TECHNICAL
SAFETY BC

2019 - 2021 BUSINESS PLAN

INSPIRING SAFETY INNOVATION

INTRODUCTION

Our 2019-2021 business plan provides a roadmap for how we will continue delivering on our 10-Year Strategy to become a knowledge-based and data-driven business that provides products and services in support of BC's evolving technical safety system.

The business plan reflects our strategic priorities to advance the understanding and management of technical risks, leading to enhanced safety throughout the province.

While this business plan looks ahead with new initiatives and strategies, it also establishes continuity coming from the past year's efforts.

In 2018, we focused on technical safety risk analysis, safety system advancement, and an integrated approach to BC's technical safety in several ways.

We constructed fault trees that identified causal factors leading to ammonia releases, carbon monoxide exposures, and escalator brake failures, and developed and deployed tactics to address these factors.

We utilized machine-assisted assessment to enable employee focus on high-value safety products for clients and the public, supporting better-informed decision-making and increasing the efficacy of tools used to predict outcomes.

We implemented a continuous improvement process that identified organizational opportunities to closely align with our strategic goals while creating positive impact for both clients and employees.

We improved systems for tracking and following up on key safety system records and increasing the number of high-volume services delivered online.

We increased the amount of Technical Safety BC data and information shared with other organizations.

We obtained authority to administer the *Safety Standards Act* in the electrical and gas technologies on Port of Vancouver lands within the City of Vancouver.

We launched a review and consultation process towards a modernized amusement device safety oversight program.

We started developing processes to administer a new class of contractor license for pressure welders which was introduced through regulation in 2018.
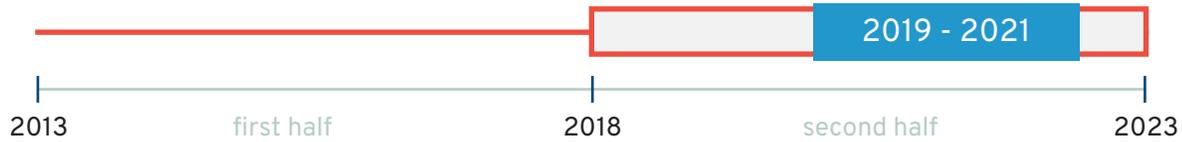
In 2019, we will focus on three strategic priorities:

Priority 01
LIFECYCLE OVERSIGHT

Increase participants' knowledge so that they can better manage safety risks for installation, operating and aging technical systems.

Priority 02
PRODUCT AND SERVICE
DELIVERY EXCELLENCE

Use innovation to increase the effectiveness of our safety hazard assessments and to increase participation in the safety ecosystem.

Priority 03
BEHAVIOUR CHANGE
THROUGH INSIGHT

Build partnerships and share what we have learned, so we can help participants make informed safety decisions.

By coupling our understanding of client needs with our ability to deliver innovative technology tools, we will enable our clients to make safety-minded decisions and meet safety requirements more efficiently.

Leveraging data analytics and sharing insights, we will make it easier for clients to manage technical safety and for employees to focus on work that provides the most value for safety.

WHO WE ARE & WHAT WE DO

Technical Safety BC is an independent, self-funded organization mandated to oversee the safe installation and operation of technical systems and equipment. In addition to issuing permits, licenses and certificates, we work with industry to reduce safety risks through assessment, research, education and outreach, and enforcement.

TECHNICAL SAFETY BC

OUR MISSION

We build your confidence in safety systems for life – through a focus on risk and support for innovation.

OUR VISION

Safe technical systems. Everywhere.

WHAT WE DO

We deliver safety services across the following technologies in the province:

- Electrical equipment and systems
- Boilers, pressure vessels and refrigeration systems
- Natural gas and propane appliances and systems, including hydrogen
- Elevating devices, such as elevators and escalators
- Railways, including commuter rail
- Passenger ropeways, such as aerial trams and ski lifts
- Amusement devices
- Complex and integrated technical systems involving multiple technologies

Assessing technical work and equipment, including collecting information through physical assessment, incident investigation and registering new equipment and designs.

Certifying individuals and licensing contractors and operators to perform regulated work.

Supporting clients in the development of alternative safety approaches, and auditing their safety management plans or equivalent standard approaches.

Educating and sharing technical systems safety information with our clients and the broader public to better control risks.

Taking enforcement actions that promote an equitable safety system where all participants are compliant with regulations.

Conducting research, including contributing to provincial and national safety code development and updating regulations for the technologies we serve.

Technical Safety BC operates within a legislative and regulatory framework that includes:

- *Safety Authority Act*
- *Safety Standards Act* and Regulations
- *Railway Safety Act* and Regulations
- *Freedom of Information and Protection of Privacy Act*
- *Workers Compensation Act*
- *Ombudsperson Act*
- *Offence Act*

For further information, including our Annual Report and annual State of Safety Report, visit the 'About' section of our website at www.technicalsafetybc.ca/about

BOARD OF DIRECTORS

Technical Safety BC is governed by a board of 11 directors that monitors performance and sets the organization's strategic direction in consultation with management. Directors are appointed on the basis of merit; they must meet the qualifications established in the *Safety Authority Act* and abide by a code of conduct.

The work of the Board is supported by committees that provide additional focus on matters such as:

- Financial affairs, audits, insurance and investments
- Governance and nominating functions, CEO performance evaluation and recruitment compensation and other human resource issues
- Technical and enterprise risk oversight
- Regulatory development and compliance
- Strategic advice and oversight

Priority 01

LIFECYCLE OVERSIGHT

The lifecycle of technical systems and its relationship to safety is understood and managed effectively

3 YEAR GOAL

Increase participants' knowledge so that they can better manage safety risks for installation, operating and aging technical systems

THEME

Safety System Risk Treatment

Lifecycle Knowledge

OBJECTIVES

Engage partners and participants in the safety system to identify opportunities to improve lifecycle management of technical systems

Identify, develop and share safety insights to support the implementation of effective maintenance programs that incorporate procedures and training for mitigation of hazards and end of service life strategy

Enhance the safety oversight model for operating systems including tools, methods and programs as well as supporting infrastructure by which we hold duty holders accountable

LEADING INDICATORS

- # of risk treatment plans for emerging and active risks developed and implemented

- # of tools, methods and programs re-designed to support the management of technical equipment and systems

2019

Continue to implement prioritized high risk treatment plans and perform risk analysis for medium technical safety risks

Publish risk understanding, risk treatment plans and observed outcomes

Establish environmental scan and processes to enhance emerging risk identification

Define our technical equipment & systems lifecycle model, oversight objectives and strategy for each phase

Implement systems and processes to support the oversight of maintenance in Elevating Devices

Modernize the oversight of Amusement Devices program to better manage and understand safety risks

Enhance hazard resolution by identifying barriers to duty holder reporting and improve follow-up process

2020

Implement remaining risk treatment plans for prioritized medium technical safety risks and newly identified risks

Measure risk treatment performance and establish baselines

Publish safety insights from environment scans and data analysis

Implement engineering business process for design registration of refrigeration systems

Implement oversight initiatives for key industry segments over the lifecycle of the asset

Identify equipment components that have wear out safety risks

Automate external event reporting

2021

Continuously refine risk management strategies based on measurable impact of risk reduction program

Publish evidence of behaviour change in specific industry/client segments

Mandatory asset management plan incorporating safety risk assessments as it relates to equipment/systems wear out for key industry segments

Make available information associated with the management and oversight of regulated equipment/ systems at public assembly facilities

Priority 02

PRODUCT AND SERVICE
DELIVERY EXCELLENCE

Focus on risk and service delivery to increase participation in the safety system

3 YEAR GOAL
Use innovation to increase the effectiveness of our safety hazard assessments and to increase participation in the safety system

THEME

Participation

Focus on Risk

OBJECTIVES

Enable participants to meet safety requirements more efficiently and effectively

Remove barriers to participation and connection

Empower employees with better tools and processes to focus on risk

2021

Develop partnerships in the safety system, specifically with suppliers of energy, technical equipment, and maintenance services to close the participant gap

Continuously improve our response and turnaround times for our products and service delivery

Use predictive algorithms to identify emerging risks

2020

Consolidate permits and licensing and simplify fee structure

Develop a knowledge and communication strategy that recognizes client feedback and supports hazard reduction

Implement a client relationship management (CRM) system

Further develop predictive algorithms to direct resources in remaining technologies/ assessment types

2019

Increase harmonization and reduce complexity in the delivery of our certification products

Make client transactions simpler, faster, and more intuitive

Deliver services with a focus on promoting a sustainable safety culture for our employees and clients

Develop our strategy for client relationship management and tracking of client interactions

Increase predictive capability of assessment algorithms and expand the use of machine learning to other areas of our oversight

Acquire data in areas where we have limited knowledge by increasing our use of data sample plans

LEADING INDICATORS

Increase the number of participants and their connections to the safety system

# of technologies using predictive algorithms for assessments

% observed 3, 4 & 5 (on a 5-point scale) as-found hazards identified, addressed and published

Priority 03

BEHAVIOUR CHANGE THROUGH INSIGHT

Leveraging partnerships and shared insights to influence participants' decisions

3 YEAR GOAL

Build partnerships and share what we have learned, so we can help participants make informed safety decisions

THEME

Capability and Reach

Behaviour Impact

OBJECTIVES

Expand and maintain safety partner relationships to create an information ecosystem

Build capacity (human and system) for data transformation resulting in insights designed to drive better behaviour

Influence participant decisions through behaviour change innovations to improve safety outcomes

Monitor and measure changes in behaviour

2021

Have effective information ecosystem in place that includes standardized data definitions, automated sharing interfaces and protocols and regular publishing of insights achieved through regular, communal data sharing

Demonstrate and publish outcomes of behaviour change interventions

Develop plans for intervention scale-up and sustainability

Continuously adjust compliance actions to optimize safety outcomes

2020

Use local government and utility data sets to produce key insights and publish

Build new data sharing partnerships based on priorities

Automate utility energization with valid permits

Continue to implement, monitor, and share behaviour change interventions

Collaborate with external organization on a behaviour change intervention

Plan and host social innovation hackathon

Publish behaviour impacts from compliance actions

2019

Complete the data acquisition process with local governments and establish priorities for new data acquisitions

Implement critical data governance practices to ensure high data quality and management

Enable upstream safety system oversight with utility application program interface (API)

Develop organizational strategy for social innovation and behavioural research

Use evidence to implement, monitor, and measure behaviour change interventions

Develop measures of behaviour change and establish a baseline measurement

LEADING INDICATORS

of new and existing data sharing partners

# of data sets transformed into aggregate results/ insights

Investments into social innovation related to the improvement in safety

# of projects that include an outcome measurement component

FINANCIAL OUTLOOK

FORWARD LOOKING STATEMENT

Technical Safety BC's proposed 2019 Operating Budget projects a deficit of $373K. 2019 budgeted revenues are based on actual financial performance in recent years (up until Q3 2018) and projected market conditions for 2019. They include previously announced fee increases, and increases to the volumes of operating and installation permits of 3% to 3.5% respectively over Q3 2018 forecast. On the operating and capital expense side, we have taken into account the upcoming collective agreement and labour costs and strategic expenditures that are aligned to achievement of the 2019 - 2021 Business Plan.

Revenues and expenses for 2020 to 2021 assume a moderate increase over the 2019 budget and a breakeven budget for each year.

All forward-looking statements within this report should be understood to involve risks and uncertainties that could cause actual financial or operating results to differ significantly.

2019
$373k deficit

2020
moderate increase and breakeven budget

2021
moderate increase and breakeven budget
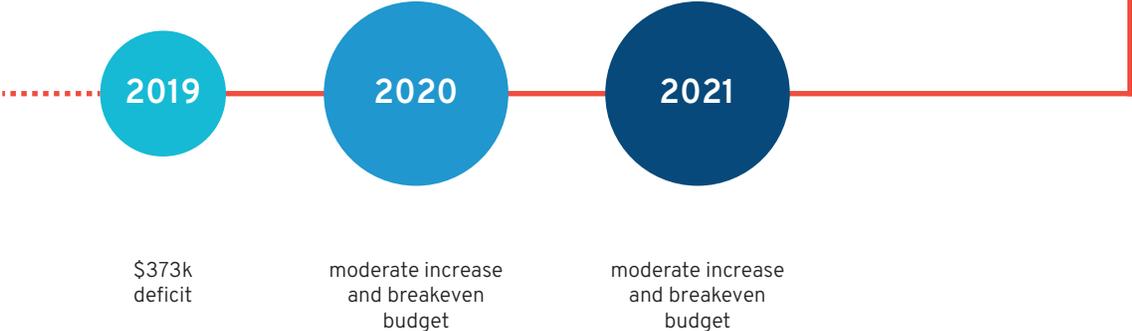
PROFIT AND LOSS PROJECTION (2018 TO 2021) ($000's)	Budget 2019	Forecast 2020	Forecast 2021
Revenue			
Service and related fees	65,122	67,727	70,435
New business initiatives	2,162	2,545	1,888
Investment and other income	1,275	1,326	1,380
Total Revenue	**$68,559**	**$71,598**	**$73,703**
Expenses			
Salaries & Benefits	47,551	49,218	51,188
Amortization	4,650	5,062	4,505
Building Occupancy	2,948	3,051	3,173
Audit, Legal and Insurance	709	734	764
Contract Services	2,549	2,639	2,744
Travel	1,679	1,738	1,808
Office & Business	2,479	2,566	2,668
Telecommunications	654	677	704
Information Systems	2,208	2,286	2,377
Training	1,260	1,305	1,357
Vehicles	555	573	596
Corporate Governance	518	536	557
Postage & Courier	189	196	204
Education & Public Awareness	615	637	662
Material & Supplies	188	194	202
Bad Debt	180	186	194
Total Expenses	**$68,932**	**$71,598**	**$73,703**
Excess/(Deficiency) of revenue over expenses	($373)	($0)	($0)

GLOSSARY

Application Program Interface (API)
A set of routines, protocols, and tools for building software applications. An API specifies how software components should interact.

As-Found Hazard
A condition found by safety officers during physical assessments, investigations, or audits of regulated work, products, equipment, or safety systems where intrinsic hazards are not suitably controlled. These conditions are rated on a scale out of 5 where 1 is minor and 5 is severe.

Asset Owner
A person or company that owns or leases regulated products or equipment.

Alternative Safety Approaches (ASA)
A performance-based approach to achieving compliance with the *Safety Standards Act*, which allows owners or operators of regulated equipment to meet safety objectives in ways other than those prescribed by the regulations.

Assessment
An evaluation or review of information relating to regulated work, product or equipment. Key Technical Safety BC activities in assessment are:

- Gathering of information through inspections (i.e., physical assessments) of reported hazards and work performed by contractors or homeowners
- Gathering of evidence through incident investigations
- Gathering of evidence through audits or documentation evaluations (of safety management plans for example)
- Reviews of requests for permission (such as permit or ASA applications)
- Reviews of declarations and reports from duty holders (includes incident reports)
- Reviews of qualifications for licensing or certification
- Reviews of product or equipment and designs when approving these for use in BC

Audit
An independent, systematic review supported by objective evidence that is focused on a system or process.

Client Relationship Management (CRM)
A strategy used to manage an organization's interaction with current and potential clients. It uses data analysis to improve business relationships with clients.

Data Transformation
The process of converting data from one format or structure into another format or structure. It is a fundamental aspect of most data integration and data management tasks such as data wrangling (technical term), data warehousing, data integration, master data management, and application integration.

Duty Holder
A person or company who is responsible for compliance because they either own regulated products, or perform regulated work.

Fault Tree
A top-down, deductive failure analysis in which an undesired state of a system is analyzed using Boolean logic to combine a series of lower-level events.

Hackathon
An event where subject-matter experts come together to work intensively over a discrete period of time on a given problem or opportunity, with the purpose of creating a usable solution or product. This method is typically used in computer programming and software development settings but can also be applied to help solve complex social challenges.

High Technical Safety Risks
Future safety incidents that are relatively likely to occur and have a major impact on public safety.

Information Ecosystem
The interdependent networks of people, technology, and information infrastructures that determine how information in the organization is created, stored, used, and shared.

Inspection
A type of physical assessment where the regulated product, equipment or work has been directly evaluated by Technical Safety BC.

Intervention
A combination of program elements or strategies designed to produce behavior change or improve outcomes. Interventions may include educational programs, new or stronger policies, enforcement activities, improvements in the environment, or promotional campaigns.

Leading Indicator
A measure that helps focus energy on the necessary behavior changes and can provide early measurement of progress before seeing movement towards the intended goal.

Machine-Assisted Assessment
The use of information technology to assist human beings in collecting data, analyzing data, and making decisions.

Predictive Algorithm
A computational algorithm that produces a prediction score from an explicit set of rules and/or a set of data.

Risk Treatment Plan
A document that specifies concrete activities to reduce a risk.

Safety Value Output
An expression of the externally facing, high value outputs created by Technical Safety BC that includes:

- Education event and offerings attended (physical and online)
- Incident investigations completed
- External publications issued
- High hazard assessments (physical and digital)
- Failed assessments addressed
- Certifications and licences issued and renewed
- Regulatory instruments and amendments
- Unpermitted work discovered and addressed
- Enforcement actions

Social Innovation
The process of developing and deploying effective solutions to challenging and often systemic social and environmental issues in support of social progress.

Strategic Priority Goal
3-year goal to indicate progress and determine whether tactics and outcomes are achieving the intended impact.

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TECHNICAL SAFETY BC