Town of Newmarket
Agenda
Council Workshop

Date: Tuesday, February 12, 2019
Time: 1:00 PM
Location: Council Chambers
Municipal Offices
395 Mulock Drive
Newmarket, ON L3Y 4X7

Pages

1. Notice

In accordance with the Town's Procedure By-law, no decisions are to be made but rather this meeting is an opportunity for Council to have informal discussion regarding various matters.

2. Additions & Corrections to the Agenda

3. Declarations of Pecuniary Interest

4. Items

4.1 Introduction

Note: Mary-Anne Wigmore, Director, IT, will be attendance to provide an introduction to the presentations.

4.2 Cyber Security Overview 1

Note: Eric Parent, EVA Technologies will be in attendance to present on this matter.

4.3 Newmarket Council Orientation on Cyber Security 19

Note: Paul Ferguson, President, Newmarket-Tay Power Distribution Ltd., Scott Bradley, IT Manager, Newmarket-Tay Power Distribution Ltd., and Wayne Ronhaar, CEO, Snowy River will be in attendance to present on this matter.

4.4 Cyber Liability and Privacy Breach Insurance Benefits 47

Note: Sara Runnalls, Public Sector Risk Advisor, BFL Canada will

be in attendance to present on this matter.

5. Closed Session

That the Council will resolve into Closed Session to discuss the following matter:

5.1 Educational/training session under Section 239(3.1) of the Municipal Act, 2001 (cyber security update)

6. Adjournment

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AVOIDANCE TECHNOLOGY

Cybersecurity
Overview

ENTERPRISE VULNERABILITY ASSESSMENT & AVOIDANCE TECHNOLOGY

ERIC PARENT

ERIC PARENT, IMITI CISSP-ISSAP CRISC CGEIT CISM CCSE MCSE CNE CCDA
30+ years experience security veteran. Holds multiple prestigious security certifications and has worked as security advisor for numerous large national and international corporations at the CxO level. Recognized in 2009 for outstanding industry contributions by the International Information Systems Security Certification Consortium. Teaches a Cyber Security course at École Poly Technique de Montréal & HEC.

- Ex-Military (1980) – SigInt & Countermeasures
- Security consultant since 1990
- Specialized in senior executive coaching
- Teach cybersecurity at École Polytechnique & HEC
- CSO of Sonepar Canada
  - Advisory CSO for a dozen Enterprises (50m - 500m)

ENTERPRISE VULNERABILITY ASSESSMENT & AVOIDANCE TECHNOLOGY

AGENDA

- INTRODUCTION
- COMMON THREATS
- COMMON REASONS ATTACKS SUCCEED
- Q & A

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Common threats

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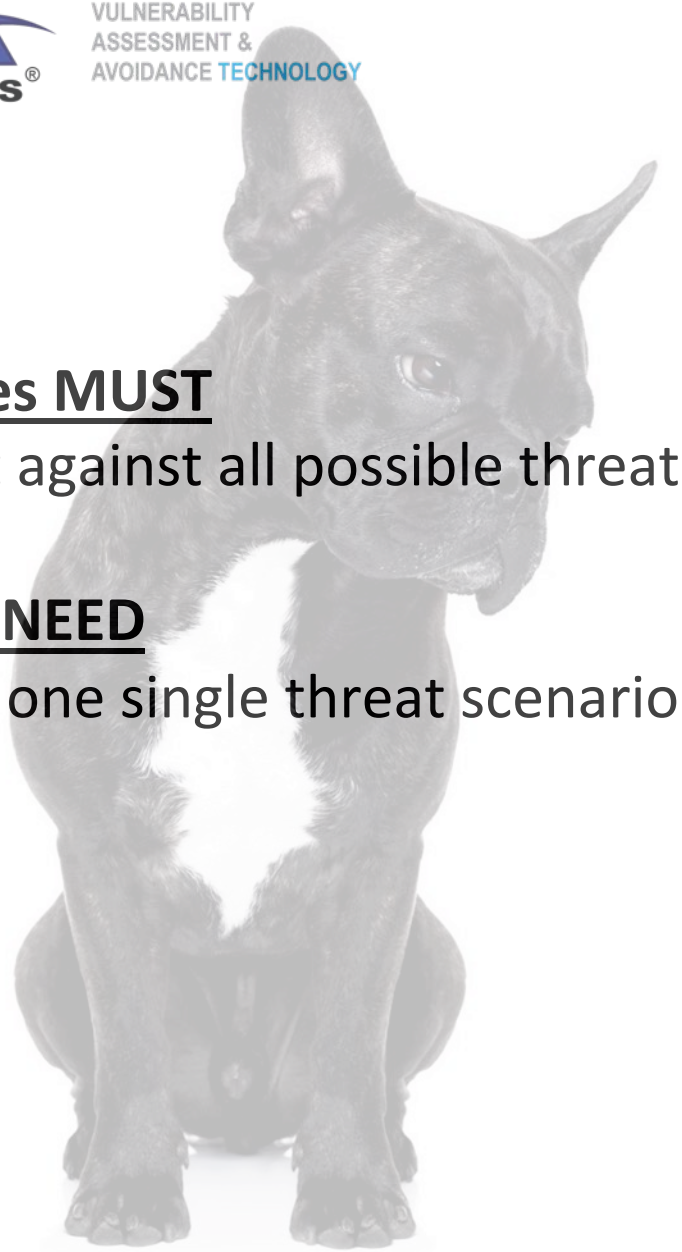

Enterprises MUST

- Protect against all possible threat scenarios (not possible)

Criminals NEED

- To find one single threat scenario that works (possible)

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Breaking security used to be a sport

It is now a **mature** business model generating billions in revenue

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- Enterprise security is currently reactive
- Criminals are not reactive (they plan, and they invest)
- Enterprises think they have tested their security because they invested 5 or 10 days of security testing (restricted testing)
- Criminals build teams of 10 to 80 qualified individuals, develop specific attack vectors over months of research and testing, then unleash against a series of “victims” that fit a certain profile


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Most common threats
Random attacks
Ransomeware
Virus or other malware
Targeted vulnerability attack
Looking for a specific technology flaw
Overly confident IT
Lack of expertise
Lack of competence
They all have the same (or very similar) chain of events
EVA-Technologies – 2019

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When RANSOMWARE hits and hurts an enterprise, something is wrong

Why pay the ransom ? (The ones you hear about paid)

Clear indication that SEVERAL things have gone wrong

- Exploitable technical vulnerabilities
- Exploitable humans
- Poor backup ecosystem
- Absent or poor DR (Disaster Recovery) plan

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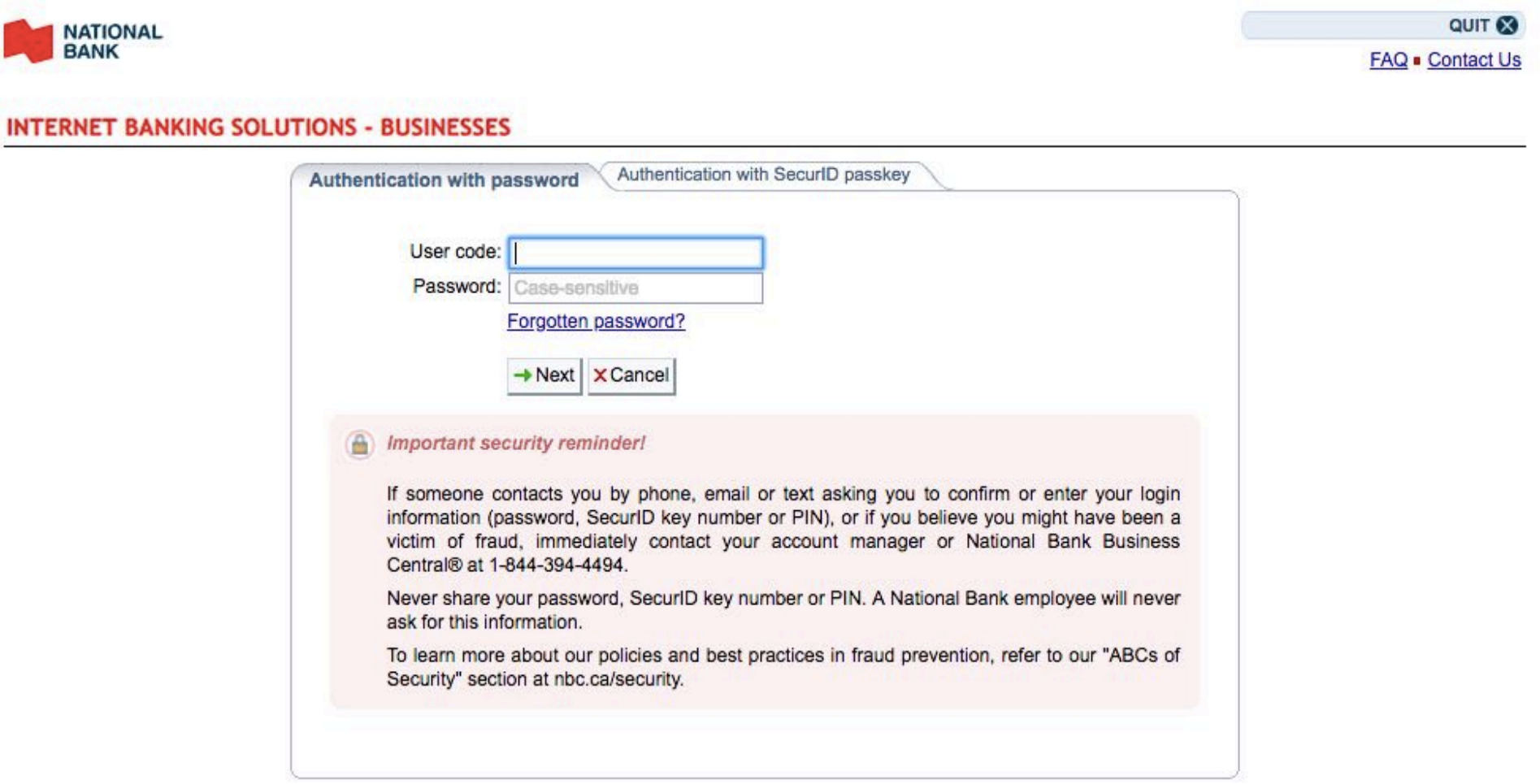

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Why attacks succeed


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AVOIDANCE TECHNOLOGY
Most common threats
Security Debt versus technology debt
Lack of integrated security combined with weak security testing
Weak or absent security awareness
Absence of advanced AI driven security technologies
EVA-Technologies – 2019

ENTERPRISE VULNERABILITY ASSESSMENT & AVOIDANCE TECHNOLOGY

In 2019

- Still have users with passwords like Winter2019
- Still have senior executives with accounts that do not expire, because that is inconvenient
- Still have a belief that security shouldn't impact business processes at all
- Still prefer comforting lies versus the truth (Equifax)
- Still cross our fingers that it will not happen to us

ENTERPRISE VULNERABILITY ASSESSMENT & AVOIDANCE TECHNOLOGY

The problem

- Most enterprises think they are a 3/5, they are mostly 1/5
- IT staff is not Security aware (this is not their primary responsibility)
- Security professionals are rare and costly ($130k)
- On going training is expensive ($25k / year)
- Tools to gauge security are complex and expensive ($25k/ year)
- Overall single person ***team*** is well above $180k / year
- Lack of understanding between Security and SecOps

Result

- Best effort, fingers crossed
- Technology debt = security debt (and every IT group has a debt)

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Missing piece

IT Operations versus IT Security are two different things

A qualified third party should be:

- Evaluating your maturity using an acceptable framework
- Performing ongoing security testing that gets progressively more aggressive
- Providing security opinions and coaching your IT teams to ask questions
- Addressing root causes, not focused on found issues

Adhering to a healthy self-criticism approach to security is the only logical way to address security

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Q & A

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Newmarket-Tay Power Distribution Ltd.

Newmarket Council
Orientation on Cyber Security

February 12, 2019
Paul Ferguson, President
Scott Bradley, IT Manager
Wayne Ronhaar, CEO Snowy River

Agenda

- Introduction and Overview – Paul Ferguson
- The Cyber Risk Challenge – Wayne Ronhaar
- Our Actions – now and in preparation for the future – Scott Bradley
- Discussion

NDPDL in Context

Our Vision

An independent, industry-leading LDC committed to our customers' changing needs

Our Customers

We serve:

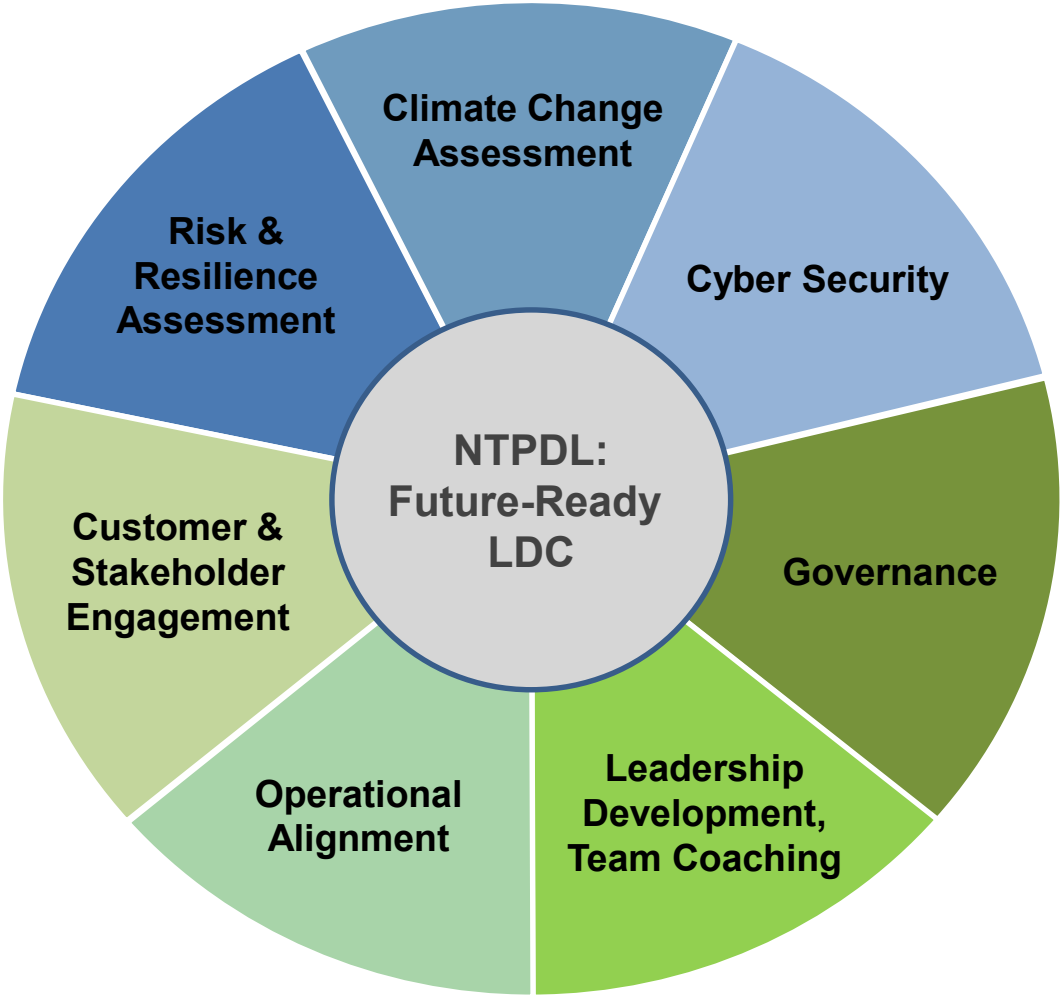
- **The Town of Newmarket**
- **Northern portion of Tay Township (Port McNicoll, Victoria Harbor and Waubaushene)**
- **Town of Midland (as of September, 2018)**

45,000 customers

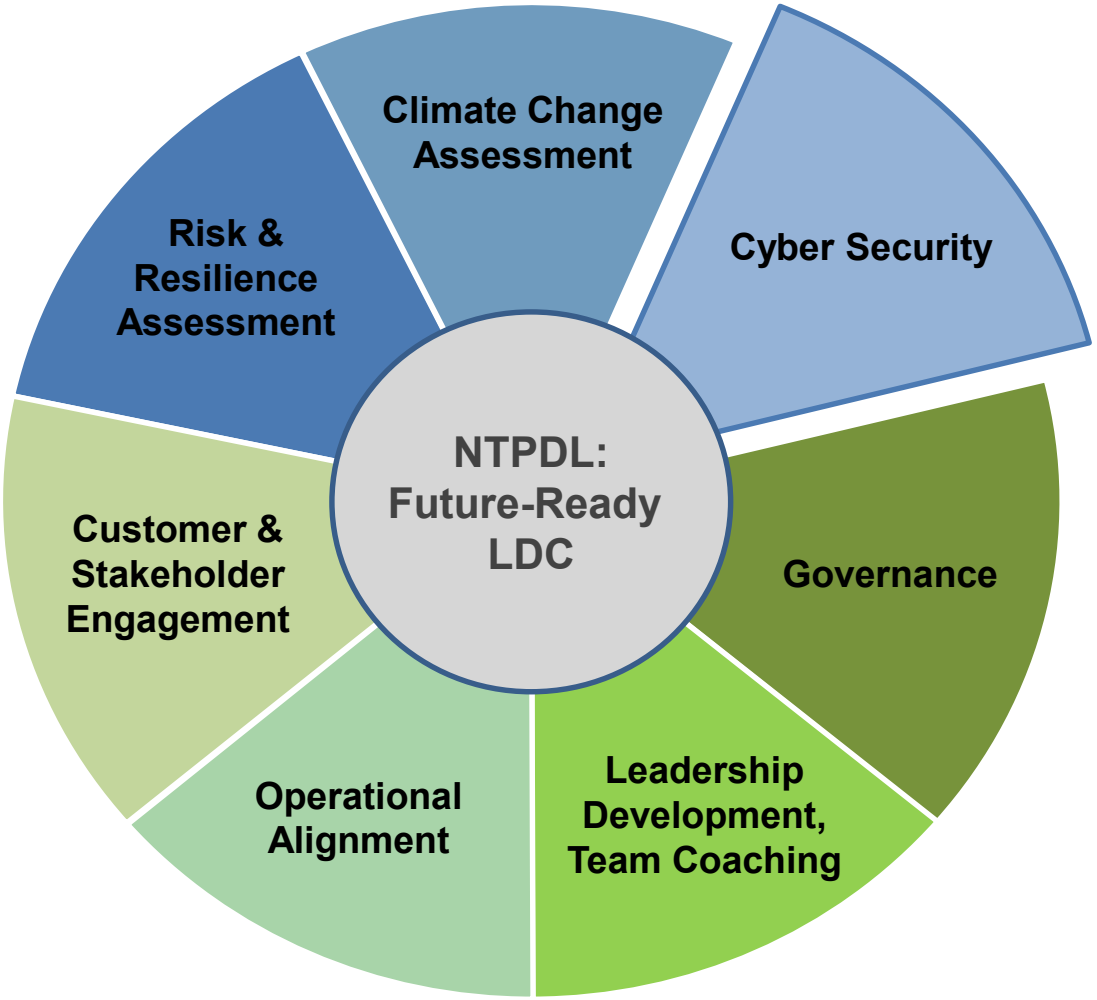
2017 electricity sales of $77,747,796.00

2017 distribution revenue $12,805,980.00

Holistic, Comprehensive Strategic Risk Assessment



Holistic, Comprehensive Strategic Risk Assessment

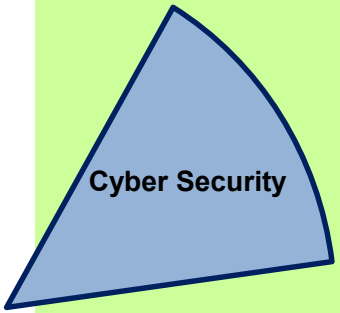


Addressing Cyber Security Challenges

Since 2017 we've been:

- **Upgrading Information Technology (IT) Control Systems to ensure data safety and security**
- **Integrating Midland PUC IT Systems**
- **Planning for Technological Change**
- **Addressing Changing Regulatory Requirements**
- **Preparing for Changing Customer Requirements – Safe and Secure Operational Technology (OT) Systems**
- **Updating Policies and Procedures – Team Training**

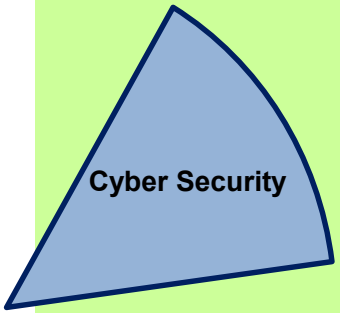
Why is cyber security important to LDCs?



- Utilities evolving fast through digitization
- More assets connected today than ever as LDCs become more agile, customer focused and innovative

- Result: Sector increasingly vulnerable to cyber attacks

Why cyber security is important to LDCs



- **Two distinct styles of utility in the future**

Utility Environment

Traditional

Characteristics
- Asset intensive
- Regulated
- Enabler of new grid technology

Business Drivers
- Sweat asset safety
- Cost reduction
- Careful investment

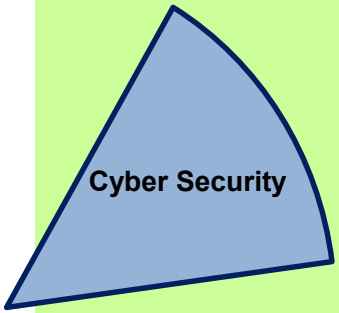
Technology
- Asset maintenance
- Big data
- Field mobility

New

Characteristics
- Customer-facing
- Exploit grid
- Product / offer innovation

Business Drivers
- Innovative culture
- Excellence in customer experience
- Rapid new product development

Technology
- Ideation
- Big data
- Process automation



LDC Vulnerability

Two types of cyber attacks – driven by convergence of OT/IT infrastructure via digitization:

- **IT Systems:**
  - Corporate breaches -- networks attacked, office computers compromised, and/or business information stolen

- **OT Systems:**
  - System breaches -- Sensors, Supervisory Control and Data Acquisition (SCADA) systems, software and other controls that facilitate power plants and Transmission & Distribution (T&D) grids

Putting our best people on the job

Scott Bradley is our IT Manager. He and the IT Team play an integral role in realizing the corporate mission and vision by leading the design, delivery and implementation of technology at the LDC.

Scott has more than 16 years experience in the Ontario utility industry. He has participated in numerous working groups responsible for implementing time-of-use pricing, smart meters/advanced metering infrastructure, customer presentment technologies and conservation & demand management pilot projects.

Putting our best people on the job

Wayne Ronhaar is founder and CEO of Snowy River International Inc.

Snowy River is a Global Cyber Security and Cyber Resiliency company that helps redefine how organizations think about resiliency, cyber security and cyber resiliency.

Wayne has been supporting our team at NTPDL since 2017.

What is cyber risk? – Impact on cities and LDCs

Cyber security is a business issue – not just a technical matter:

- Must be looked at from a holistic standpoint – a critical risk issue
- Cyber capabilities are the weakest point that can elevate risks and increase the impact of malicious incursion in any organization

Cyber security requires Board oversight:

- Cyber risk management
- Compliance with various national and international government requirements and standards

Utility assets are critical to the economic well-being of the jurisdictions in which they operate

- Any failure can cause catastrophic impacts on people and the economy

Cyber risk will only increase over time unless appropriate risk management techniques are put in place

Building Cyber Resilience

- **Context –** build the operational competencies that enable leaders to protect their businesses
  - » We focus on building security-driven systems and cultures, powered by adaptive strategy and operational agility.
- **Definition:**

Cyber security risks, threats – Today and in the future

- **Good cyber risk management involves the following:**
  - A cyber security risk management program to identify analyze and mitigate cyber security risks across the organization and its supply chain
  - A program covering both operational technology (OT) and information technology (IT) assets
  - An ability to manage threats and vulnerabilities with appropriate plans and procedures
  - The capability to be situationally aware, and constantly scan potential future threats
  - A culture that views cyber security risk management in the same way as other core functions
  - Collaboration with other utilities – sharing critical information, strategy development and operational activities

The threat is real

Recent cyber attacks:

- **Unnamed Ontario LDC**
  - » 2018, Ransomware, $150k
- **Unnamed Ontario LDC**
  - » 2017, Spear-phishing, $100k+
- **Town of Midland**
  - » 2018, Ransomware
- **Town of Wasaga Beach**
  - » 2018, Ransomware, $30k + $250k
- **Utilismart, Meter Service Provider vendor**
  - » 2018, Details undisclosed

Why is this important?

- The utility sector is a valuable target for bad actors
- Impacts of essential service disruption
- Not if, but when
- Trust is hard to build and easy to lose in a breach
- Many organizations never fully recover from incidents

NTPDL Recent cyber attacks

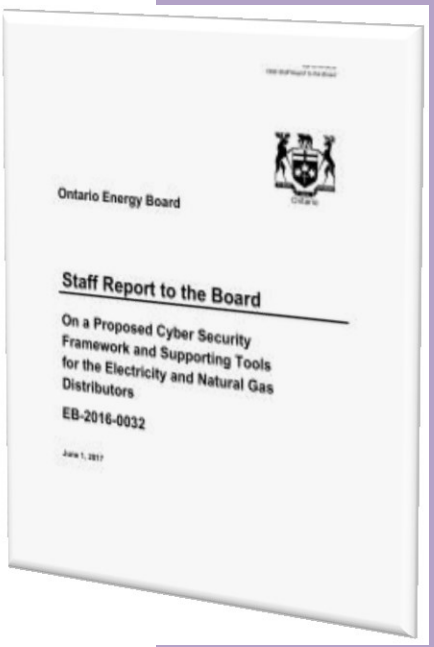
- Logged attempts of spear-phishing
- Increasing sophistication and knowledge
- Identified 0-day ransomware and proven kill chain implementation

Holistic Approach to Cyber Security

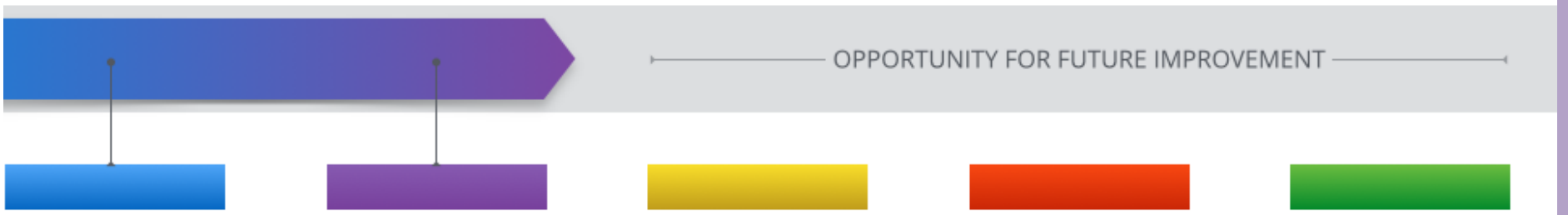
- Elevated focus on the importance of IT
- Cross-functional teams engaged, covering all aspects of NTPDL business
- Soft target hardening
- Capitalizing on the integration of MPUC
- Exploring new ways to leverage our existing infrastructure

Taking Action

- **Ontario Energy Board Cyber Security Framework (CSF)**
  - » National Institute of Standards and Technology (NIST) based supplemented with privacy components
- **IT General Controls Audit**
  - » Completed annually, unified with financials
- **IT /Cyber Security Policy**
  - » Corporate policy refresh
  - » Aligning with CSF



OEB Cyber Security Framework



IDENTIFY

- Asset management
- Business environment
- Governance
- Risk assessment
- Risk management strategy

PROTECT

- Access control
- Awareness and training
- Data security
- Information protection and procedures
- Maintenance
- Protective technology

DETECT

- Anomalies and events
- Security continuous monitoring
- Detection process

RESPOND

- Response planning
- Communications
- Analysis
- Mitigation
- Improvements

RECOVER

- Recover planning
- Improvements
- Communications

OEB CSF – Identify

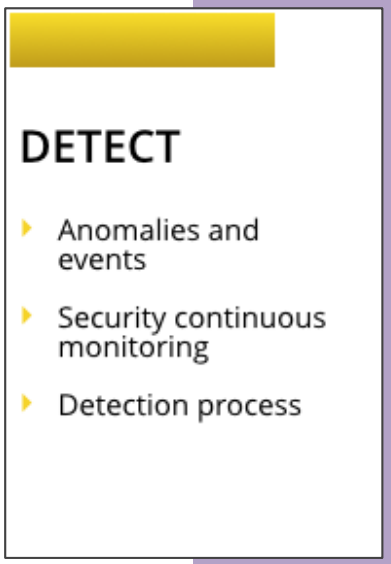
- Asset inventory
- System diagrams
- Business plans
- Security Policy
- Risk strategy/assessment
- Identify vulnerabilities using asset inventory
- Disaster Recovery /Business Continuity Plan
- Contractual agreements and Service Level Agreements

OEB CSF – Protect

- Physical access control
- Network segmentation
- System metrics
- Backup procedures
- Awareness training
- Logical access control Role Based Access Control. Attribute Based Asset Control
- Remote device access control
- Response plan
- Change and configuration management formalization

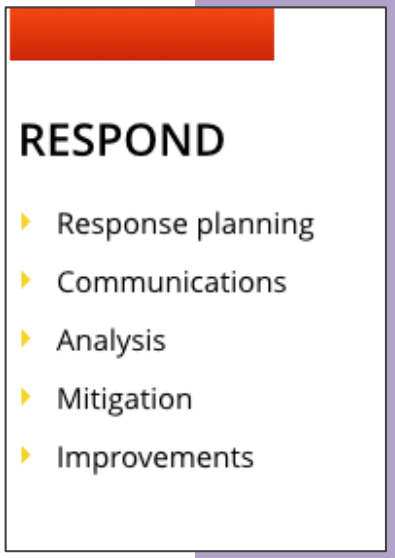
OEB CSF – Detect

- Anomalous behavior scanning, physical assets and operations
- Malicious code detection
- Mobile code
- Risk and vulnerability management program
- Third party access point monitoring
- Security Information & Event Monitoring tooling



OEB CSF – Respond

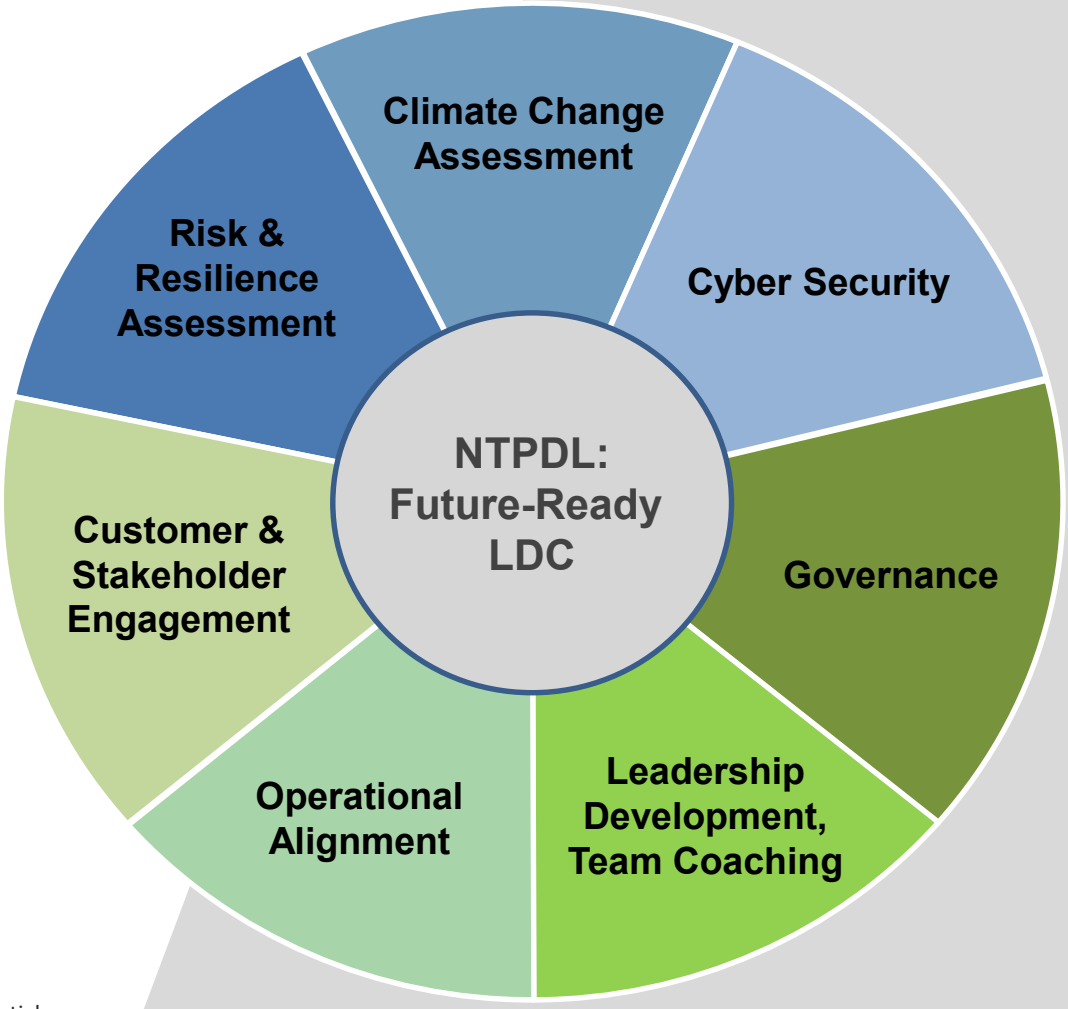
- Reporting criteria
- Procedures for investigating notifications
- Impact assessment
- Communication and customer & community engagement plan
- Thresholds/Categorization
- Response plan testing



OEB CSF – Recover

- Capacity and performance planning
- Professional public relations, implement customer & community engagement plan
- Incident response operations
- Feedback process for improvements
- Recovery plan review

Comment and Questions



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CYBER LIABILITY AND PRIVACY BREACH INSURANCE BENEFITS

Town of Newmarket

February 12, 2019

BFL CANADA

INTRODUCTION

Why does Cyber Insurance exist?

- Insurance is an industry of evolution - as risks develop, so do insurance products
- General Liability and Property policies were not designed to handle the specific exposures brought about by the digital age
- Y2K is a perfect example
- Firewalls and other security measures are not foolproof

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CYBER INSURANCE

Cyber Risk has two main elements:

1. **First Party Losses** – direct loss suffered by you as a result of a hacking event

2. **Third Party Losses** – actions brought against you, either by victims or by regulatory bodies, as a result of alleged negligence that may have caused an unauthorized release of confidential information

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FIRST PARTY LOSSES

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FIRST PARTY LOSSES

CYBER EXTORTION

CYBER EXTORTION

- Pays loss you incur as a result of a Security Threat or Privacy Threat
- Loss means monies you pay:
  - ✓To terminate the threat, including the obtaining of Bitcoin or other cryptocurrency to be surrendered as payment
  - ✓To conduct an investigation to determine cause of the threat

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FIRST PARTY LOSSES

NETWORK INTERRUPTION

NETWORK INTERRUPTION

- Pays ‘loss’ you incur as a result of a Security Failure
- ‘Loss’ means costs you incur for a defined period (usually 120 days) following the date of first interruption, that you would not have incurred if not for the interruption
- Costs include:
  - ✓ Net income that would have been earned
  - ✓ Continuing normal operating expenses incurred, including payroll

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FIRST PARTY LOSSES

EVENT MANAGEMENT

EVENT MANAGEMENT

- Pays loss you incur as a result of an alleged or actual Security Failure or Privacy Event
- Loss means reasonable and necessary expenses and costs within one year of the discovery of the Security Failure or Privacy Event:
  - ✓ To conduct investigation as to cause
  - ✓ To retain advice from Public Relations, Crisis Management or Law Firms to mitigate damages, including reputational damage

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EVENT MANAGEMENT

- ✓To notify victims of the breach
- ✓For identity theft education and assistance, including call centre services, credit monitoring, victim reimbursement
- ✓To restore, recreate or recollect Electronic Data

FIRST PARTY LOSSES

EVENT MANAGEMENT

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THIRD PARTY LOSSES

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THIRD PARTY LOSSES

SECURITY & PRIVACY LIABILITY

SECURITY & PRIVACY LIABILITY

- Pays loss you incur as a result of a Security Failure or Privacy Event (failure to protect Confidential Information of others)
- Loss means compensatory damages, judgments, settlements, pre-judgment and post-judgment interest and defence costs, including:
  - ✓ Punitive damages (where permissible by law)

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THIRD PARTY LOSSES

SECURITY & PRIVACY LIABILITY

SECURITY & PRIVACY LIABILITY

- ✓ Civil fines or penalties resulting from a Regulatory Action (where permitted by law)
- ✓ Monetary amounts you are required by law or agreed to by settlement to deposit into a consumer redress fund
- ✓ Amounts payable in connection with a PCI-DSS Assessment (payment card fines or penalties associated with your non-compliance of PCI Data Security Standards)

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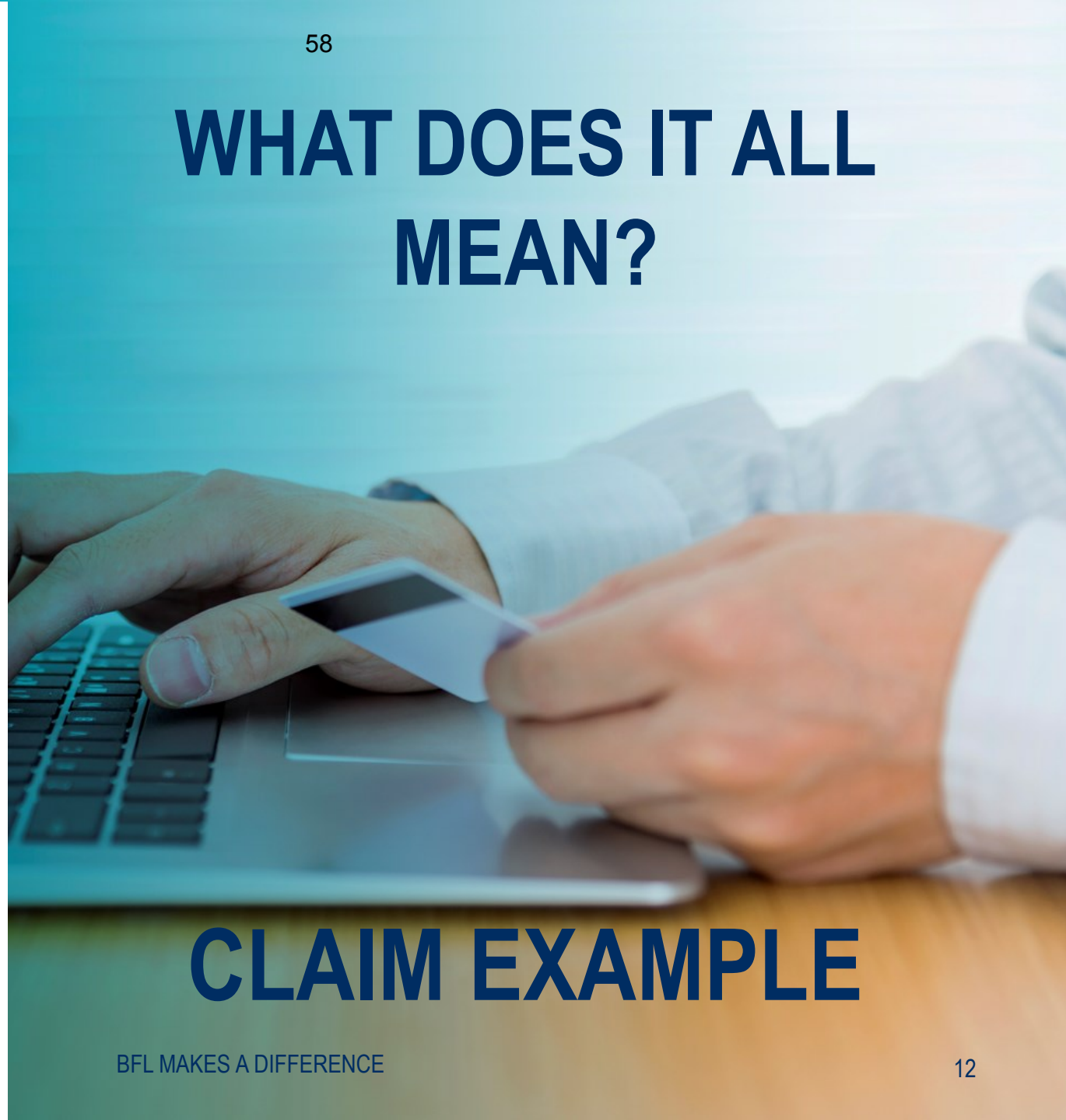
WHAT DOES IT ALL MEAN?



CLAIM EXAMPLE

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CLAIM EXAMPLE

THE SITUATION:

- Hackers gained entry to an insured's point of sale system and were able to access over 5 million customer credit and debit card numbers (before they were detected)

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CLAIM EXAMPLE

THE REMEDY:

- Retained Breach Counsel, Forensic Investigator and Payment Card Industry (PCI) Forensic Investigator
- Based on preliminary investigation, selected and retained vendors to manage the public relations messaging and notification to regulators and consumers
- Offered consumers access to credit monitoring protection
- Established call centre to handle inquiries and registration for the credit monitoring protection
- Breach counsel defended a dozen class action lawsuits as well as regulatory investigations

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CLAIM EXAMPLE

THE COSTS:

- $50,000 for public relations
- $750,000 forensics
- $3 million for credit monitoring, notification and call centre
- $1.5 million for breach counsel
- $1.2 million in regulatory fines
- $2 million in PCI fines
- TOTAL **$8.2 MILLION**

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POTENTIAL ISSUES FOR MUNICIPALITIES

WHERE CAN THINGS GO WRONG?

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MUNICIPAL EXAMPLES

CYBER EXTORTION / NETWORK INTERRUPTION

SCENARIO #1

Ransomware is introduced and successfully installed onto your SCADA (Supervisory Control and Data Acquisition) software:

- Extortionist completely disables your water distribution system
- No water delivery available
- Encryption key will be handed over once ransom is paid in Bitcoin

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MUNICIPAL EXAMPLES

CYBER EXTORTION / NETWORK INTERRUPTION

Are you prepared with the financial and human resources to:

- Carry out forensics to investigate the situation, solve the problem, and ensure it doesn't repeat?
- Procure the appropriate ransom in the form of cryptocurrency?
- Ship in water for your most vulnerable customers?
- Recover lost revenues because there was no product available to distribute?
- Handle the public relations nightmare?

Do you want your reputation to be tarnished because residents are worried their water isn't safe?

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MUNICIPAL EXAMPLES

PRIVACY BREACH LIABILITY

SCENARIO #2

On the first day of summer camp, the Camp Supervisor puts down her laptop to assist a crying child. The unlocked laptop is stolen. It contains a file with a complete list of day camp attendees, including names, addresses, phone numbers, birthdates and health card numbers, now open and accessible to the thief:

- Laptop cannot be recovered and you have reason to believe it was taken for inappropriate means
- Notification of release of confidential information, including health information, must be sent to families

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MUNICIPAL EXAMPLES

PRIVACY BREACH LIABILITY

Are you prepared with the financial and human resources to:

- Provide notifications to regulators and authorities?
- Draft and send notifications of potential breach to victims?
- Hire breach counsel?
- Provide post-breach services to victims as appropriate?
- Handle the public relations nightmare?

Do you want parents to stop using municipal recreation services because they believe it is not safe?

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MUNICIPAL EXAMPLES

SECURITY LIABILITY / EVENT MANAGEMENT

SCENARIO #3

The municipal website is hacked and a notice is put up advising residents that if they sign up now, swimming lessons are offered free to all family members for one full year:

- Over 500 families sign up before the notice can be taken down
- Credit card information was collected to “reserve” the lessons, and has been compromised

BFL CANADA

MUNICIPAL EXAMPLES

SECURITY LIABILITY / EVENT MANAGEMENT

Are you prepared with the financial and human resources to:

- Carry out forensics to investigate the situation, solve the problem, and ensure it doesn't repeat?
- Follow the protocols dictated by your Payment Card agreement and industry standards?
- Notify the victims of the breach?
- Provide credit monitoring services to victims?
- Pay for the expenses needed to provide services without the revenue to support?

Do you want your residents to be worried they can't trust your municipal website?

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SERVICES AVAILABLE TO HELP

BFL CANADA

SERVICES AUTOMATICALLY INCLUDED

Employee eLearning

Awareness, training, and compliance. Customizable, web-based training and compliance to help reduce the single largest risk to an organization: human error.

Blacklist IP Blocking

Powered by global threat intelligence. Helps prevent criminal activity on your network by blocking bad IP trafflc – inbound or outbound.

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SERVICES AUTOMATICALLY INCLUDED

Domain Protection

Identify and block typo squatting domains. Protects your organization by identifying and blocking knockoff domains used by criminals. Their social engineering attacks trick employees into clicking on malware.

Infrastructure Vulnerability Scan

Identification of high risk infrastructure vulnerabilities. Select parts of your internet-facing infrastructure to have experts examine and identify vulnerabilities that are open to potential exploits by cyber criminals.

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SERVICES AUTOMATICALLY INCLUDED

Legal Risk Consultation

Review and strengthen incident response capabilities. Two hours with an expert on incident response planning, regulatory compliance, security awareness, or privacy
training.

Forensic Risk Consultation

Organizational preparedness for different threat scenarios. One hour with a forensic expert on what an organization needs to think about and prepare for different threat scenarios.

BFL CANADA

SERVICES AUTOMATICALLY INCLUDED

Public Relations Risk Consultation

Crisis communication plan best practices and preparation. One hour with an expert to prepare and plan for your organization to handle potential scenarios if one should occur.

Insurance Portfolio Diagnostic

Cyber as a peril analysis against insurance portfolio. Experts review your entire property and casualty portfolio to determine how it is anticipated to respond to the spectrum of cyber predicated financial and tangible losses.

BFL CANADA

SERVICES AUTOMATICALLY INCLUDED

CyberEdge Hotline and Information Portal

Online access to cybersecurity information and cyber hotline 24/7/365.

Our CyberEdge Claims Hotline is available 24/7/365 at 1-800-CYBR-345 (1-800-292-7345). Once a call is made to the hotline, the CyberEdge Claims Team will coordinate with the client to implement their response plan, engage any necessary vendors including breach counsel and forensics firms to identify immediate threats (such as a hacker inside a network), and start the restoration and recovery processes.

BFL CANADA

SERVICES AUTOMATICALLY INCLUDED

Get Started Today

Take advantage of these services and improve your organization's protection against a cyber attack.

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