice per the PWR, has been that of waiting for industry to approach with issues or concerns. To our knowledge, there is a lack of active study of the regulatory environment for improvements, including (but not limited to):

- adoption of more efficient safety processes,
- evolving practices for cost savings,
- innovative communication / stakeholder engagement approaches, and/or
- seeking policy improvement opportunities.

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This is again stipulated as resulting from the government's organizational structure, agency mandates and duty assignments as they exist in Alberta (e.g. 'culture').

"No service remains the same over time, and continuous improvement ensures a regulatory framework has the flexibility to adjust to changing circumstances"

Not only are continuous best practices to seek out improvements in regulatory compliance, understanding, communications and usage; regulators are also encouraged to seek out cost saving opportunities wherever possible. Implementation of improvement opportunities should be in a timely manner and not bound by prescriptive regulatory review cycles dates etc. A key component of the evidence of performance for this KPI is the use of a documented procedure.

7.2 Focused Improvement Discussion

7.2.1 Language and Structure

Complex legal language and structure was a concept previously discussed in Section 6.3 with respect to published Acts and Regulations in the province of Alberta. During committee deliberations, government representatives have verbally stated that regulations are written in a manner intended for judges and lawyers to prosecute offences (i.e., an enforceable Act or Regulation in the courts of Alberta).

For regulatory efficacy, many jurisdictions around the world consider this approach as outdated dogma. The existing format of legal language in regulation is a carryover from the application of British Common Law concepts first imposed on Canada by England. Precedence and tradition have resulted in this approach being habitually maintained throughout Canada and Alberta.

However, since 1975 the United Kingdom has moved on from this thinking and conducted a major renovation of legal language/framework for:

- better general public use,
- enhanced clarity and understanding, and
- improved efficiency and reduced costs associated with legal encumbrances.

(The Renton Committee Report of 1975 - UK).

"I do think that if a law of the land is being passed by the House of Commons it should be understandable by the people upon whom it imposes obligations or on whom it confers rights, and I don't think that you should have institutionalised the sense that you've got to get somebody to interpret it for you"

– Harriet Harmon, Deputy leader of the Labour Party (UK), 2010

Modern regulatory approaches in British Common Law, the United States, several EU nations and others have adopted and, in many cases, legislated the use of *simplified language* in regulatory development and revision (see the US Plain Writing Act of 2010). The argument in favour of this approach is two-fold:

- Firstly, simplified regulatory language reduces confusion whilst improving understanding, application and compliance behaviors from a regulated group (i.e., meeting regulatory safety intent, etc.). This in turn reduces regulatory burden thus improving the economic climate of the regulated group (Beales *et al.*, 2017).
- Secondly, the population intended to utilize any regulation generally greatly exceeds that of the regulators, enforcement agencies, and oversight bodies combined. Modern practice is to draft regulations in simplified plain language common to and for the use of the target regulated population.

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Current supply chain management research at the Mount Royal University support arguments in favour of regulatory language simplification. Recent findings conclude that implementation is often impeded by consideration of contractual advantage preservation as opposed to the development of mutually beneficial relationships.

In stark contrast to current regulatory practice, the Government of Alberta's own published "Guiding Principles of Regulation" includes:

"Regulations will be stated in clear, simple language and properly communicated."

(Government of Alberta, 2012)

In consideration of the Pressure Welders Regulation (PWR); the document body consists of only 15 pages of text yet, 5 of the 8 Information Bulletins currently in effect are interpretations for the aid of users. Combined, these interpretations alone total 16 pages of text. Even in the most basic consideration of regulatory need; the identification of an issue, risk or abuse requiring control remains a principle driving concept in regulation production. *This example illustrates that 16 pages of interpretation for 15 pages of regulation is an issue to industry.* Moreover, this issue is a key indicator of current regulatory performance when risk of misinterpretation identified by the Administrator required the creation and issuance of the interpretations. Ultimately the government and its Administrator have provided the strongest evidence supporting PWR language simplification.

The issue of language simplification and amendment has been discussed during PWR committee activities. Verbal-only guidance (PESC meeting of Oct. 24, 2019) provided by Alberta Municipal Affairs strongly indicates a policy of continual additions of interpretive and

informational documentation as preferable to PWR amendment/simplification. The continued practice of adding to the 'library of documentation' to provide interpretation often can produce the reverse effect. When a regulation and its subsequent interpretations do not utilize the same terms and language then the risk of misinterpretation continues to grow. The net effect can be risks to public safety outcomes in direct opposition to the original intent of the regulation.

The known published policy within the SCC recommends that extra-regulatory documentation (e.g., interpretations, etc.) are incorporated at the end of regulations review cycle. The policy does allow for re-issuance and complete removal in the event a change in circumstance negates the need. Regardless of how the extra-regulatory documentation is eventually dealt with, it is required by existing policy to be monitored in conjunction with the code or regulatory active cycles. None of the extra-regulatory documentation was brought forth for review during the PWR review discussions of 2012 to 2014 or 2018 to 2020.

It has been suggested by Municipal Affairs that "official" PWR interpretations should be requested of the Administrator. Note that for CSA and ASME codes, there are formal interpretation processes whereby the code committee will answer "yes or no" to (non-consulting) questions. ABSA does provide training, code update seminars, etc. to assist industry with utilization of regulation, codes and standards. However, no formal process to request for interpretation can be found in the public domain at this time. Closure of this gap is an area of improvement proposed for consideration.

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In parallel to plain language, Section 6.3 identifies recommended improvements in regulatory structure and communication to the public.

The province of Alberta, with respect to the global supply chain, continues to display an overly complex and outdated regulatory environment. This is recognized by the OECD, Fraser Institute, CFIB and others as a deterrent to foreign investment in our province. Though seemingly far removed from direct issues relative to the PWR and other skilled trade regulation, conclusions around issues in the supply chain in general serve to demonstrate how widespread outdated and economically harmful policies have become in Alberta.

7.2.2 Welder Training

The Apprenticeship and Industry Training curriculum for the welder trade/branch indicates that formal exposure to the Act, Regulations, Codes and Standards occurs in the 3rd (last) period of school. An employer responsibility during apprentice training is that a certain amount of exposure and instruction in codes and standards will occur during "on the job" training.

Counterintuitive to what might be thought; apprentices typically do not receive formal exposure or training to the Apprenticeship Act and Welder Trade Regulation. In context, an apprentice is required to enter into a legal contract with the government and an employer but not given the rights and obligations (i.e., terms and conditions) thereto. Welders are not a self-governed trade (as in engineers, doctors, etc.), and therefore the regulatory system should enhance such exposure and training. This issue is another example of regulatory oversight failure and leads to misunderstanding of the interrelationships

between apprenticeship, regulation, codes and standards later in the welders' career. Closure of the gap and enhancement of training is an area of proposed improvement.

The issues of training opportunities, apprenticeship and eventual pressure certification have become self-perpetuating cyclic arguments with no one party willing to be the first to change. This "catch-22 situation" is illustrated in Figure 16. Each party is fulfilling their mandate, independently, but there are knock-on effects to the apprentices' training and industry performance.

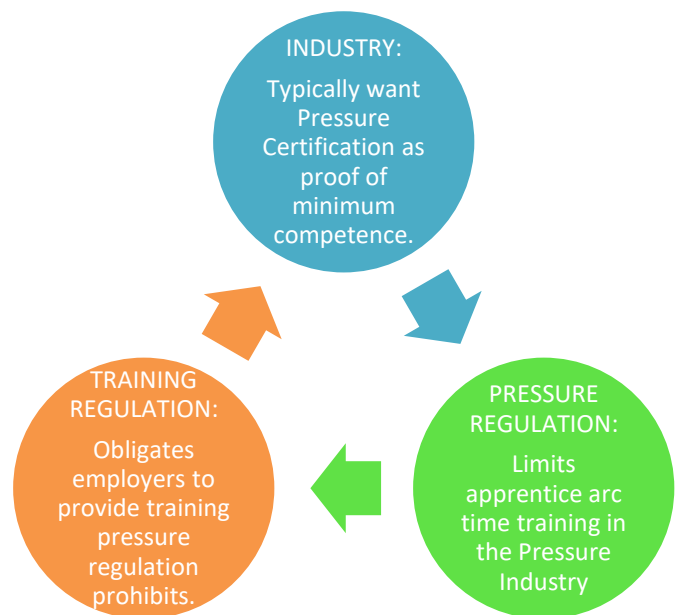


Figure 16 - The "catch-22 situation" cycle between training, regulation and pressure welding industry need

The ultimate conclusion with respect to Apprenticeship and Industry Training and Municipal Affairs is that neither entity would be expected to look for or investigate any issues of regulatory conflicts between the two in fulfilling their respective mandates. Both are simply performing their duties within the parameters

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assigned to them by government. Moreover, it could easily be construed as a misuse of resources to even investigate claims of such circumstances without clear ministerial direction and mandate.

To be clear, the personnel and expertise thereof assigned to administer their respective regulation is not the issue. The underlying issue is the singularity of focus on one regulatory system and lack of holistic examination of the 'entire' industry and the multiple regulations that industry must co-comply with. These issues partially affect labour attraction, retention, training and sustainability concerns well known in the welding industry and government. The conflicts can also undermine the public safety outcomes intended by both respective regulation frameworks.

Hence, any regulatory improvement strategies should include consideration of co-existing regulations that the regulated population must comply with. This holistic approach will ensure industry attracts, retains and produces the next generation of welders (and other skilled trades) that can realize productive and safe careers.

7.2.3 Economic Considerations

In Section 5.1, the review of the CFIB's report Card, C.D Howe, the Fraser Institute and others dealt with the general state of the regulatory environment in Alberta. Other studies examined in Section 5.2 focused on certification, licensing and other schemes exerted on occupations. Though not always singularly specific to skilled trades alone, all treatments with respect to occupations are inclusive of skilled trades in their commentary and conclusions.

This study has noted that little research has been performed within Canada on the economics of

regulating occupations. There has also been little, if any, uptake in the performance monitoring of occupational regulations (Forth, *et al.*, 2011). A University of Guelph study recently confirmed the understanding of negative occupational licensing issues globally as equally prevalent within Canada (Plesca, 2015).

The Government of Alberta itself has undertaken or commissioned work to both understand current status and promote growth in various economic sectors via policy new development. Previous reports by The Competitiveness Council of Alberta (May 2011), the Regulatory Review Secretariat (2012), Alberta Innovates-Technology Futures (2012, now InnoTech Alberta), the Alberta Energy Regulator (2015) and others have all produced recommendations for:

- improving technology uptake,
- increased training to close identified skills gaps with other markets,
- addressing employer concerns around access to skilled labour supply, attraction and retention, and
- additional factors all relevant to welding in Alberta.

Very little evidence of advancements in these areas can be found in Alberta's policy and regulatory development over the past twenty years. A possible explanation is found in research from Europe and the United States.

The general tendency is to assemble technical experts for oversight of safety regulation (inclusive of those in use in Alberta). Unintendedly, and without explicit guidance to the contrary, this often leads to fixations on a narrow understanding of risk which ignores other external influences and factors (Lee, 2009). Moreover, such groups of

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overseers often originate from within the regulated market sectors or industries (i.e., missing the 'cold eyes' fresh perspective). Within these groups, there also exists opportunity for economic abuses and manipulation beneficial to a select few (Larkin, 2017, and Berliner, *et al.*, 2017).

Government departments (like large corporations) are often organized into silos of specialized technical / administrative focus untempered by external influence or emerging insights. These systems often deter reforms brought forth from the general public and can biasedly inform politicians due to the singularity of their concern (Berliner, *et al.*, 2017). Political offices / ministries without direct experience and knowledge, therefore, rely on the government bureaucrat to effectively educate them and recommend policy. The predominant reality is systemic support for the status quo regardless of any public desire for change (Larkin, 2017).

A significant external driver within government to maintain systematic occupational licensing, and an underlying impetus for the exponential growth of licensure, is that of the development and support of secondary institutions (Redbird, 2017). Regulated, licensed or certified occupations require standardized training in order to achieve the license or certificate. Ergo, training providers are regulated to ensure compliance with delivery standards and minimum competency education. The training institution and the regulated, certified or licensed occupation become symbiotically codependent within an economic model.

Government bureaucracy favour these systems as they can control and predict cycles of training uptake and funding to the various institutions. For the skilled trades in Alberta, typical training lengths are two to four years of schooling / work

experience. Regulated training delivery can predict and respond to changes in program uptake influence irrespective of economic prosperity and decline cycles.

In this way, government minimizes risk exposure relative to their ability to respond to rapid fluctuations in market stability and remains somewhat artificially insulated from the economic pressures to provide training.

The intertwined economic models of codependence extend beyond the relationship between the occupation and its training.

A wide variety of services all draw fees directly or indirectly from the regulated occupation, including:

- Government oversight,
 - regulatory review,
 - mandatory inspection or audits,
 - public school skilled trades instruction and exposure,
 - union dues or professional fees,
 - regulated physicals or medical exams,
 - site access screening tests, and
 - others as required.
- (Young 2002 & Redbird, 2017).

Such fees and revenue streams unrelated to the *productive output* of the occupation are deemed "Rents" by economists and have been a significant source of study and concern since first discussed and defined by Adam Smith (1723 – 1790).

These circumstances are often considered to have greater and more dire impacts on economies like Alberta as the largest percentage of GDP is based on natural resource development.

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Any regulated occupation invested in this industry is at greater risk relative to other jurisdictions simply due to the lack of alternative avenues of employment for those in the regulated occupation.

7.2.4 Occupational Licensing

Relative to the plethora of data available from other jurisdictions, Alberta's regulatory certification of pressure welding can be defined as occupational licensing.

In line with public perceptions of regulations designed on precautionary principles, occupational licensing is generally accepted based on the assurance of minimal worker competency standards (Pye-Tate, 2018). Both journeyman certification and pressure certification are used to define minimum relevant skill set proficiency. However, while journeyman certification requires formal schooling and testing, the PWR currently only requires the latter.

“A “regulated profession” is a “professional activity or group of professional activities, access to which, the pursuit of which, or one of the modes of pursuit of which is subject, directly or indirectly, by virtue of legislative, regulatory or administrative provisions to the possession of specific professional qualifications”. This definition nicely fits the economic definition of a licensed profession.”

(Koumenta, *et al.*, 2014).

Unlike professional licensing models that often requiring additional professional development (Engineers, Doctors, Architects etc.), no further training is required of an Alberta Journeyman welder, only the practical test and collected fee. In BC, the pressure welder exam fee is now actually in regulation as a licensing fee (Government of BC, 2019) and upcoming changes in BC program may include periodic license renewal fees.

The vast majority of rational presented in support of occupational licensing is based on the protection of public health and safety (Fontinelle, *et al.*, 2016). However, such schemes are rarely initiated by the public and are generally believed to be endogenous (or within the occupation itself). Additional rational for licensing development has originated in regulator responses to economic considerations such as skill gaps in market conditions. Governments have routinely provided attraction incentives for individual entry by way of upskilling recognition, status and wage augmentation possibilities (Tamkin *et al.*, 2013). Conversely, these same instruments can be used as intentional entry deterrents when a population within a specific regulated environment encroaches on unsustainable levels.

Where skilled trades and professional practices diverge is in the continued incentives to upskill. Professional organizations (doctors, engineers, teachers etc.) are often required to maintain professional standing through continued upgrading. Professional development systems have developed and generally employment allows for paid time in pursuit thereof. Skilled trades, conversely, once having met the minimum requirements for certification or licencing, have limited incentives to upskilling:

- Wages are based on the minimum certification or license held, with only a few known incremental improvements possible.
- Employer training when provided is usually in the best interests of the employer.
- Paid time away from the job in pursuit of training is extremely rare.
- Welders will require self-motivation to upskill for new processes, technology, metallurgy or service applications.

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Interestingly, this circumstance only applies to the traditional, long established trades up to and inclusive of those emergent throughout the mid twentieth century.

Regulatory entry barriers for any regulated trade have been proven detrimental to the abilities of employers to find and retain skilled labour (Brydon & Dachis, 2013). Economic studies relative to employment wages have shown that any pre-existing gap between certified and uncertified labour has been effectively removed by free enterprise adjustments to market conditions (Brydon & Dachis, 2013). This could eliminate any uptake incentivization for welders to invest in pressure certification in some situations. The current demographics for labour in Canada will further erode any regulated incentive considerations as labour numbers continue to decline (Statistics Canada, 2019).

Based on available research findings, including previous review by the Government of Alberta, it is recommended that the intertwined economic implications and potential abuses related to occupational licensing be further examined and actioned in Alberta.

7.3 On New Approaches and Methodologies for Regulation

7.3.1 Inter-Ministerial Alignment

The Pressure Welders Regulation is an example, though not unique, of regulations existing within more than one governmental department, ministry or administered via multiple external agencies. As such, effective management requires collaborative action or invokes obligations on the entire group. The training of all welders is entirely regulated by the Ministry of Advanced Education;

however, pressure welders are regulated under the Ministry of Municipal Affairs. The overarching goals, policies, and processes of these separate Ministries are entirely unique (i.e. siloed organizational structure, as previously discussed). An unfortunate result is that regulatory, certification or procedure conflicts can arise without due process for inter-departmental alignment.

A clear example is in the development of the Wire Process Operator (WPO) trade designation within the welder trade. Developed by Alberta Apprenticeship (under prevue of the Advanced Education ministry), this training route permits a faster track to journeyman certification. However, WPO trade is limited to semi-automatic (wire) process welding only and prohibits traditional manual welding processes. The program was developed and implemented during a period of intense activity and labour shortage, with the intention of fast tracking training and labour mobilization in Alberta.

The “WPO” and “Welder” routes within the trade regulation have developed a common 1st year curriculum of training. Beyond that, WPOs are permitted to continue to the “Welder” journeyman certification route if desired.

Municipal Affairs, the Safety Codes Council and others have been asked to decide, since 2012, how the PWR should address the WPO trade, including:

- adopt or specifically exclude applicable pressure certification,
- develop testing, and/or
- establish a certification level within the existing hierarchy.

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Note that the existing regulatory wording does not appear to officially preclude a Journeyman WPO from applying for the current “Grade B” pressure certification; however, no official interpretation exists at the time of this study.

During PWR committee meetings, some argue that the PWR was not “intended” to support the WPO Trade. However, there is no formal documentation that objectively arrives at this ‘decision’, even though the trade has existed since 2007. Whether or not a recognized trade can advance to pressure certification requires input from all stakeholders, including Administrators, industry and other government departments (i.e. Alberta Apprenticeship). A recommendation is that regular review meetings are held to discuss these types of inter-ministerial alignment issues, with industry and stakeholders’ input.

7.3.2 User Administration Requirements and Regulator Service

The PWR body contains various technical and administrative requirements, carried over from past practice, that are not efficiently managed within a legally binding regulation. Examples include items addressing specific eligibility requirements for certification, use of forms, application timing, etc. that all serve to address administrative process not requiring the approval of the Alberta cabinet / Legislature.

As discussed in Section 6.3, a new regulatory framework and structure was proposed to address these concerns. Simply put, under the proposal the PWR retains clauses focused on safety absolutes and new ‘Annex’ consolidate administrative and technical requirements into one place for ease of access and use. Moreover, the simplification of the PWR will reduce the possibility of conflicting

requirements as technology, training, codes and other items continue to evolve. Note that often codes and standards change separately from and unconcerned with regulatory review and revision cycles; hence, a ‘nimble’ regulatory framework is proposed to respond appropriately. Any changes required within Annex can be dealt with at the administration level by the assigned administrative body.

Modernizing the various forms and access methods to regulator services is strongly recommended. With each new certificate, a new form or set of forms has evolved. It should be relatively easy and a cost savings benefit to combine as many forms as possible into one, with a series of check boxes to indicate what is being applied for. Moreover, much of these services outside of Alberta exist via online interactive platforms and paperless environments that are encouraged and supported by today’s population. Though recognized as an intensive up-front exercise to develop; this is the direction being taken globally. Continued delays in adapting and adopting such modern ways of interaction between regulators and the groups they regulate will only increase the eventual costs of development and delay any future cost savings realizations such programs offer.

8 Conclusions

Since 2012, AWOC has worked closely with industry, stakeholders, government, and regulators to examine our regulatory environment. After 8 years of industry engagement, research, and stakeholder deliberations this study has culminated into various specific actions to advance regulatory effectiveness.

With provincial focus on "Red Tape Reduction", this study provides practical means to advance the regulatory framework while maintaining the underpinning safety objectives.

- First by the adoption of an overall *continuous improvement* methodology to manage regulatory structure, process, and outcomes.
- Second, all enhancements should focus on the principles of *clarity, efficiency* and *flexibility* in the regulatory framework.

AWOC has developed expertise and strong industry connections that can directly assist industry, government, regulators and bodies thereof in their regulatory efficiency journeys. To that end, this study has amassed a compendium of research, recommendations and guidance to enhance Alberta's regulatory environment.

By adapting and adopting the findings, the provincial Red Tape Reduction Panel can use these resources to examine and set regulatory enhancement goals. To provide practical examples, this study focused on skilled trades and the Pressure Welders Regulation, in particular.

By contrasting the current regulatory system to other jurisdictions, 5 areas for enhancement are summarized below:

Policy - Enhance current policy approaches to public safety in the skilled trades, such as the Pressure Welders Regulation (PWR), to reflect modern practices.

Call-to-Action: Convene a Task Force including AWOC, industry stakeholders, and with provincial agencies such as apprenticeship and regulators to collaboratively develop a roadmap to enhance the regulation of skilled trades.

Review - Adapt and adopt best practices of Regulatory Impact Assessment (RIA), including Key Performance Indicators (KPIs) and public engagement approaches.

Call-to-Action: Within the scope of the Task Force identified above, industry and regulatory bodies are to inject Regulatory Impact Assessment (RIA) protocols into current review processes, utilizing best practices for performance monitoring and public engagement.

Systems - Enhance regulatory oversight systems and committee structures to examine economics, social implications, clarity, efficiency, and flexibility, in parallel to safety.

Call-to-Action: Within the scope of the Task Force identified above, Regulatory bodies and associated agencies introduce balanced regulatory management systems that reflect best practices of other jurisdictions.

Language and Structure - Simplify the language used in regulatory documentation and streamline the structure to facilitate understanding and compliance.

Call-to-Action: Within the scope of the Task Force identified above, examine means to simplify the

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language of regulatory documentation and enhance the organizational structure thereof.

Continuous Improvement - The philosophy of 'incremental improvements over time' ensures policy, review, systems, language and structure are enhanced pragmatically over time.

Call-to-Action: Within the scope of the Task Force identified above, ensure all regulatory matters have foundational policies, review approaches, management systems, simplified language and structure with continuous improvement mechanisms built-in.

The balance between safety and competitiveness continues to be pursued by other jurisdictions using structured and transparent regulatory systems. Alberta is now in the position to adapt and adopt these best practices to enhance our framework. By ensuring *clarity, efficiency* and *flexibility* in requirements and systems, while employing a *continuous improvement* methodology, the province can benefit from the balance of safety and competitiveness in the future.



Appendix 1 – Suggested Databases for Pressure Equipment, Welding Procedure and Welder / Welding Operator Performance



SUGGESTED - Welding Procedure Database Information Structure

Company	Reason	Material	Manual and Semi-automatic (1 - As Welded, 2 - PWHT)										Machine and Automatic (1 - As Welded, 2 - PWHT)												
			P No.	SMAW1	SMAW2	FCAW1	FCAW2	GTAW1	GTAW2	GMAW1 (Basic)	GMAW2 (Basic)	GMAW1 (Advanced) Wave Form Control, SST, RMD, Metal Core, Etc.	GMAW2 (Advanced) Wave Form Control, SST, RMD, Metal Core, Etc.	SAW1	SAW2	FCAW1	FCAW2	GTAW1	GTAW2	GMAW1 (Basic)	GMAW2 (Basic)	GMAW1 (Advanced) Wave Form Control, SST, RMD, Metal Core, Etc.	GMAW2 (Advanced) Wave Form Control, SST, RMD, Metal Core, Etc.	Other1	Other2
Coding will retain anonymity but allow authorized access to specifics. IE; AQP number.	Coding system suggested, IE; 1 = Code Update, 2 = commercial, 3 = technology condition change, 4 base material condition change, etc. Registration form can include for user designations.																								

Sample Data using a 4 digit prefix code for each procedure indicating the year and month of the registration - one data entry for each procedure. This is an important consideration for examining the data for any desired time period. Other searches by process, P Number,

1234	2	1	1804	1804			1804	1804					1804	1804											
	2	1			1806	1806					1806	1806								1804	1804				
	4	1								1807	1807														

- 1) Collection and use of this data will provide government and industry with clear information on the total number of registrations and re-registrations performed for non-code purposes alone and assist in the development of supply chain improvement initiatives to lessen the economic impacts or waste such requirement may be generating.
- 2) Company specifics will require collection in order to segregate the impacts of re-qualification relative to business size: this information will assist in the development of policies and programs to support SME's and general supply chain improvements.
- 3) This data has the further potential of recognizing material trends that can be use to align training programs recognizing the inherent differences in the welding of various alloys not common to the current apprenticeship curriculum.
- 4) It is understood that though ABSA has had access to this information for decades, it has never been their mandate, nor have resources been available to collect and utilize this data for economic or other industry trends identification and improvements.
- 5) The sample data set shown above demonstrates how a single registration takes only seconds to enter the 4 or 5 key data points and therefore a negligible resource allocation relative to the value of the data. Decades of historical data entry are recommended to provide current useful information for government and industry to affirm or disabuse existing opinions.



Appendix 2 – Colorado Department of Public Safety – Proposed Schedule for Comprehensive Review of Rules





Proposed Schedule for Comprehensive Review of Rules

July 31, 2018
Subject to Change

Below is a list of rules that the Department of Public Safety expects to review in their entirety in the coming year in accordance with 24-4-103.3, C.R.S. As the rules are being reviewed, the following are considered:

- Whether the rule is necessary
- Whether the rule overlaps or duplicates other rules of the agency or with other federal, state, or local government rules
- Whether the rule is written in plain language and is easy to understand
- Whether the rule has achieved the desired intent and whether more or less regulation is necessary
- Whether the rule can be amended to give more flexibility, reduce regulatory burden, or reduce unnecessary paperwork or steps while maintaining its benefits
- Whether a cost-benefit analysis was performed by the applicable rulemaking agency or official in the principal department pursuant to section 24-4-103(2.5), C.R.S.
- Whether the rule is adequate for the protection of the safety, health, and welfare of the state and its residents

January 1 through December 31, 2018

Colorado Bureau of Investigation

- 8 CCR 1507-29: Evidence Collection in Connection with Sexual Assaults

Colorado State Patrol

- 8 CCR 1507-50 Colorado Automobile Theft Prevention Authority
- 8 CCR 1507-53 Motorcycle Operator Safety Training

Division of Fire Prevention and Control

- 8 CCR 1507-32: Prescribed Burning in Colorado

January 1 through December 31, 2019

Colorado Bureau of Investigation

- 8 CCR 1507-33: Rules and Regulations Concerning the Medina Alert Program



Colorado State Patrol

- 8 CCR 1507-25: Rules and Regulations Concerning the Permitting, Routing and Transportation of Hazardous and Nuclear Materials and the Intrastate Transportation of Agricultural Products in the State of Colorado
- 8 CCR 1507-50 Colorado Automobile Theft Prevention Authority

Division of Fire Prevention and Control

- 8 CCR 1507-30: Fire Code Enforcement and Certification of Fire Inspectors for Public Schools, Charter Schools and Junior Colleges
- 8 CCR 1507-34: Local Firefighter Safety and Disease Prevention Fund

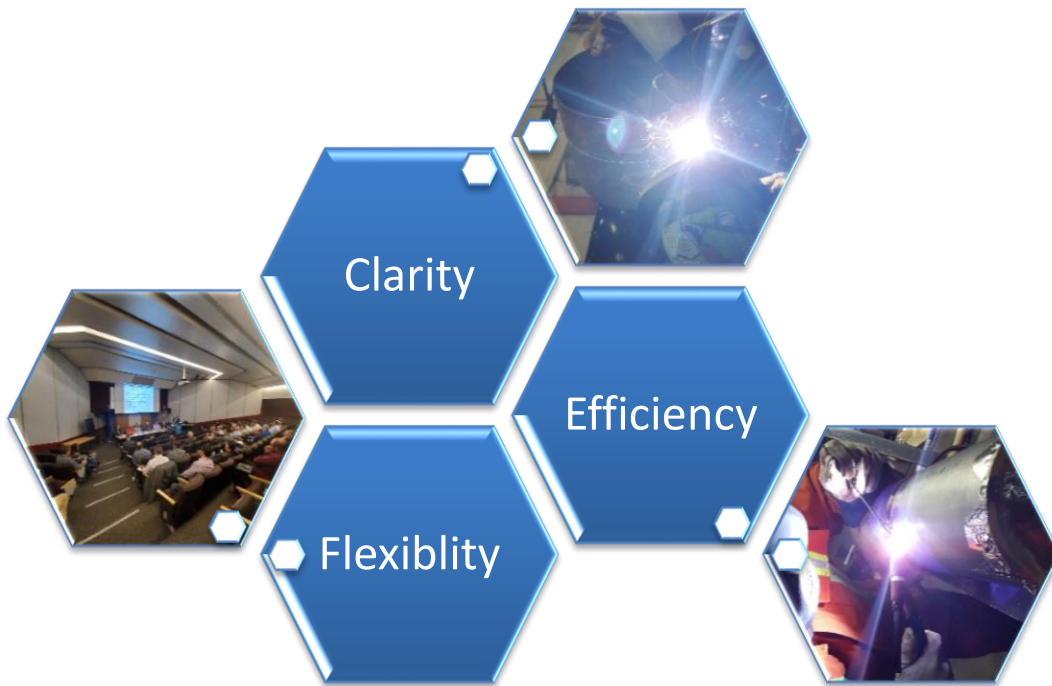
Division of Homeland Security and Emergency Management

- 8 CCR 1507-40: Continuity of State Government Operations
- 8 CCR 1507-41: Building Security and Occupant Protection





Appendix 3 – Australian Government – Regulator Performance Framework





Australian Government



Regulator Performance Framework

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FOREWORD



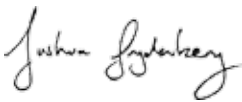
This Framework is an important part of the Government's commitment to reduce unnecessary or inefficient regulation imposed on individuals, business and community organisations by at least \$1 billion a year.

Importantly, the way regulators administer regulations can have a major effect on productivity and this is why we have to also consider how regulators operate.

This Framework establishes a common set of performance measures that will allow for the comprehensive assessment of regulator performance and their engagement with stakeholders.

The Framework will encourage regulators to minimise their impact on those they regulate while still delivering the vital role they have been asked to perform.

Increased accountability and greater transparency underpins the Abbott Government's approach to ensuring regulators achieve their objectives while at the same time supporting the Australian economy.

A handwritten signature in black ink that reads "Josh Frydenberg". The signature is written in a cursive, flowing style.

The Honourable Josh Frydenberg MP
Parliamentary Secretary
to the Prime Minister

October 2014

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INTRODUCTION

The Government has committed to reducing the cost of unnecessary or inefficient regulation imposed on individuals, business and community organisations by at least \$1 billion a year. In order to achieve the Government's goal of reducing the burden of regulation, it will be essential to improve the performance of regulators, including by supporting regulators to adopt consistent, risk-based approaches to administering regulation.

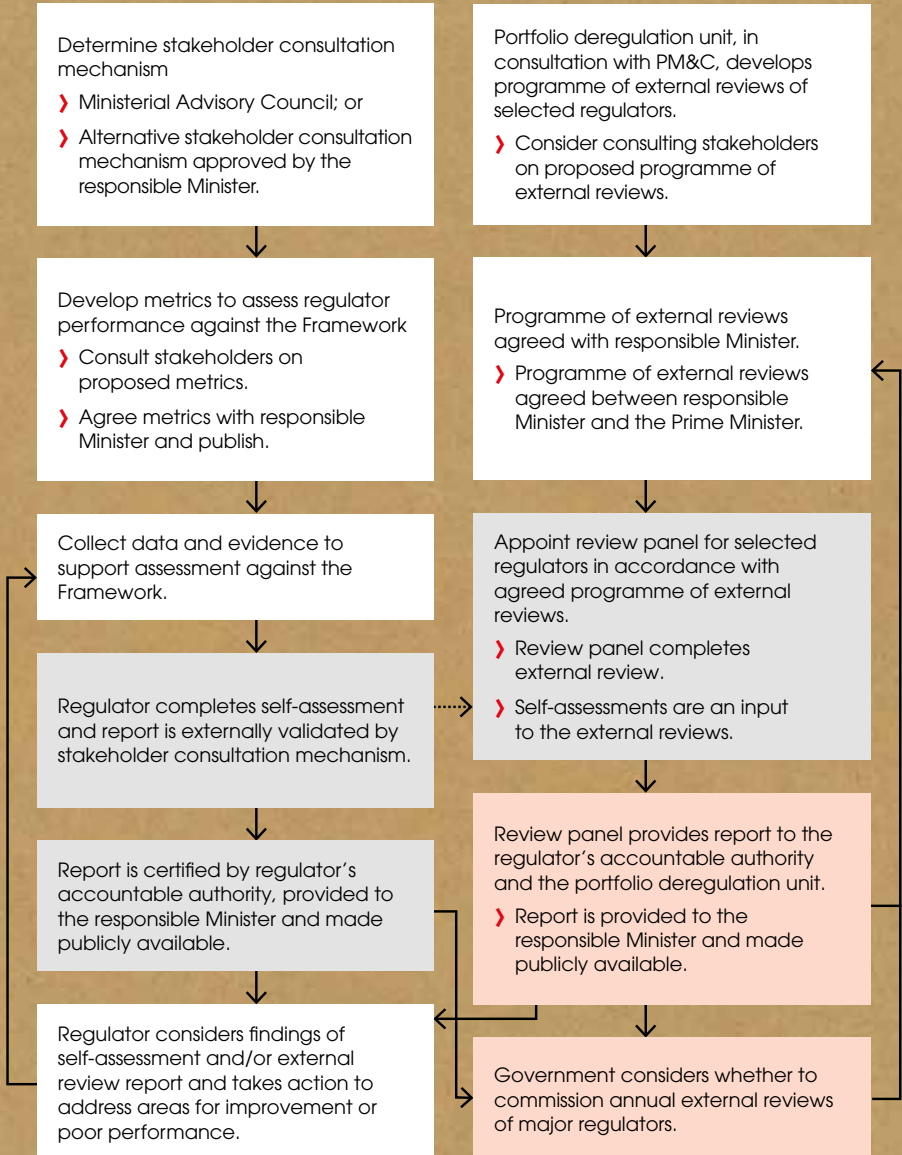
Regulatory costs do not just come from the design of the regulations. Poorly administered regulation can impose unnecessary costs that reduce productivity. These costs inevitably flow through to business more widely and to the community even where their initial impact is on a particular business. These costs may negatively impact the viability of domestic businesses, especially those exposed to overseas competition.

This is why the Government has developed a framework to measure the performance of regulators. Measuring and publicly reporting performance will give business, the community and individuals confidence that regulators effectively and flexibly manage risk. For the purposes of the Government's deregulation agenda, a regulator is a Government body that administers, monitors or enforces regulation.

On request from the Government, the Productivity Commission (PC) published a report on 19 March 2014, describing a possible framework by which the performance of regulators could be audited. The Regulator Performance Framework (the Framework) is largely based on the PC's report; however, a more streamlined approach to indicators has been used in the Framework.

The Government recognises the important role that regulators play in managing risk and protecting the interests of the community. Efficiently administered regulatory frameworks can improve the operation of businesses, markets and the economy, bring major benefits for individuals and lead to fewer resource requirements for regulators. This Framework will help regulators play their part.

THE FRAMEWORK IMPLEMENTATION AND REVIEW CYCLE



PURPOSE OF THE FRAMEWORK

The circumstances of regulators vary widely, with regulators ranging from those which are constituted as separate statutory entities to those that carry out both regulatory and other functions within departments of state, including policy advice and the formulation of regulation. The Framework takes into account these circumstances and is only focussed on capturing the performance of regulatory functions.

Overall, the Framework aims to encourage regulators to undertake their functions with the minimum impact necessary to achieve regulatory objectives and to effect positive ongoing and lasting cultural change within regulators. This can include adapting their approach, for example, to reduce burdens on small business. In turn this will also assist regulators in meeting community expectations, which will help build stakeholder and public confidence.

The Framework will allow regulators to report objectively on the outcomes of their efforts to administer regulation fairly, effectively and efficiently. It will also be a useful tool for regulators to identify opportunities for improvement and better target their resources for greater impact. The Framework will assist in highlighting where improvement of regulatory frameworks could reduce compliance costs.

Elements of the Framework

To achieve the Government's objectives, the Framework comprises:

- › **outcomes-based key performance indicators (KPIs)** to articulate the Government's overarching expectations of regulator performance, namely:
 - › regulators do not unnecessarily impede the efficient operation of regulated entities;
 - › communication with regulated entities is clear, targeted and effective;
 - › actions undertaken by regulators are proportionate to the risk being managed;
 - › compliance and monitoring approaches are streamlined and coordinated;
 - › regulators are open and transparent in their dealings with regulated entities; and
 - › regulators actively contribute to the continuous improvement of regulatory frameworks.

- › **measures of good regulatory performance** to be used by all regulators to assess their achievement of the KPIs, although these may be complemented with relevant output or activity-based evidence specific to the regulators’ circumstances;
- › **a process for annual externally validated self-assessment** for all regulators against the Framework including, if applicable, certification from the regulator’s Accountable Authority (typically the Chief Executive Officer or Board) under the *Public Governance, Performance and Accountability Act 2013* (PGPA Act);
- › **a process for targeted external review every three years** for a selected set of regulators, with responsible Ministers agreeing to the proposed evidence to assess performance, and the evidence metrics published as part of the review; and
- › **the option for the Government to commission annual external reviews** of a small number of major regulators, with the results published.

The Framework will be supported by implementation guidance issued by the Department of the Prime Minister and Cabinet (PM&C). The guidance will provide practical advice to assist those implementing and/or impacted by the Framework. This Guidance will include:

- › **advice for determining which regulators** and regulatory functions are subject to the Framework;
- › **examples of input, output, and/or activity-based evidence** supporting the assessment of the mandatory measures of good regulatory performance specified in the Framework;
- › **a selection of case studies of better regulatory practice** across a range of activities, implemented within regulatory agencies as a first step towards sharing good practice among regulators;
- › **suggestions for involving Ministerial Advisory Councils (MACs) and other relevant stakeholders** to validate quantitative data and supporting qualitative evidence of performance; and
- › **advice on implementation timeframes** including for the completion of self-assessments, coordination of external reviews, publication of reports, and arrangements for any required follow-up actions.

Implementation of the Framework

Implementation of the Framework must result in improved regulator performance. It should:

- › facilitate performance assessment;
- › ensure accountability;
- › be transparent;
- › be flexible;
- › be cost-effective; and
- › complement, rather than duplicate, other processes.

The measurement and attribution of outcomes-based KPIs can be difficult and it may not be immediately possible to accurately and meaningfully assess and attribute outcomes. It takes time to establish a pattern from which improvements in performance can be identified. For some regulators this may mean a period of time between the introduction of the Framework and a clearly assessed achievement of the stated objectives. Over time, reporting by regulators will demonstrate measurement and communication of outcomes, rather than simply reporting against outputs.

It is important that the outcomes are clearly identified early, with data allowing an assessment against agreed output/activity-based evidence collected over time. This will allow efficient tracking of the performance of individual regulators and provide ongoing benchmarking of comparable regulators.

The Framework is not intended to increase the administrative burden on regulators. Most regulators already have an internal reporting system to monitor their performance against legislative requirements and/or KPIs. Assessment and reporting against the Framework can replace any existing individual regulator frameworks to the extent possible. Where this is not possible, the assessment and reporting requirements of the Framework should complement the existing monitoring processes.

The Framework is sufficiently flexible to reflect differences in regulators' environments. To ensure the Framework remains effective, is consistently applied, and delivers improved regulator performance, it is proposed that a review of the Framework will be undertaken three years after implementation.

Coverage of the Framework

Commonwealth regulators that administer, monitor or enforce regulation are required to implement the Framework. Regulators internal to departments that are publicly identifiable in their own right, such as the Therapeutic Goods Administration, will be required to apply the Framework. It is not intended that the Framework will apply to regulatory bodies jointly owned with other governments. The definition of regulator for the purposes of the Framework will be further described in guidance.

Reducing regulatory burden associated with quasi-regulation, including procurement and grants, is a key element of the red tape reduction programme. Similarly, the setting of regulatory policy or standards is subject to Regulatory Impact Analysis and the requirements under the *Australian Government Guide to Regulation*. This Framework is not intended to apply to bodies or functions undertaking these types of activities.

Timeframe

PM&C will issue guidance on implementation, including on engagement with stakeholder groups, by 1 January 2015. There will be a six month transition period for regulators to align internal policy and practice to the Framework prior to the commencement of the first assessment period on 1 July 2015.

REVIEWING PERFORMANCE

Regulator performance will be assessed through annual externally validated self-assessments against the Framework. This will be complemented by a programme of external reviews of a selected set of regulators every three years. There will be the option for Government to commission annual external reviews of a small number of major regulators. The results of any assessment or review will be published. The responsible Minister will agree the proposed evidence to assess performance for self-assessments or reviews prior to their commencement. The evidence metrics will be published.

Requirements for self-assessment

Self-assessment must be comprehensive, timely, externally validated and publicly available.

All regulators subject to the Framework must self-assess their performance once every 12 months. Self-assessment provides flexibility for assessments to be tailored to the size and responsibilities of the regulator. Regulators can determine how to conduct their self-assessment, including using external assessors, peer reviewers or industry bodies. Regulators may incorporate these self-assessments into existing internal or external review programmes. The regulator's Accountable Authority under the PGPA Act, if applicable, must certify the self-assessment report and provide it to the MAC or other stakeholder consultation mechanism approved by the responsible Minister.

Self-assessments and how they are conducted will be reviewed by the relevant MAC(s), or other relevant stakeholder consultation mechanism agreed with the responsible Minister. These groups will test the applicability of output/activity-based evidence to regulators within a particular portfolio, in order to provide appropriate quality assurance.

The MAC(s), or relevant stakeholder group will then consider the self-assessment methodology and the results of the assessment, in order to provide appropriate external validation.

External reviews

It is essential that regulators are accountable through the Framework to the Government and the community. External reviews will be conducted by review panels against the performance measures within the Framework and will assist in confirming the validity of self-assessments.

Targeted external review

A selected set of regulators will be subject to an external review every three years. The responsible Minister will agree to the proposed evidence to assess performance, and the evidence metrics will be published as part of the external review. Regulators will be selected on the basis of criteria such as:

- › identified or emerging industry risks;
- › current government priorities;
- › nomination by MACs or the responsible Minister;
- › history of complaints about the regulator; and
- › extent to which the performance of a regulator has been recently assessed externally, for example through an Australian National Audit Office (ANAO) audit or a parliamentary inquiry.

Based on advice from PM&C, portfolio Deregulation Units will coordinate the programme of targeted external reviews of regulators against the Framework. The external review programme may result in regulators being reviewed externally at least once every three years.

Annual external review

The Government will have the option to commission an annual external review of a small number of major regulators across all portfolios. If the option to commission an annual external review is exercised, these regulators will still undertake an annual self-assessment of performance. This will provide baseline input to the external review and a useful comparison between how the regulator assesses its own performance against how the regulator is assessed externally. Self-assessments of regulators selected for external review will not need external validation.

If this option is exercised, any such reviews of major regulators may choose to focus on a discrete regulatory stream in each annual review period over the three year review cycle in order to allow enough time for changes to be implemented between review periods. This would promote a targeted approach to the review process to address those regulatory functions in most need of assessment, rather than a review of all of the regulatory functions of the organisation.

These major regulators could be selected for annual external review based on a number of factors, including:

- › value of regulatory burden;
- › economic value;
- › size of regulated community or industry size;
- › identified or emerging industry risks and/or current Government priorities;
- › the results of self-assessments and external reviews under the Framework; and
- › size of regulator based on total employees, or annual budget and revenue.

Review panels

External reviews will be conducted by review panels of government and industry representatives, including: a comparable regulator, a representative of the relevant regulated community (unless precluded by statutory requirements or international obligations), and a representative from the portfolio. Additional members may include representatives from other government agencies, and the ANAO, and others as appropriate. Different review panels will maximise expertise and availability of members for the external review of a specific regulator. Portfolios, in consultation with the responsible Minister(s), will determine appropriate appointment processes for review panels.

The inclusion of a comparable regulator is an important feature of the make-up of the review panel. Peer review is expected to assist the exchange of ideas and practices across regulators from the same sector. It may also facilitate the introduction of a more coordinated approach to monitoring and compliance within a sector.

Review panels may engage the services of expert assistance to assist them to conduct external reviews of regulators. The costs of this assistance will need to be met within existing resources.

Data collection

For self-assessments and external reviews, the benefits of transparency need to be balanced against the costs associated with collecting the evidence necessary to make an assessment of performance. Where possible, existing processes for data collection and analysis should be utilised, such as data derived from business perception surveys, to minimise any additional burden associated with the implementation of the Framework.

Regulators and review panels are encouraged to complement the reporting of quantitative data with qualitative information describing actions taken to improve the regulators' performance. Assessments based on a single source of evidence are not sufficient. Judgements on performance should be made by drawing on a range of evidence from different sources and reviewers should seek to triangulate evidence. In some cases the measurement of output or activity-based evidence will be the only practical option. A combination of evidence sources will allow a comprehensive assessment of performance.

Examples of output or activity-based evidence are provided in the Framework. These examples are not an exhaustive list and are provided as a guide only, as individual circumstances of regulators and their regulated entities must be considered. Regulators and review panels should test the suitability of the selected evidence with relevant department(s) and MACs, or other approved stakeholder consultation mechanism to ensure they will provide an acceptable assessment of performance in the stated areas.

Possible sources of evidence include:

- › endorsed, documented guidance, policies and procedures;
- › business and staff surveys;
- › published statement(s) of intent and/or expectations;
- › interviews and focus groups with stakeholders and staff;
- › feedback obtained from internal complaint mechanisms;
- › regulator annual reports;
- › findings of ANAO audit reports; and
- › existing internal performance reporting processes.

Reporting

Regulators will be required to publish a report on the outcomes of each annual self-assessment and any external reviews of their performance. These reports will identify the extent to which the regulator is achieving the performance indicators in the Framework and highlight areas for improvement for the regulator.

Where appropriate, this advice could include: more effective communication practices and collection of compliance information; more targeted compliance monitoring and enforcement approaches; and strategies for continuous improvement in engagement.

In addition to the overall assessment of performance against the measures, the report should detail the evidence considered by the regulator and/or review panel in forming their opinion.

It is noted that for a small number of regulators, issues concerning national security and operational details to achieve regulatory objectives may require published reports to be less detailed. Flexibility is provided to regulators and portfolio departments to determine how and where to publish these reports.

ACCOUNTABILITY AND TRANSPARENCY

Regulators, as public entities, are subject to various reporting and accountability arrangements. It is intended that as far as possible, the Framework be built into the existing performance architecture. This includes the accountability and transparency provided by the ANAO performance audits and the performance assessment and reporting requirements under the PGPA Act.

The PGPA Act includes a number of requirements with respect to non-financial performance assessment and reporting. These requirements include assessment and measurement of performance, preparation of annual performance statements, and the ability to request an independent examination of an agency's annual performance statement by the Auditor-General.¹

The integration between this Framework and the PGPA performance assessment requirements will minimise burden on regulatory agencies. Further, it will deliver a single consistent report on regulator performance. Integration of reporting arrangements will also allow for comprehensive, comparable and easily contrasted performance information, efficient analysis of the results, and articulate a clear message on the expected performance of a regulator to regulated entities and the wider community.

To support the objectives of the Framework and ensure a consistent approach to regulatory enforcement and risk management, Commonwealth regulators should ensure the risk management framework used to guide their operations is based on the nine elements of the *Commonwealth Risk Management Policy*² and the better practice principles of the ANAO *Better Practice Guide: Administering Regulation*³.

Adopting an appropriate risk-based approach can assist a regulator in minimising compliance costs for regulated entities, streamlining interaction between them and regulated entities, and enhancing the benefits derived for the community. Establishing or building further on a risk management framework in line with recent guidance will help ensure that regulators are compliant with the principles of the PGPA Act framework and that a consistent approach to risk oversight and management is applied across all Commonwealth regulators.

1 Revised guidance for the new performance arrangements is currently being developed by the Department of Finance and will be presented to Government for consideration in the second half of 2014. The new performance assessment framework is not intended to take effect until the 2015-16 financial year.

2 <http://www.finance.gov.au/comcover/risk-management/>

3 <http://www.anao.gov.au/html/Files/BPG%20HTML/2013%202014/AdministeringRegulationBPG/index.html>

USING THE KPIs

BETTER PRACTICE

The descriptions accompanying each KPI are intended to demonstrate ways that a regulator may be successfully achieving the KPI, to assist reviewers in formulating an appropriate benchmark for regulator performance. The description of the better practice principles will also help regulators as a guide to future better practice.

MEASURES

The measures of good regulatory performance used in the Framework outline the principles that all regulators should be using to guide the collection of evidence and for review to assess achievement of the KPIs. Whilst not necessarily an exhaustive list, the suggested measures are considered sufficient to enable assessment against the KPIs. It is expected that tailored measures of good regulatory performance, based on these high-level measures, would be adopted to enable comprehensive review of individual regulators and their specific tasks and role.

EXAMPLES OF EVIDENCE

The suggested examples of output/activity-based evidence are a starting point for reviewers to determine the evidence that will be used in assessing performance of a regulator. Reviewers should ensure that: all areas considered relevant by the stakeholders are included in the review (to prevent regulators adapting practices to meet indicators whilst neglecting areas that are more difficult to observe) and multiple sources of evidence are used to assess each measure on performance and areas for improvement.

KPI 1 – REGULATORS DO NOT UNNECESSARILY IMPEDE THE EFFICIENT OPERATION OF REGULATED ENTITIES

Better Practice

The way regulation is implemented and enforced can have as significant an impact on productivity and economic growth, and cause as much overhead for individuals, as the content of the regulation itself.

Effective regulatory administration allows, and through regulatory actions encourages, efficient operations of regulated entities. Better practice regulators aim to achieve the intended outcomes of their regulations without unnecessarily restricting or imposing unnecessary burden on regulated entities. Enforcement activities only occur when there is a clear case for doing so.

These regulators also, where appropriate, recognise that they may need to adapt approaches to particular stakeholders. For example, regulators may need to consider different approaches for small business to demonstrate compliance with regulatory standards, particularly where approaches applied to larger business could create disproportionate burdens for small business.

Within the context of its statutory obligations and priorities as defined by the Government, the activities of a better practice regulator do not unnecessarily impede the efficient operations of regulated entities. When designing and reviewing policies and operational procedures and practices, these regulators consider how they might avoid imposing unnecessary costs while fulfilling their statutory role. They seek to achieve a balance between the responsibility to deliver protection to the community and the burden imposed by external intervention.

Regulators have regard to their legislative and authorising environment at all times and take steps to minimise duplication and optimise harmonisation with other relevant regulators.

Measures of good regulatory performance

1. Regulators demonstrate an understanding of the operating environment of the industry or organisation, or the circumstances of individuals and the current and emerging issues that affect the sector.
2. Regulators take actions to minimise the potential for unintended negative impacts of regulatory activities on regulated entities or affected supplier industries and supply chains.
3. Regulators implement continuous improvement strategies to reduce the costs of compliance for those they regulate.

Examples of output / activity-based evidence

- › Regular, ongoing consultations or engagement with stakeholders on policies and procedures, including independent experts and industry associations.
- › Documented responsiveness to feedback from regulated entities, including feedback from existing complaint mechanisms and surveys of regulated entities.
- › Environment scanning is undertaken regularly and at a minimum, on an annual basis.
- › Demonstrated engagement with relevant international organisations to learn from peer experiences and share better practices.

KPI 2 – COMMUNICATION WITH REGULATED ENTITIES IS CLEAR, TARGETED AND EFFECTIVE

Better Practice

Effective communication is vital for the efficient delivery of regulatory services and the achievement of positive regulatory outcomes. Clear advice and guidance can reduce the compliance burden on regulated entities and reduce non-compliant activity.

Better practice regulators communicate in such a way that regulated entities clearly understand what they need to do in order to comply with regulation. Regulated entities are able to find out quickly which regulations apply to them, what the requirements are, and how they can comply and/or improve compliance over time. Once regulated entities understand both what they need to do to comply and how this contributes to regulatory objectives, regulated entities are more likely and more willing to comply.

Effective regulators explain how specific requirements and processes fit into the overarching regulatory frameworks. The reasons for regulatory decisions are clearly communicated.

Communication with regulated entities is consistent to assist regulated entities to quickly understand the compliance requirements. This also increases confidence in the regulation.

Measures of good regulatory performance

1. Regulators provide guidance and information that is up to date, clear, accessible and concise through media appropriate to the target audience.
2. Regulators consider the impact on regulated entities and engage with industry groups and representatives of the affected stakeholders before changing policies, practices or service standards.
3. Regulators' decisions and advice are provided in a timely manner, clearly articulating expectations and the underlying reasons for decisions.
4. Regulators' advice is consistent and supports predictable outcomes.

Examples of output / activity-based evidence

- › Percentage of guidance materials that complies with government accessibility guidelines.
- › Maximum, minimum and average time for decision.
- › Published timeframes for decision making.
- › Percentage of decisions accompanied by statement of reasons and advice about relevant review or appeal mechanisms, where appropriate.
- › Number of policy/standards changes which are preceded by comprehensive engagement with stakeholders.
- › Approved procedures for communications (including issue-specific scripts if relevant) are available for staff use when interacting with regulated entities.
- › Advice provided to regulated entities is consistent with communication policies.
- › Demonstrated feedback is sought from stakeholders on guidance and advice provided by the regulator via a wide range of mechanisms, including stakeholder surveys.
- › Demonstrated mechanisms for responding to stakeholder engagement/complaint.

KPI 3 – ACTIONS UNDERTAKEN BY REGULATORS ARE PROPORTIONATE TO THE REGULATORY RISK BEING MANAGED

Better Practice

Comprehensive risk assessment processes are essential to ensuring that resources are targeted to the areas requiring the most attention. A risk-based approach promotes the most efficient use of resources and improves the effectiveness of the regulatory framework through minimising burden on those who are voluntarily compliant and ensuring that enforcement action is proportionate and undertaken only when necessary.

Efficient regulatory risk assessment takes account of the regulated activity, the nature of the regulated cohort, including its compliance history, and other external factors affecting risk. Risk assessments are balanced and implemented uniformly and impartially, while also being dynamic and open to scrutiny. They are based on the recognition that not all risk can be eliminated and not all risk can be effectively mitigated by government.

Where the risk of non-compliance is high or the consequence of non-compliance significant, there is a higher degree of monitoring. Where the risk of non-compliance is low or the consequences of non-compliance minor, regulators take lighter touch approaches. For example, regulators consider light touch responses for stakeholders that may be disproportionately affected by regulatory burden, such as small business, individuals and community organisations that may have more difficulty in finding the resources or skills to respond to compliance requirements.

A full suite of regulatory tools is appropriately utilised to ensure compliance. Where possible, regulators consider the use of positive incentives, cooperation from industry groups, and other means to encourage compliance. Any enforcement action undertaken is within the constraints of the authorising legislation and penalties are proportionate to both the seriousness of the breach and the risk being managed.

Measures of good regulatory performance

1. Regulators apply a risk-based, proportionate approach to compliance obligations, engagement and regulatory enforcement actions.
2. Regulators' preferred approach to regulatory risk is regularly reassessed. Strategies, activities and enforcement actions are amended to reflect changing priorities that result from new and evolving regulatory threats, without diminishing regulatory certainty or impact.
3. Regulators recognise the compliance record of regulated entities, including using earned autonomy where this is appropriate. All available and relevant data on compliance, including evidence of relevant external verification is considered.

Examples of output / activity-based evidence

- › Risk management policies and procedures are available to regulator staff and the public.
- › Compliance and enforcement strategies, consistent with agreed risk management policies are published.
- › Documented approaches in place to review risk approaches regularly.
- › Statements of expectations and intent are published.
- › Agreed quality assurance processes are in place for staff use.
- › Relevant staff trained in risk management policies, processes and procedures.
- › Documented enforcement strategy which allows for the compliance records of regulated entities to be considered in determining regulatory actions.
- › Documented enforcement strategy includes options for graduated compliance actions consistent with regulators' powers.
- › Demonstrated engagement with regulated entities to inform them of the regulators' expectations.
- › Demonstrated avenues for stakeholders to provide feedback and processes or policies to incorporate/consider this when tailoring approaches to risk.

KPI 4 – COMPLIANCE AND MONITORING APPROACHES ARE STREAMLINED AND COORDINATED

Better Practice

Compliance and monitoring are an essential part of regulatory frameworks. These processes allow regulators to determine the level of compliance with regulation.

The collection of information and/or data, while necessary to determine compliance with regulations, imposes costs on regulated entities. These costs are considered by better practice regulators in the design and implementation of a compliance regime. These regulators seek to minimise the compliance costs imposed on entities by inspection and monitoring approaches. Compliance costs can be minimised in a number of ways, including through implementing risk-based approaches and streamlining inspection and monitoring processes as far as possible.

Effective regulators do not seek information from regulated entities unless the information is required to achieve the regulatory outcome sought. Regulators minimise duplicative information requests, including between regulators where possible, and consider whether the information sought is available from alternative means.

Inspections focus on identifying and addressing persistent breaches of regulation and aim to improve compliance. They are justified and targeted on the basis of an assessment of the compliance risk. The possibility of joint or coordinated inspections is considered to assist in reducing the burden on business.

Measures of good regulatory performance

1. Regulators' information requests are tailored and only made when necessary to secure regulatory objectives, and only then in a way that minimises impact.
2. Regulators' frequency of information collection is minimised and coordinated with similar processes including those of other regulators so that, as far as possible, information is only requested once.
3. Regulators utilise existing information to limit the reliance on requests from regulated entities and share the information among other regulators, where possible.
4. Regulators base monitoring and inspection approaches on risk and, where possible, take into account the circumstance and operational needs of the regulated entity.

Examples of output / activity-based evidence

- › Number of repeat information requests made to regulated entities annually.
- › Percentage of inspection visits co-ordinated with similar regulators.
- › Percentage of information shared and received among regulators.
- › Proportion of information obtained from other sources, with input not required from regulated entities.
- › Evidence of collected information being acted upon, stored and re-used.
- › Demonstrated transparency of inspection and monitoring arrangements.
- › Feedback mechanisms to seek stakeholder views on inspection and monitoring regime.
- › Monitoring and enforcement strategies that allow for a range of regulatory responses.
- › Regular review and assessment of agreed monitoring and compliance strategies, including use of earned autonomy approaches.

KPI 5 - REGULATORS ARE OPEN AND TRANSPARENT IN THEIR DEALINGS WITH REGULATED ENTITIES

Better Practice

It is important that regulators are open and transparent in the way they regulate to ensure the confidence of those being regulated and the wider community. If regulated entities understand how and why they are being regulated, compliance may increase and regulatory outcomes are more likely to be achieved. Transparency also contributes to a greater understanding of the regulators role by both the regulated cohort and the broader community.

Open and transparent dealings with regulated entities increases the accountability of both regulators and government. Increased accountability, to both regulated entities and the wider community, improves the overall performance of regulators. Ensuring regulators are accountable for their decisions also improves community confidence in the regulator. Increased transparency and accountability provides regulated entities with a greater understanding of how the regulator seeks regulatory outcomes and addresses misguided perceptions of regulator performance.

Where possible, better practice regulators clearly communicate the evidence base and approach used in the regulatory decision making process to regulated entities. Regulatory objectives and risk-based frameworks are made publicly available wherever possible. While the risk of gaming from regulated entities is considered, risk-based frameworks are made public unless it can be clearly demonstrated this would lead to a failure of the regulatory system. Publishing risk-based frameworks helps to ensure the regulated entity understands what is required and provides a clear statement of what the regulator is trying to achieve.

Results from performance measurement against this framework are also made public in a timely way to ensure an open and transparent relationship with regulated entities.

Measures of good regulatory performance

1. Regulators' risk-based frameworks are publicly available in a format which is clear, understandable and accessible.
2. Regulators are open and responsive to requests from regulated entities regarding the operation of the regulatory framework, and approaches implemented by regulators.
3. Regulators' performance measurement results are published in a timely manner to ensure accountability to the public.

Examples of output / activity-based evidence

- › Enforcement strategy and risk approach are published.
- › Performance measurement results are published.
- › Percentage of regulated entities that receive requests for information with the reasons for these requests communicated clearly and consistently.
- › Percentage of performance information publicly available.
- › Number of responses to requests from regulated entities provided within specified timeframes.
- › Advice and guidance is widely available to stakeholders, with feedback mechanisms in place to support and inform continuous improvement.

KPI 6 – REGULATORS ACTIVELY CONTRIBUTE TO THE CONTINUOUS IMPROVEMENT OF REGULATORY FRAMEWORKS

Better Practice

Better practice regulators actively contribute to the continuous improvement of regulatory frameworks. No service remains the same over time, and continuous improvement ensures a regulatory framework has the flexibility to adjust to changing circumstances.

Better practice regulators follow the principles identified in KPI 2, building appropriate communication channels to promote a regular feedback cycle with peers and regulated entities. Information collected as part of monitoring and compliance approaches is used by these regulators to inform improvements in the authorising legislation and achieve reductions in compliance costs. Stakeholder feedback informs the development of any proposed change to management activities, to ensure the proposed actions are appropriately targeted. These actions, taken to improve frameworks, are clearly articulated and communicated to stakeholders.

This process maintains the cycle of continuous improvement, and provides the flexibility for regulatory frameworks to adapt to changes in the external environment.

Measures of good regulatory performance

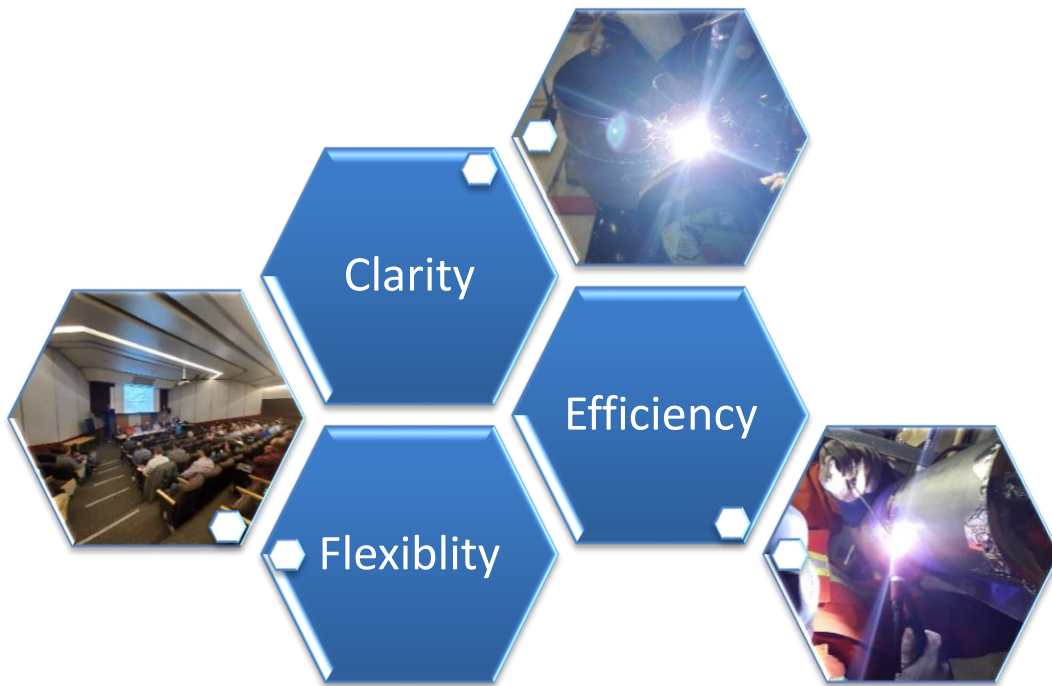
1. Regulators establish cooperative and collaborative relationships with stakeholders to promote trust and improve the efficiency and effectiveness of the regulatory framework.
2. Regulators engage stakeholders in the development of options to reduce compliance costs. This could include industry self-regulation, changes to the overarching regulatory framework, or other strategies to streamline monitoring and compliance approaches.
3. Regulators regularly share feedback from stakeholders and performance information (including from inspections) with policy departments to improve the operation of the regulatory framework and administrative processes.

Examples of output / activity-based evidence

- › Documented procedures are in place to allow active and regular engagement with stakeholders.
- › Feedback mechanisms are available and made known to all stakeholders.
- › Number of stakeholder events held to facilitate participation in the development and/or amendment of regulatory frameworks.
- › Documented procedures are in place to facilitate the flow of information between the regulator and policy departments.
- › Percentage of performance data, feedback from regulated entities, and/or advice provided by the regulator to the policy departments.



Appendix 4 – Safety Codes Council – Policy and Information Manual – Code Development Framework



Background

The *Safety Codes Act* provides an enabling framework for the development of a comprehensive safety system for the design, construction, operation and maintenance of buildings, equipment, and materials in a variety of settings. The development, adoption, and promulgation of codes and standards used in Alberta are provided through a system that ensures the input and involvement of all Albertans. Alberta's system is therefore the result of actions initiated by the public, those involved in the industry, or a safety incident. The Safety Codes Council through Ministerial Order has been provided Ministerial consent to review and formulate codes and standards for any thing, process or activity to which the Act applies, and to make public those codes and standards.

Policy

1. The Safety Codes Council shall utilize a “code development framework” as a systematic process for the development and amendment of codes.
2. The “code development framework” shall consist of the following elements:
 - a. source - *(representing the user, and identifying the common items driving the need for either regulatory change or clarification)*
 - b. proposal - *(communicating a proposed need to the appropriate body for consideration)*
 - c. development - *(drafting the proposal into appropriate format for implementation)*
 - d. review - *(a process of appropriate review by the industry and/or public as required)*
 - e. adoption - *(the conclusion of the accumulated process which enacts and promulgates a supported proposal)*

Descriptive Information

The following outline provides an explanation of the five main code development framework elements.

1. Source

The term “source”, relating to a code, code requirement, standard, or regulation is the starting point of a process to adopt a new code edition, requirement, or an amendment to an existing requirement. The initiating action is from activity within the public, industry, or a safety incident, which identifies a need for improvement. This “need” may stem from use, evolutionary development within a discipline, or developing new technologies / strategies.

Standata’s (Director’s Rulings, Director’s Interpretations, Information Bulletins, and Variances) are included within the source element. These are items arising from use, which require clarification, interpretation, or result in a provincial wide variance. They are a means of addressing items during the active cycle of a code or regulation and are also included in the process of changing code or regulatory items. They are monitored in conjunction with each code or regulation development stream to ensure their subject matter is either incorporated into a regulatory change, re-issued as a continuing Standata, or is removed if no longer needed.

2. Proposal

Proposals in relation to the codes, standards, and regulations used in Alberta may be forwarded to the National Research Council or Canadian Standards Association and Underwriters’ Laboratories of Canada at the national level, and/or to Alberta Municipal Affairs or the Safety Codes Council at the provincial level. All proposals submitted are accepted and reviewed for relevancy and action by the appropriate Technical Council. Code or regulatory reviews also include the involvement of the Barrier-Free Design Advisory Committee. Items under consideration are shared with relevant national regulatory code writing and provincial bodies.

3. Development

Validated proposals are reviewed and acted upon through research and development into the appropriate regulatory format. Based upon each item's merit and urgency, proposals may be drafted into code, or regulation, or Standata's as deemed appropriate by the appropriate Technical Council and Technical Administrator. The Technical Administrator retains an active role and the responsibility for the drafting of proposals. The proposal, once drafted into regulatory format and provided with explanatory information as needed, is ready for stakeholder review and comment. Standata's, while not subject to direct public scrutiny, are subjected to an internal Safety Codes Council and Municipal Affairs review.

Inter-communication among technical and regulatory code writing bodies is undertaken to ensure support of the policy issues brought forward. This interaction is depicted in the following charts.

4. Review

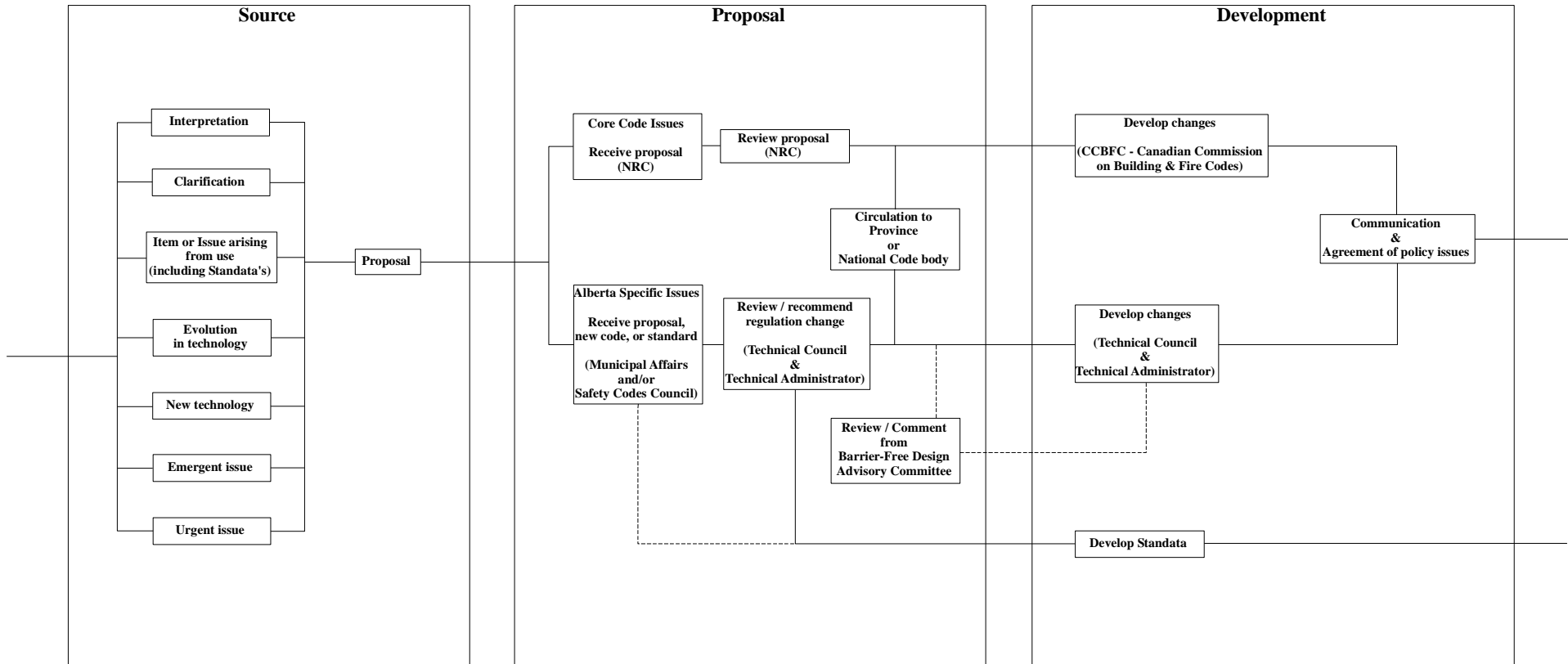
The developed proposals formatted for use and provided with explanatory documentation may be presented for public review. Code and regulatory items are reviewed through individual or facilitated public/stakeholder participation. These facilitated meetings may be coordinated in conjunction with a national review, have provincial orientation, or be industry/stakeholder specific. All comments/suggestions provided from the review are documented and considered by the discipline's Technical Council and Technical Administrator. The final step of review is the creation of the regulatory document (code, code requirement, standard, or regulation) with recommendation to the Board of Directors for adoption.

5. Adoption

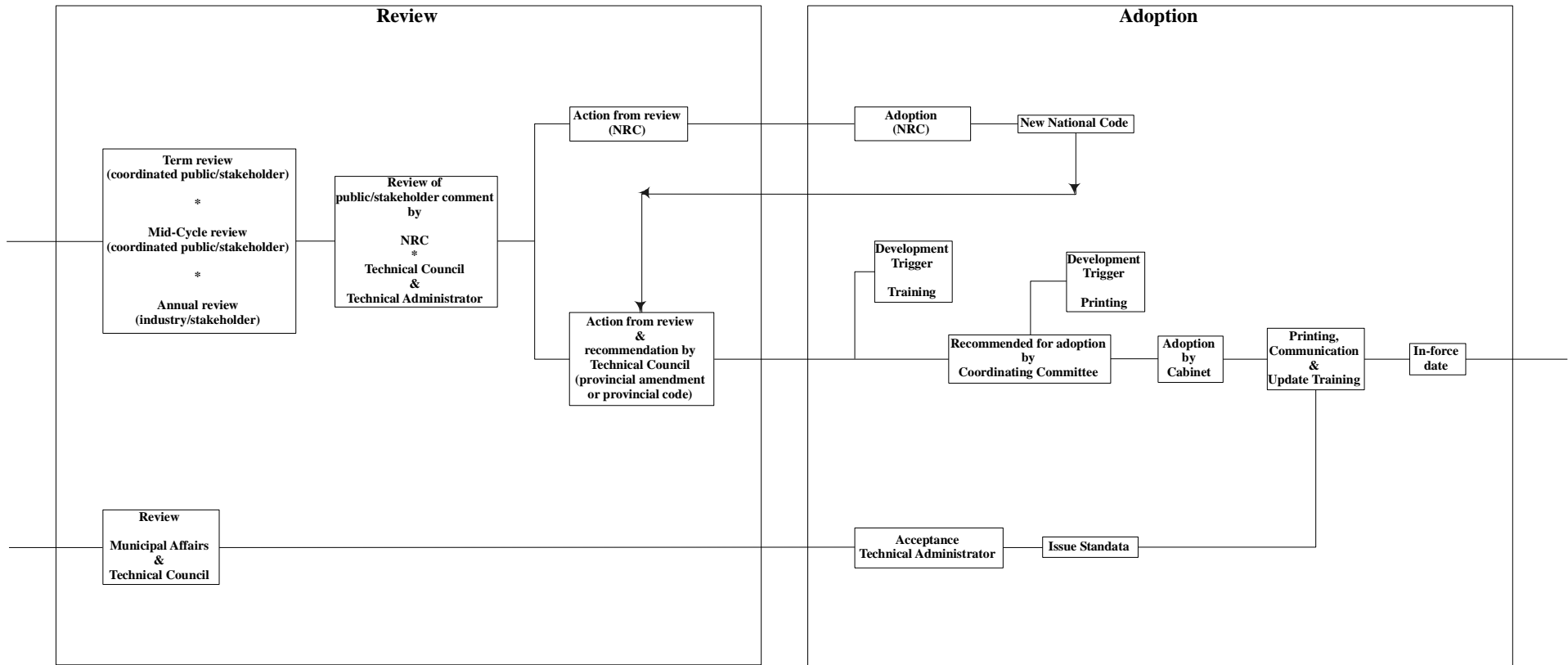
With the completion of the proposal, development, and review stages, the Safety Codes Council Board of Directors is provided with an outline of the final document ready for publishing and upon approval a recommendation is forwarded to the Minister for adoption. After Cabinet adoption; the regulation becomes law, is communicated to the public through publication in the Gazette, and is used in conjunction with work undertaken within the discipline. At the pleasure of the Board of Directors, printing of the final document is established and the relevant up-date training is initiated.

The completion of the “Adoption” element is the trigger for “training” and “printing”. “Training” in this context is in reference to educating Safety Codes Officers and other interested individuals of code or regulation changes and to update existing training programs. This process may be initiated once the exact changes and their rationale have been deliberated, supported, and documented.

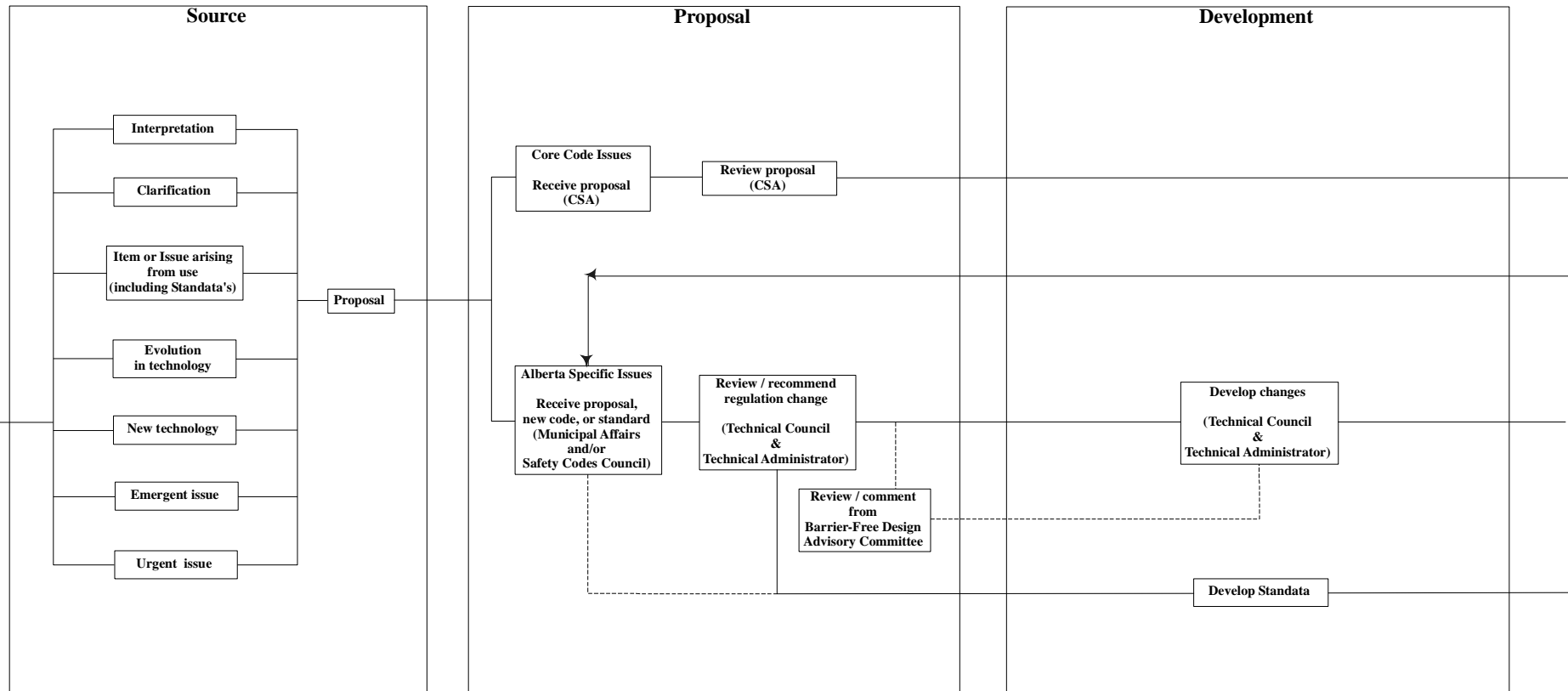
Code Development Framework 1 of 2
Building / Fire / Plumbing

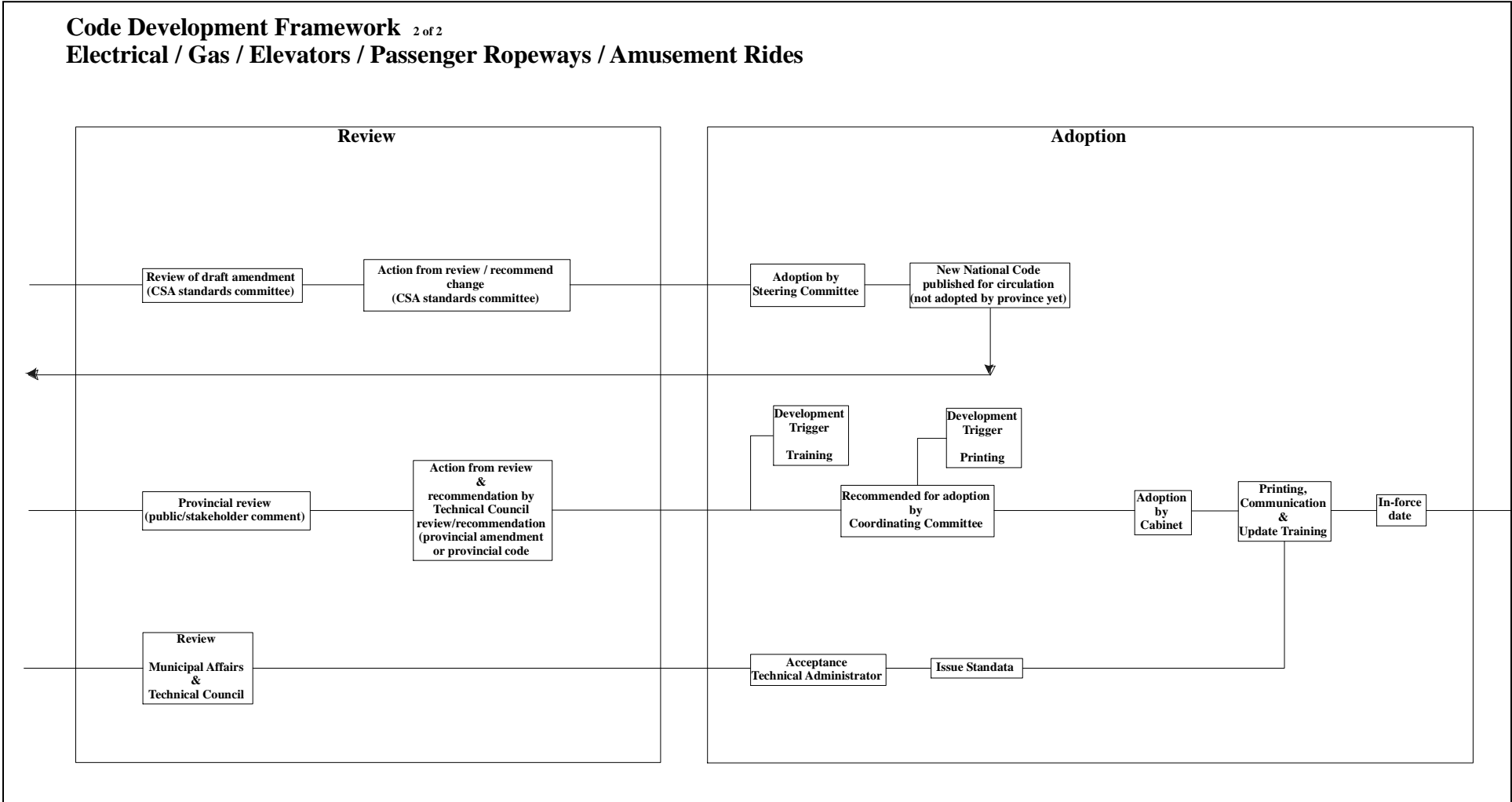


Code Development Framework 2 of 2
Building / Fire / Plumbing

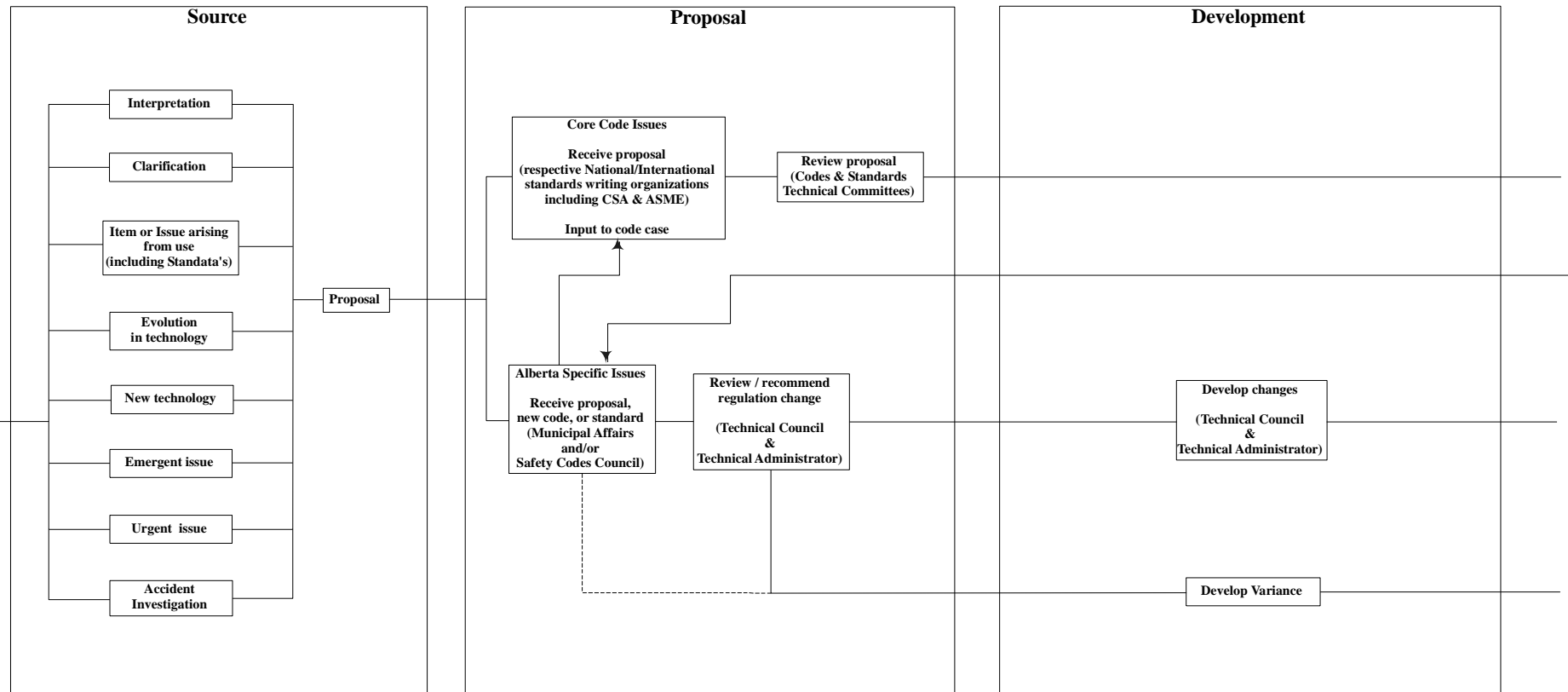


**Code Development Framework 1 of 2
 Electrical / Gas / Elevators / Passenger Ropeways / Amusement Rides**

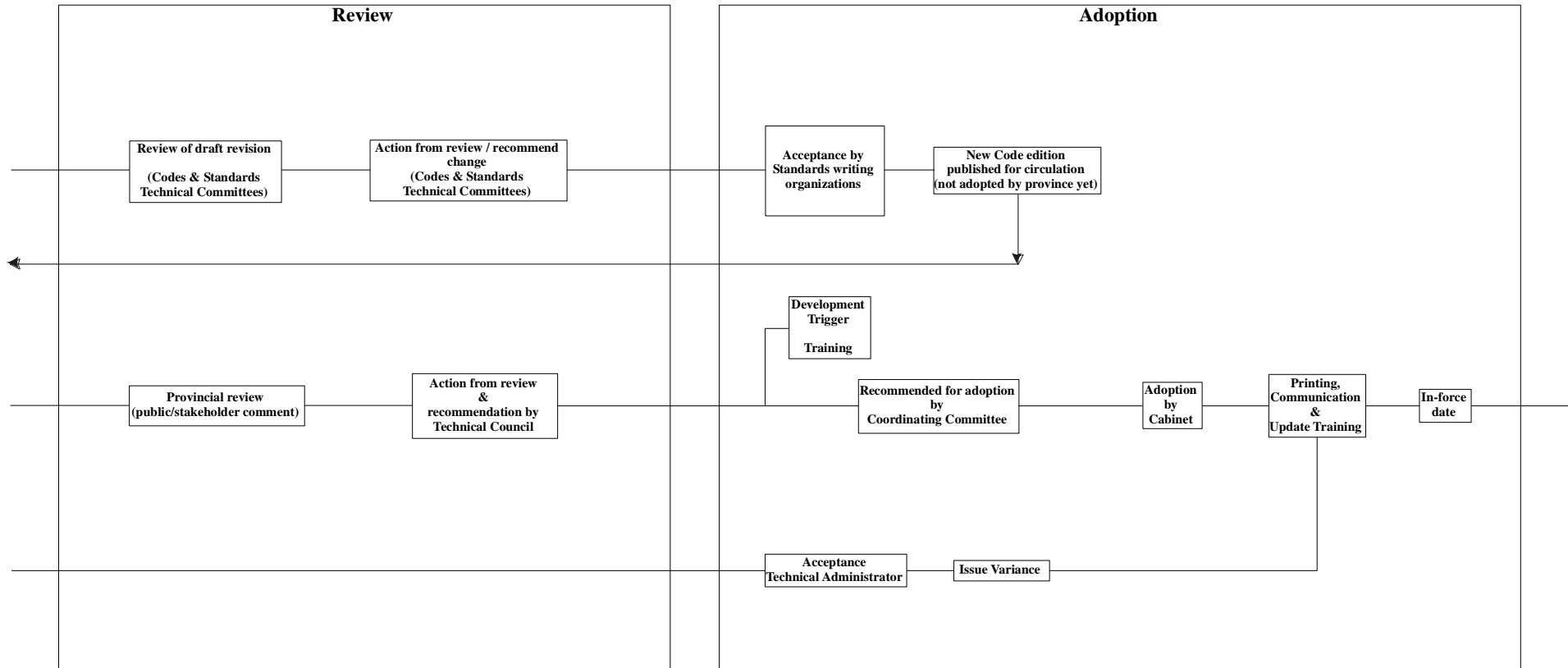




Code Development Framework 1 of 2
Boilers & Pressure Vessels



**Code Development Framework 2 of 2
Boilers & Pressure Vessels**



**ALBERTA WELDING
OPTIMIZATION
COMMITTEE**

Streamlining the Regulatory Skilled Trades Environment in Alberta

Emphasis on Pressure Welding Regulation

**Spring
2020**

A Report Produced by:
The Alberta Welding
Optimization Committee
AWOC

