



**RETURN BIDS TO:**

**RETOURNER LES SOUMISSIONS À:**

Marine Emergency response Division/Division des  
interventions maritime  
Centennial Towers 7th Floor - 7w11  
200 Kent Street  
Ottawa  
Ontario  
K1A0S5

**SOLICITATION AMENDMENT  
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise  
indicated, all other terms and conditions of the Solicitation  
remain the same.

Ce document est par la présente révisé; sauf indication contraire,  
les modalités de l'invitation demeurent les mêmes.

**Comments - Commentaires**

**Vendor/Firm Name and Address**

Raison sociale et adresse du  
fournisseur/de l'entrepreneur

**Issuing Office - Bureau de distribution**

Marine Emergency Response Division/Division des  
Interventions en cas d'urgence maritime  
Centennial Towers 7th Floor - 7W11  
200 Kent Street  
Ottawa  
Ontario  
K1A0S5

<b>Title - Sujet</b> Industry Day AtoN Program	
<b>Solicitation No. - N° de l'invitation</b> F7047-190047/A	<b>Amendment No. - N° modif.</b> 002
<b>Client Reference No. - N° de référence du client</b> F7047-190047	<b>Date</b> 2020-01-20
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$ERD-011-27530	
<b>File No. - N° de dossier</b> 011erd.F7047-190047	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2020-02-28</b>	
<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Standard Time EST	
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Beland, Marc	<b>Buyer Id - Id de l'acheteur</b> 011erd
<b>Telephone No. - N° de téléphone</b> (343) 542-1635 ( )	<b>FAX No. - N° de FAX</b> ( ) -
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> Specified herein Précisé dans les présentes	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

<b>Delivery Required - Livraison exigée</b>	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/</b> <b>de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

N° de l'invitation - Solicitation No.  
F7047-190047/A  
N° de réf. du client - Client Ref. No.  
F7047-190047

N° de la modif - Amd. No.  
002  
File No. - N° du dossier

Id de l'acheteur - Buyer ID  
011  
N° CCC / CCC No./ N° VME - FMS

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**Amendment 002**

This amendment is raised to provide the presentations given on Industry Day

**All other terms and conditions remain**



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

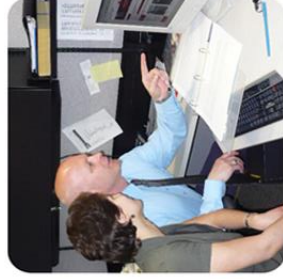
Canadian  
Coast Guard

Garde côtière  
canadienne

# Aids to Navigation



Safety First, Service Always



## MCI AtoN Presentation, Industry Day 21 January 2020

SK

Canada

# Mandate of Canadian Coast Guard



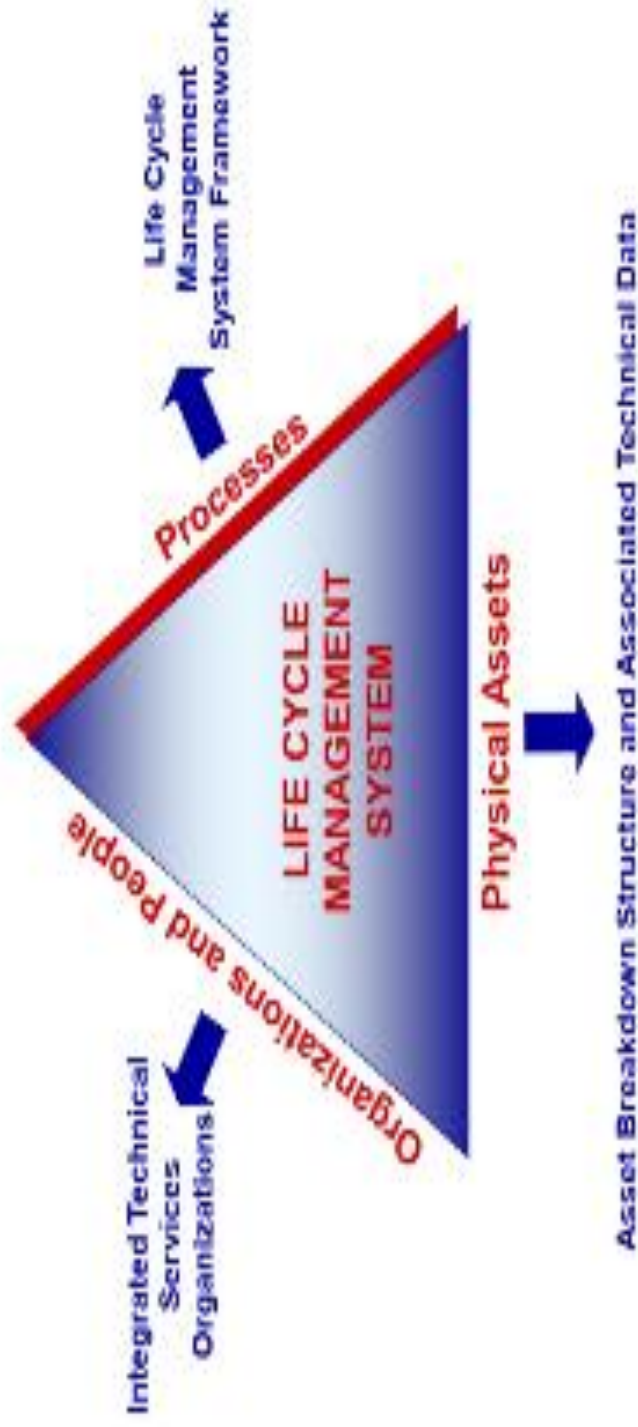
The Canadian Coast Guard is responsible for the delivery, management and maintenance of “*aids to navigation services in Canadian water in order to facilitate safe and expeditious movement of maritime traffic...*”



# Role of Asset Class Manager, AtoN

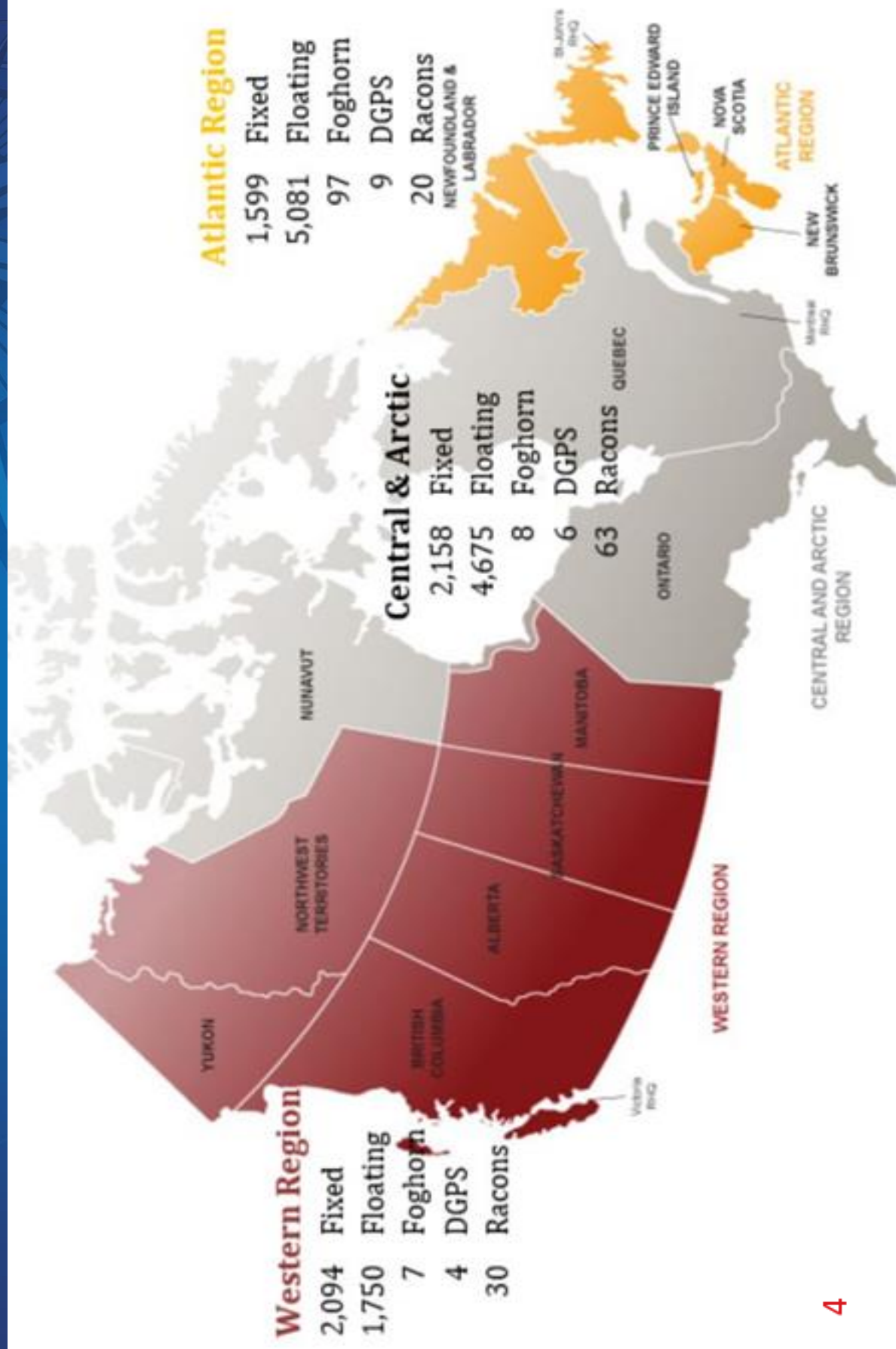


- Develops and/or recommends and implements economically and environmentally sustainable practices in support of ITS Life Cycle Asset Management System programs and CCG and DFO priorities;
- 

















# Geographical Distribution of AToN ASSETS



# Examples of Shore Infrastructure













Structures	Examples / Exemples
Octagonal towers / Tours octogonales	     
Pyramid shape towers / Tours pyramidales	     



# Examples of Shore Infrastructure





Structures	Examples / Exemples
<p>Square towers</p> <p>Tours carrées</p>	    
<p>Hexagonal towers /</p> <p>Tours hexagonales</p>	    














# Examples of Shore Infrastructure



Structures	Examples / Exemples
<p>Trapezoidal skeleton towers / Tours à claire-voie trapézoïdale</p>	
<p>Tripod skeleton towers / Tours à claire-voie tripode</p>	

# Examples of Shore Infrastructure



Structures	Examples / Exemples
Dolphins / Dauphins	    
Masts / Mâts	     



# Buoy Types & Sizes

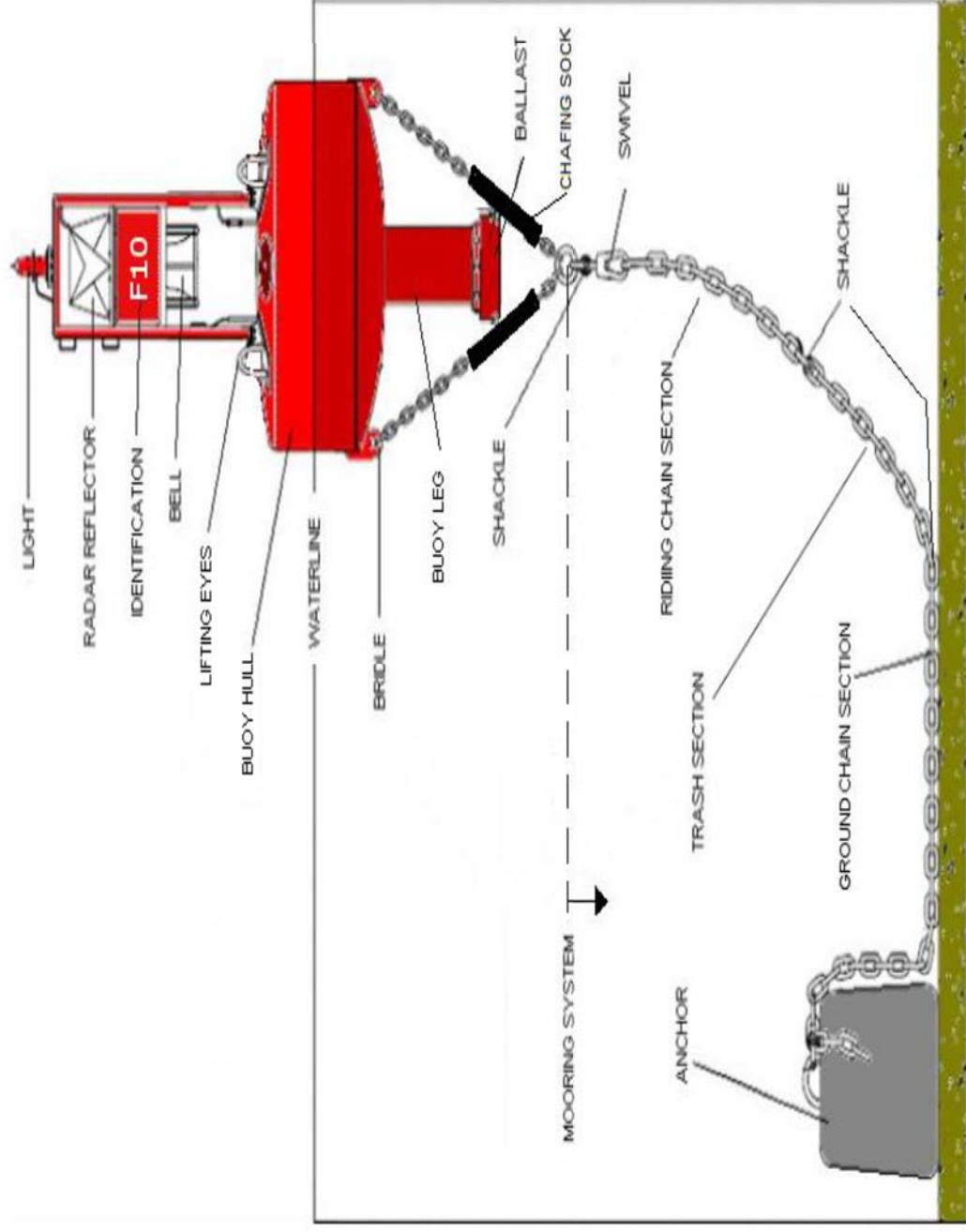


- Plastic
  - Small -  $\leq 60\text{cm}$
  - Medium -  $> 60\text{cm}$
  - Large -  $\geq 1.4\text{m}$
- Steel
  - Small -  $\leq 60\text{cm}$
  - Medium -  $> 60\text{cm}$
  - Large -  $\geq 1.3\text{m}$
- Bells and Whistles





# Buoy Mooring Assembly



# Vision



**Develop, recommend, implement economically and environmentally sustainable practices in support of ITS programs and CCG and DFO priorities and the safety of Canadian waterway traffic.**

- Maximise availability while minimizing life-cycle management using best practices; and
- Manage the disposal of assets and reduce liability and CCG footprint.

# Contact Information



**Samar El-Khoury**

[Samar.ElKhoury@dfo-mpo.gc.ca](mailto:Samar.ElKhoury@dfo-mpo.gc.ca)





Serving  
GOVERNMENT,  
serving  
CANADIANS.

# Bidding on Opportunities

[www.pspc-spac.gc.ca](http://www.pspc-spac.gc.ca)



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Procurement Canada    Services publics et  
Approvisionnement Canada

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# Office of Small and Medium Enterprises

- Supports small and medium enterprises (SME) through the federal procurement process
- Engages, assists and informs SMEs on how to sell goods and services to the Government of Canada
- Works to reduce barriers to ensure fairness in the process



[www.pspc-spac.gc.ca](http://www.pspc-spac.gc.ca)



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# Objectives

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## Help participants understand:

- The competitive nature of bidding for Government of Canada opportunities
- The different types of competitive procurement that the Government of Canada uses
- The main elements of solicitation documents and how to respond to them
- How bids are evaluated and suppliers are selected
- How to follow-up on the bidding process



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# Contracting with the Government of Canada

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- Public Services and Procurement Canada (PSPC) is the main procurement arm of the federal government
- It is important that all procurement activities be conducted in an open, fair and transparent manner, and that all suppliers have an equal chance at doing business with us
- Federal laws and regulations as well as Treasury Board of Canada policies guide the Government of Canada's procurement process

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# The non-competitive approach

Pressing Emergency	<ul style="list-style-type: none"><li>• Delays could be injurious to public interest</li><li>• Example: boats needed for an emergency evacuation</li></ul>
Low-dollar value	<ul style="list-style-type: none"><li>• Not considered cost effective to compete</li><li>• Adjusted to \$100,000 for architectural, engineering services as well as international development assistance projects</li></ul>
Not in Public Interest	<ul style="list-style-type: none"><li>• Example: national security</li></ul>
One Known Supplier	<ul style="list-style-type: none"><li>• Examples: copyright, licence or patent</li></ul>

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# Delegated purchasing authorities within the Government of Canada

Goods up to \$25,000

Services up to  
\$3,750,000 and  
Construction Projects  
up to \$400,000

For procurements over these levels,  
departments and agencies work with PSPC.

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# Trade Agreements affecting procurement

Agreement	Goods	Services	Construction
North American Free Trade Agreement (NAFTA)	\$32, 600	\$108, 400	\$14, 100, 000
Canadian Free Trade Agreement (CFTA)	\$26, 400	\$105, 700	\$105, 700
World Trade Organization Agreement on Government Procurement (WTO-AGP)	\$238, 000	\$238, 000	\$9, 100, 000

Notice of Proposed Procurement must be posted on  
BuyAndSell.gc.ca/tenders

[www.pspc-spac.gc.ca](http://www.pspc-spac.gc.ca)



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# Types of solicitation documents



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# Requests for Information (RFI)

Requests for Information (RFI) are an opportunity for businesses to help shape the resulting requirements and provide input into the procurement process



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Government of Canada

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Public Works and Government Services Canada

For Businesses

For Government

Goods and Services

Applications

Procurement Data


Canada.ca

Services

Departments

Français

Canada



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»

Procurement Data

»

Tender Notice

»

Active

»

Letter of Interest (LOI)/Request for Information (RFI)

Enter terms

Search

Filter Selections

☒ Tender Notice

☒ Letter of Interest (LOI)/Request for Information (RFI)

☒ Active

[Reset](#)

Sort by

Relevancy

Publication date




Award date

Amendment date

The Canadian Free Trade Agreement entered into force on July 1, 2017

Did not find what you're looking for? Search all Government of Canada websites

Showing items 1 through 10 of 86.



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For information on notifications, visit the [Follow Opportunities](#) page.

Procurement data carries an [Open Government Licence](#) - Canada that governs its use. Please refer to the section about [Commercial Reproduction](#) in the [Buyandsell.gc.ca](#) Terms and Conditions for more information.

[Printing Logbooks and Combined Forms for Fisheries and Oceans Canada \(F5211-130006\)](#)

[ Tender Notice ]  
<https://buyandsell.gc.ca/procurement-data/tender-notice/PW-13-00038668>

<b>Publishing status</b>	Active
<b>Publication date</b>	2013-11-14
<b>Amendment date</b>	2017-02-06
<b>Date closing</b>	2017-12-29 14:00 Atlantic Standard Time (AST)
<b>GSIN description</b>	N3610: Printing, Duplicating and Bookbinding Equipment

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# Invitation to Tender

- When a buyer has a straightforward need (e.g. off-the-shelf goods), they can issue an [Invitation to Tender \(ITT\)](#)
- Evaluation is based on Lowest Priced Bid meeting all mandatory requirements
- Typically used for construction

**Royal Canadian Mounted Police**  
Gendarmes Royaux du Canada

**RETOURNER LES SOUSMISSIONS A:**  
**RETURN BIDS TO:**  
Bid Receiving/Reception des soumissions  
RCMP Mail Services Unit  
BID RECEIVING ROOM - Room 4A1E431  
14700 Glenora Road, Surrey, BC V2T 4P3 T 778-290-2944

**Title: Sujet - INVITATION TO TENDER**  
**TRANSPORTABLE TELECOMMUNICATIONS SHELTERS CONSTRUCTION AND DELIVERY**

**Solicitation No. - No. de l'invitation**  
M2589-5-0181001

**Date:**  
January 03, 2014

**GET'S Reference No. - No. de Référence du Client**  
M2589-5-0181001

**Solicitation Closes - L'invitation prend fin**  
on/le January 20, 2014  
at/à 2:00pm (PST)

**F.O.B. - F.A.B.**  
See Herein - Voir aux présentes

**Marking Enquiries to: - Adresser toutes questions à:**  
RCMP Contracting & Procurement Unit  
Nelly Savard, Reg. Sr Procurement Officer.  
Nelly.Savard@rcmp.gc.ca

**Telephone No. - No de Téléphone**  
778-290-2779

**Fax No. - N° de FAX**  
778-290-6110

**Destination of Goods and Services - Destinations des biens et services:**  
ROYAL CANADIAN MOUNTED POLICE (RCMP)  
RCMP Regional Training Centre  
45337 Calais Crescent  
Chilliwack, B.C. V2P 0N6

**Delivery Required - Livraison exigée:**  
See Herein - Voir aux présentes

**Delivery Offered - Livraison proposée**

**Comments - Commentaires**  
**Veuillez indiquer le nom et l'adresse du fournisseur de l'entrepreneur**

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- Downloaded from <https://www.cambridge.org/core>. University of Cambridge, on 02 Jun 2020 at 10:00:00, subject to the Cambridge Core terms of use, available at <https://www.cambridge.org/core/terms>. <https://doi.org/10.1017/S0022278X20000509>

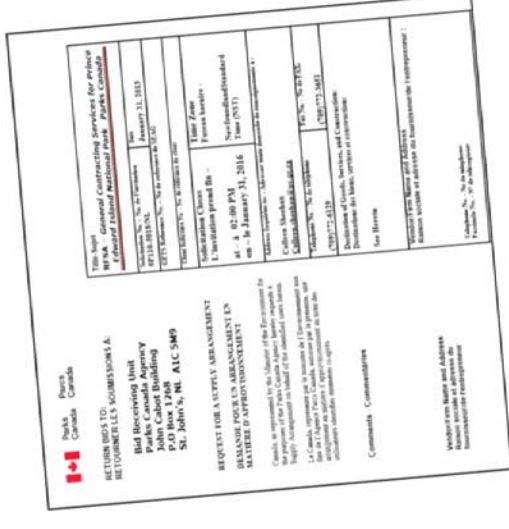


- If you qualify in the RFSO process, this means you agree to provide your good or service for a fixed price over a certain time frame

[illegible]

# Request for Supply Arrangement

- A buyer may issue a [Request for Supply Arrangement \(RFSA\)](#) when:
  - There is a need to purchase goods or services on a repetitive basis, and
  - There are variables such as statements of work or requirements that cannot be defined in advance
- Bids are solicited from pre-qualified suppliers for specific requirements



**Request for Supply Arrangement (RFSA)**

**GENERAL INFORMATION**

Project Name: General Contracting Services for Police  
Project Number: 10000000000000000000  
Project Description: General Contracting Services for Police  
Project Location: 10000000000000000000  
Project Start Date: 10000000000000000000  
Project End Date: 10000000000000000000

**SCOPE OF WORK**

Scope of Work: General Contracting Services for Police  
Scope of Work Description: General Contracting Services for Police  
Scope of Work Location: 10000000000000000000  
Scope of Work Start Date: 10000000000000000000  
Scope of Work End Date: 10000000000000000000

**BIDDING INFORMATION**

Bidding Information: General Contracting Services for Police  
Bidding Information Description: General Contracting Services for Police  
Bidding Information Location: 10000000000000000000  
Bidding Information Start Date: 10000000000000000000  
Bidding Information End Date: 10000000000000000000

**CONTACT INFORMATION**

Contact Information: General Contracting Services for Police  
Contact Information Description: General Contracting Services for Police  
Contact Information Location: 10000000000000000000  
Contact Information Start Date: 10000000000000000000  
Contact Information End Date: 10000000000000000000

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# Similarities and Differences of SOs and SAs

Similarities	
<ul style="list-style-type: none"><li>• National/Regional</li><li>• Goods or services purchased regularly</li><li>• Pool of pre-qualified suppliers</li></ul>	
SOs	SAs
<ul style="list-style-type: none"><li>• Contracted using “call ups”</li><li>• Prices are predetermined and fixed</li><li>• Established under set terms and conditions</li></ul>	<ul style="list-style-type: none"><li>• Contracted using a competitive process</li><li>• Prices are not fixed</li><li>• Specific requirements within the scope of the supply arrangement</li></ul>

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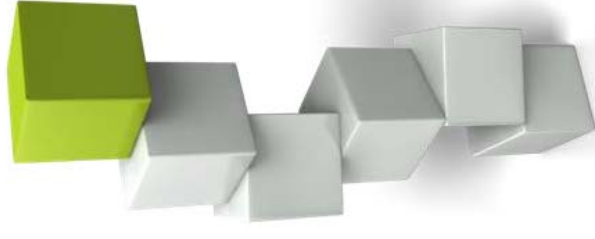
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## Advance Contract Award Notice

- When there is only one known supplier for a requirement (for example when only one company holds the IP or for a particular security requirement), a buyer may choose to post an [Advance Contract Award Notice \(ACAN\)](#)
- This is a public notice posted on [BuyAndSell.gc.ca/tenders](http://BuyAndSell.gc.ca/tenders) allowing other suppliers to signal their interest in bidding on the opportunity and to demonstrate their ability to meet the requirement



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## Five Steps to Bidding

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1. Review the solicitation document thoroughly
2. Decide whether to bid or not
3. Collect information about your bid
4. Prepare your bid document
5. Submit your bid



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[www.pspc-spac.gc.ca](http://www.pspc-spac.gc.ca)

The word "Canada" in a serif font, with a small red maple leaf above the letter "a".

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# Step 1: Review the solicitation document

[www.pspc-spac.gc.ca](http://www.pspc-spac.gc.ca)



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# Reviewing the solicitation document

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- Follow the instructions and read all the terms and conditions thoroughly
- If you are uncertain about any aspects of the document, make sure to contact the contracting authority to get more details
  - Submit questions in writing to the contracting authority before the deadline for questions
  - Answers to all questions received will appear as amendments on the tender notice page



[www.pspc-spac.gc.ca](http://www.pspc-spac.gc.ca)




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# Overview of a solicitation document

Solicitation documents are usually divided into parts plus annexes

	Department of Justice Ministère de la Justice Canada	DOC n° JUS RFSO 2014-1000014103
<b>REQUEST FOR STANDING OFFER FOR INVESTIGATION SERVICES ON BEHALF OF JUSTICE CANADA</b>		
<b>TABLE OF CONTENTS</b>		
<b>PART 1 - GENERAL INFORMATION</b>		
1.	Introduction	
2.	Summary	
3.	Security Requirement	
4.	Drawings	
5.	Key Terms	
<b>PART 2 - OFFEROR INSTRUCTIONS</b>		
1.	Standard Instructions, Clauses and Conditions	
2.	Submission of Offers	
3.	Enquiries - Request for Standing Offers	
4.	Applicable Laws	
<b>PART 3 - OFFER PREPARATION INSTRUCTIONS</b>		
1.	Offer Preparation Instructions	
2.	Section 1 - Technical Offer	
3.	Section 2 - Financial Offer	
4.	Payment by Credit Card	
<b>PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION</b>		
1.	Evaluation Procedures	
2.	Basis of Selection	
<b>PART 5 - CERTIFICATIONS</b>		
1.	Mandatory Certifications Precedent to Issuance of a Standing Offer	
1.1	Code of Conduct and Certifications	
1.2	Former Public Servant Certification	
1.3	Former Public Servant Certification - Standing Offer Certification	
1.4	Education and Experience	
1.5	Financial Resources	
1.6	Canadian Content Definition	
1.7	Canadian Content Certification	
1.8	Financial Resources	
1.9	Firm Organization Profile and Subcontractors	
1.10	Certification	

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Commission of Justice  
Commissariat de Justice  
Canada

DOC # RJSO 2014-2014-000011103

## PART 1 - GENERAL INFORMATION

### 1. Introduction

The Request for Standing Offers (RFSO) is divided into seven parts plus attachments and annexes, as follows:

**Part 1** General Information provides a general description of the requirement;

**Part 2** Offer Instructions provides the instructions applicable to the clauses and conditions of the RFSO;

**Part 3** Offer Preparation Instructions provides Offerors with instructions on how to prepare their offer to address the evaluation criteria specified;

**Part 4** Evaluation Procedures and Basis of Selection indicates how the evaluation will be conducted, the evaluation criteria which must be addressed in the offer, if applicable, and the basis of selection;

**Part 5** Certifications: includes the certifications to be provided;

**Part 6** Security, Financial and Insurance Requirements: includes specific requirements that must be submitted by Offerors; and

**Part 7** A Standing Offer, and 7B. Related Contract Clauses:

7A includes the Standing Offer containing the offer from the Offeror and the applicable clauses and conditions;

7B includes the clauses and conditions which will apply to any contract resulting from a call-up made pursuant to the Standing Offer.

The Annexes include the Statement of Work, the Security Requirements Check List, the Non-Disclosure Agreement and the Standing Offer Activity Report.

### 2. Summary


The Department of Justice has the mandate to support the dual roles of the Minister of Justice and the Attorney General of Canada. Under Canada's federal system, the administration of justice is an area of shared jurisdiction between the federal government and the provinces. The Department of Justice has a responsibility for supporting the federal government in taking on its role in the administration of justice. This responsibility must be discharged in a coordinated and integrated manner, with due respect to the rights and understanding of the obligations of the individuals involved.

This requirement is for Work in **Security** and includes investigation related activities: investigation/prosecution of cases, hearings of administrative/criminal cases, legal research or analysis, and the management of the security environment. The work is in the specific requirements of each call-up.

The Department of Justice requires the services of up to three Contractors to provide Investigation Services by two Investigations (one bilingual) on an "as and when required" basis, throughout its six Regions and National Headquarters located in Ottawa to:

# Part 2 – Bidder instructions

- Often referred to as Offeror Instructions
- Contains instructions, clauses and conditions applicable to the solicitation document
- Includes information about: site visits, bidders' conferences and applicable laws

 Department of Justice Canada Ministère de la Justice Canada DOC n° JUS RFSO 2014-1000014103

**PART 2 - OFFEROR INSTRUCTIONS**

**1. Standard Instructions, Clauses and Conditions**

All instructions, clauses and conditions identified in the Request for Standing Offers (RFSO) by number, date and title are set out in the *Standard Acquisition Clauses and Conditions* (<http://ccaa-accpac.gc.ca/pubs/eng/accpac/cho-cho-eng.pdf>) Manual issued by Public Works and Government Services Canada.

Offerors who submit an offer agree to be bound by the instructions, clauses and conditions of the RFSO and accept the clauses and conditions of the Standing Offer and resulting contract(s).

The 2006 (2012-03-02), Standard Instructions - Request for Standing Offers - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the RFSO.

Subsection 5.4 of 2006, Standard Instructions - Request for Standing Offers - Goods or Services - Competitive Requirements, is amended as follows:

Delete: sixty (60) days

Insert: one-hundred and twenty (120) days

**2. Submission of Offers**

Offers must submit only to:

**Keyla Pordonick**  
Procurement Officer, Justice Canada  
100 Metcalfe Street, URB 728  
Main Floor - Security Guard (Security Guard - please call 613 724 1521)  
Ottawa, Ontario K1A 0H7

by the date, time and place indicated on page 1 of the Request for Standing Offers.

Due to the nature of the Request for Standing Offers, transmission of offers, by facsimile to the Department of Justice will not be accepted.

**3. Enquiries - Request for Standing Offers**

All enquiries must be submitted in writing to the Standing Offer Authority no later than ten (10) business days before the request for Standing Offers (RFSO) closing date. Enquiries received after that time may not be answered.

Offerors should reference as accurately as possible the numbered item of the RFSO to which the enquiry relates. Enquiries should be submitted in writing to the Standing Offer Authority in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as proprietary will be answered by the Standing Offer Authority. Enquiries that are not of a proprietary nature, Canada may edit the questions or may request that Offerors do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all Offerors. Enquiries not submitted in a form that can be distributed to all Offerors may not be answered by Canada.

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# Part 3 – Bid preparation instructions

Provides bidders with instructions on how to prepare their bid (page numeration, # of copies etc.)

 **Department of Justice**  
Canada

**Ministère de la Justice**  
Canada

DOC # JUS 9F50 2014-100014103

**PART 3. OFFER PREPARATION INSTRUCTIONS**

**1. Offer Preparation Instructions**

Department of Justice requests that Offerors provide their offer in separately bound sections as follows:

Section I Technical Offer (4 hard copies)

Section II Financial Offer (1 hard copy)

Section III Certifications (1 hard copy)

Prices must appear in the financial offer only. No prices must be indicated in any other section of the offer.

**1.2** Department of Justice requests that Offerors follow the format instructions described below in the preparation of their offer.

a) use 8.5 x 11 inch (216 mm x 279 mm) paper

b) use a numbering system that corresponds to that of the Request for Standing Offer.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process. Policy 80, Green Procurement (<http://www.bipac-ppac.gc.ca/procurement-greening-achats-procurement-vertifier-politique-achat.html>).

**1.3** To assist Department of Justice in reaching its objectives, Offerors are encouraged to:

a) use paper containing fibre certified as originating from a sustainably managed forest and/or containing minimum 30% recycled content, and

b) use an environmentally preferable format including black and white printing instead of colour printing, printing double sided/pages, using staples or clips instead of staples, staples or staples or binders.

**Section I: Technical Offer**

**2.1** In their technical offer, Offerors should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work. Part 4, Evaluation Procedures and Basis of Selection, Clause 1.1 refers.

Experience used to demonstrate competency must include the following information:

a) The client organization;

b) The dates/duration of the investigation;

c) A description of the investigation, including the scope and elements of the framework, and

d) The name and contact information of the client Project Authority.

**2.2** Bidders are also advised that the month(s) of experience listed for an investigation or experience whose timeframe overlaps that of another referenced investigation or experience will only be counted once. For example, Investigation 1 timeframe is July 2001 to December 2002.

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# Part 4 – Evaluation procedures

Describes the evaluation process and how the contractor will be selected (basis of selection)



Government of Canada  
Ministère du Canada

DOC n° JUS-SPSO 2014-1000014103

**PART 4 – EVALUATION PROCEDURES AND BASIS OF SELECTION**

**1. Evaluation Procedures**

(a) Offers will be assessed in accordance with the entire requirement of the Request for Standing Offers including the Technical and Financial evaluation criteria.

(b) An evaluation team composed of representatives of the Department of Justice will evaluate the offers.

(c) The evaluation team will determine if there are three (3) or more offers with a valid Canadian Content certification. If that event, the evaluation will be limited to the offers with the certification; otherwise, all offers will be evaluated. If none of the offers with a valid certification are declared non-responsive, or are ambiguous, and less than three responsive offers are identified, then the offer with the valid certification will be declared non-responsive and withdrawn. If all offers with a valid certification are subsequently declared non-responsive, or are withdrawn, then all the other offers received will be evaluated.

**1.1 Technical Evaluation**

**(a) Mandatory Requirements**

The Mandatory Requirements listed below will be evaluated on a pass/fail (i.e. compliant/non-compliant) basis. Proposals which fail to meet the Mandatory Requirements will be deemed non-responsive and given no further consideration.

Offers MUST demonstrate compliance with all of the following Mandatory Requirements and MUST provide the necessary documentation to support compliance as stated in Part 3, Section 1, Technical Offer.

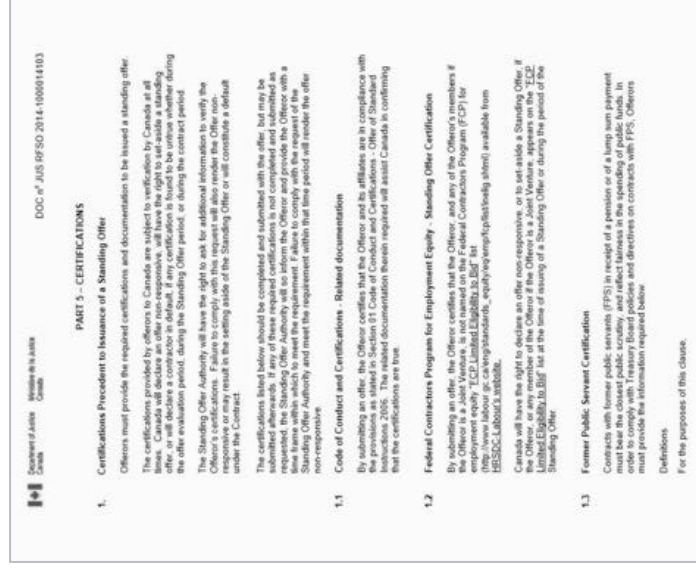
No.	Mandatory Requirements	Substantiating Details/Proposed Response	Pass/Fail
BT	The Offeror must have a minimum of five (5) years experience in providing investigation services as described in the Statement of Work and must have completed at least three (3) different contracts over the past three (3) years.		
	The Offeror must provide two references to confirm its capability as outlined above and one reference for each of the past three (3) years.		
MS	Offeror must provide at least two references who have used the services of the following MCC, MCC 2, and/or MCC 3 and have been satisfied with the services provided. The references must be defined in the Statement of Work and must include the following information: (a) Name of the reference (b) Contact person (c) Position (d) Project description (e) Date of completion (f) The start date and end date of experience (g) Impact of project	Reference 1 Reference 2	

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## Part 5 – Certifications

- Includes the certifications to be provided
- Includes examples such as employment equity requirements and certifications regarding former federal public servants and conflict of interest
- Includes Integrity Provisions



## Part 6 – Resulting contract clauses

- Includes clauses and conditions that will apply to any resulting contract
- For Standing Offers, Part 6 is divided into 2 parts: 6A and 6B
- Includes the Period of contract which tells you the amount of time you have to complete the work

	Document d'Advis C23233	Ministère de la Justice C23233	DOC n° JUS RFSO 2014-1000014103
<b>PART 7 - STANDING OFFER AND RESULTING CONTRACT CLAUSES</b>			
<b>A. STANDING OFFER</b>			
<b>1. Offer</b>			
The Offeror offers to fulfil the requirement in accordance with the Statement of Work at Annex A.			
<b>1.1 Handling of Personal Information</b>			
The Offeror acknowledges that Canada is bound by the Privacy Act, R.S., 1985, c. P-21, with respect to the protection of personal information as defined in the Act. The Offeror must keep private and confidential any such personal information collected, created or handled by the Offeror under the Contract, and must not use, copy, disclose, dispose or destroy such personal information except in accordance with this clause and the delivery provisions of the Contract.			
All such personal information is the property of Canada, and the Offeror has no right in or to that information. The Offeror must deliver to Canada all such personal information in whatever form, including all working papers, notes, memoranda, reports, data in machine-readable format or otherwise, and all documents, reports, data in machine-readable format or otherwise, upon the completion or termination of the Contract, or at such earlier time as Canada may request. Upon delivery of the personal information to Canada, the Offeror will have no right to retain that information in any form and must ensure that no record of the personal information remains in the Offeror's possession.			
<b>1.2 Non-Disclosure Agreement</b>			
The Offeror must obtain from its employee(s) and/or subcontractor(s) the signed Non-Disclosure Agreement attached as Annex B. Information is given access to information by or on behalf of the Offeror, and the Offeror is responsible for ensuring that the information is not disclosed by the recipient that the information is owned by someone else and cannot be disclosed to a third party, nor can it be exploited by the recipient for personal gain. This automatically grants ownership of the Intellectual Property to the Crown.			
<b>1.3 Non-Performance</b>			
In accordance with the unrestricted right of Canada to terminate the Contract for default if the Offeror fails any of its obligations under the Contract. The Standing offer authority notifies the Offeror of the reasons for termination of the Contract. The Offeror must complete the tasks and services have not been performed in accordance with the Statement of Work and the tasks as outlined in the Call-up.			
<b>2. Security Requirement</b>			
The Offeror must, at all times during the performance of the Standing Offer, hold a valid Facility Security Clearance at the level of 'SECRET', issued by the Canadian Industrial Security Directorate (CISD), Public Works and Government Services Canada (PWGSC).			

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# Annex A- Statement of Work (SOW)

- Sets out the nature of the required good or service
- Provides a narrative description of the work required and stipulates the deliverables or services required to fulfill the contract
- Identifies and summarizes the various phases of the project

	Document of Justice Canada	Ministère de la Justice Canada	DOC n° JUS RFSO 2014-1000014103
ANNEX A - STATEMENT OF WORK			
SW1	TITLE		
	Investigation Services		
SW2	BACKGROUND		
<p>The Department of Justice has the mandate to support the dual roles of the Minister of Justice and the Attorney General of Canada.</p> <p>Under Canada's Federal System, the administration of justice is an area of shared jurisdiction between the Federal Government and the Provinces. The Department supports the Minister of Justice in the administration of justice in the federal domain and for the administration of justice in the provinces and territories. The Department is also responsible for the administration of justice in the federal domain and for the administration of justice in the provinces and territories.</p> <p>The Department of Justice is headquartered in Ottawa, Ontario. As well, Justice has six regional offices located across the country:</p> <ul style="list-style-type: none"><li>Atlantic Regional Office</li><li>British Columbia Regional Office</li><li>Northern Regional Office</li><li>Ontario Regional Office</li><li>Pacific Regional Office</li><li>Quebec Regional Office</li></ul> <p>The Department of Justice has a responsibility for reporting and investigating security incidents and taking corrective action. These investigations are to be objective, thorough and conducted by trained, qualified persons, with due respect to the rights and understanding of the obligations of the individuals involved.</p> <p>Investigation of harassment complaints are not included within the scope of these Investigation Services.</p>			
SW3	OBJECTIVES:		
<p>The Department of Justice requires the services of Contractors to provide Investigation Services on an "as and when required" basis throughout its six (6) Regions and National Headquarters located in Ottawa, Ontario. This requirement is for Work in Security and includes investigation of security incidents, including but not limited to, the investigation of security incidents in the legal research or Ombudsman or related operational activities in a government environment or a large corporate security environment, as defined in the Statement of Work and in the specific requirements of each call-up.</p> <p>It is anticipated that two investigators (one bilingual may be required, however, the quantity will be subject to change and will be identified in any resulting call-ups.</p> <p>Work will include the following:</p> <p>Participate in Levels of Interventions 1, 2, 3, and 4. The Contractor must provide the services at</p>			

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## Step 2: To bid or not to bid?

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## Your company's capacity (1/2)

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- Is your business capable?
- Does your business meet the evaluation criteria?
- Are the terms and conditions acceptable?
- Is your business able to accept the pricing method?
- Should you partner with another supplier?



## Your company's capacity (2/2)

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- Keep on the lookout for constraints
- Know your competition
- Clarify any questions with the contracting authority



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The word "Canada" in a serif font, with a small red maple leaf above the letter "a".

## Security requirements

- A security clearance is necessary when a Government of Canada contract requires your personnel to access classified or protected information, assets or sensitive federal work sites
- Security requirements are identified in the solicitation document. If the opportunity that you are interested in requires a security clearance and you do not have one, contact the contracting authority as soon as possible to get the process started
- The time required to obtain a security clearance will vary
- Delays in the security process could result in your bid being declared non-responsive

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# Contract Security Program

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- The **Contract Security Program (CSP)** helps private sector organizations participate in Government of Canada and foreign government contracts. It provides security screening of organizations and their personnel for contracts with security requirements
- Security screening ensures that only trusted individuals and organizations with a valid need to know may gain access to:
  - **sensitive government information** such as military plans
  - **personal information** such as financial records of Canadians
- CSP offers **free webinars** about its services. Visit their web pages for more information

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## Step 3: Collect information about your bid

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## Collect information

- Obtaining security clearances can require a lot of time, so start early on
- There may be times when you will need to get hard-copy materials or samples
- It is important to monitor the solicitation for any amendments
  - Bookmark the webpage of the tender notice and return to your bookmark to see the most current information for the tender
  - Use web feeds to keep yourself informed of amendments



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## Step 4: Prepare your bid document

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## Preparing your bid

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- You may be asked to provide your bid in various separately bound sections such as:
  - a technical section
  - financial section
  - certifications
- The financial and technical sections must follow the format as outlined in the solicitation document
- Each item must be answered in accordance with the evaluation criteria
- All requested information must be provided and clearly demonstrate your ability to do the work

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# Prepare your bid: The technical section

Respond to all:

- Requirements
  - Detail how each requirement will be met
  - Reference past projects or deliverables that support your ability to provide the good or service
- Evaluation criteria
  - Use simple language
  - Be responsive each bid is evaluated solely on its contents – don't rely on a past interaction with a contracting authority as they will not be able to consider any information outside the document

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# Prepare your bid: The financial section

## Firm Fixed Price

- Used when possible to predict the costs involved
- Must complete work before being paid

## Cost Plus Contracts

- Used when there is uncertainty in cost or for longer projects
- Can be used to offset potential cost risks



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## Step 5: Submit your bid

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## Submitting your bid

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- Know the bid closing date and where and how to submit your bid. Check for amendments to the closing date
- Sign the document and include all required signed and completed certifications
- Ensure your proposal follows the format requested
- Review your bid, then have someone else review it too



# Submitting your bid electronically

- One way to submit bids against some Public Services and Procurement Canada tenders:
  - Canada Post's [epost Connect](#) online service.
- Important
  - Read bid submission instructions to verify method of submission is accepted and if epost Connect is offered
  - Create your epost Connect account in advance so you're ready to bid on time!
- Benefits
  - Faster and more efficient
  - Greener
  - A time and date stamp record

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# Bid evaluation

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# Evaluation criteria



The evaluation team may consider mandatory technical criteria only; point-rated technical criteria only or a combination of mandatory technical criteria and point-rated technical criteria.

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# Mandatory requirements

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- You must fulfill all mandatory criteria in order to move forward in the evaluation process
- For bids that are evaluated on the basis of mandatory criteria only – the bid must meet all the mandatory criteria specified in the solicitation document
- Some examples include: financial stability, essential performance characteristics of equipment, and required security clearances



## Point-rated criteria

---

- Used to evaluate the value added factors over and above the mandatory requirements
- Includes criteria such as: strategy, principles, methodology, company, team or resource experience, and facilities and equipment
- Ask the contracting authority if you have any questions about point rating

# Selection of a successful bidder

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# Basis of selection

## Lowest Priced Responsive Bid

- Selection based on the lowest priced responsive bid
- Mandatory requirements must be met in order for the bid to be considered responsive

## Best Overall Value

- Selection is often based on lowest evaluated price per point (as determined using a point-rated scale)
- Mandatory and point-rated technical criteria will be evaluated

## Highest Technical Bid Within a Stipulated Budget

- Selection is based on the highest rated technical bid within a stipulated budget
- Bidders are invited to propose a solution to a problem or a method of achieving an objective within a stipulated budget

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## Basis of selection: Example

Evaluation Criteria	Maximum	Minimum	A.	B.	C.	D.
Technical	35	26.3	32	28	23	30
Execution	25	18.7	21	22	n/a	22
Team	25	18.7	23	21	n/a	16
Company	15	11.3	15	13	n/a	n/a
Total Points	100	75.0	91	84	n/a	n/a
Price Quoted	n/a	n/a	\$466,0000	\$440,000	Non-responsive	Non-responsive
Cost per Point	n/a	n/a	\$5,120	\$5,238	n/a	n/a

- Lowest priced responsive bid was Company B
- Lowest cost-per-point responsive bid was Company A with \$5,120
- Highest responsive combined rating of technical merit and price (60/40 ratio) was Company B
- Highest rated technical bid within a stipulated budget was Company A with 91 points within a maximum budget of \$475,000

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## Frequent reasons for non-responsive bids

- Mandatory requirements not met
- Minimum required points in a specific section not achieved
- Bid exceeds level of funding for the project
- Mandatory documentation not included in the bid



## How can I follow up?

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- Debriefing can be done in person, by telephone or in writing
- Review the contents of your bid and prepare questions
- Complaints can be referred to the Office of the Procurement Ombudsman or CITT if subject to trade agreements





# Federal Contracting Fraud Tip Line

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- A partnership between the Competition Bureau, the Royal Canadian Mounted Police (RMCP) and Public Services and Procurement Canada
- It encourages Canadians to anonymously report any suspected wrongdoing in Government of Canada procurements (fraud, collusion and corruption) by calling a toll-free number (1-844-365-1616) or completing an [online reporting form](#)
- The information provided can help conduct investigations and introduce due diligence measures, where warranted, to protect the integrity of federal contracts and real property agreements
- Any suspected criminal activity that is uncovered will be turned over to the Competition Bureau and/or the RCMP
- For more information, visit the [Federal Contracting Fraud Tip Line website](#) or contact the [Competition Bureau](#)

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## Best practices for bidding - Must

- Read all terms and conditions thoroughly
- Meet all mandatory criteria
- Respond to all sections, regardless of point value
- Follow the bid preparation instructions completely – including: submitting the correct number of copies of your bid and all of the required certifications
- Make sure to fill in and sign all required elements within your bid
- Submit your bid on time and to the right place
- Contact the contracting authority If you have any questions



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## Best practices for bidding - Should

- Organize your bid so that it is complete, concise and precise
- Include the following on the front page of your bid:
  - the reference number, PSPC file number, the date, and your contact information
- Write an executive summary, paginate, and include a table of contents
- Put your logo or business name on every page
- Pay particular attention to sections that may carry more points
- Have fresh eyes do a quality review of your bid
- Request a debrief after the contract has been awarded



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## Seminars

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- Doing Business with the Government of Canada
- Finding Opportunities on BuyAndSell.gc.ca
- Bidding on Opportunities
- Defence and Security Procurement
- Supplying Professional Services to the Government of Canada
- Obtaining Security Clearance



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The word "Canada" in a serif font, with a small red maple leaf above the letter "a".

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# OSME contact information

**National Infoline: 1-800-811-1148**

## Atlantic Region

- Telephone: 902-426-5677
- Facsimile: 902-426-7969
- [OSME-BPME-Atl@tpsgc-pwgsc.gc.ca](mailto:OSME-BPME-Atl@tpsgc-pwgsc.gc.ca)

## Québec Region

- Telephone: 514-210-5770
- [QueBPME.QueOSME@tpsgc-pwgsc.gc.ca](mailto:QueBPME.QueOSME@tpsgc-pwgsc.gc.ca)

## National Capital Region

- Telephone: 819-953-7878
- Facsimile: 819-956-6123
- [RcnBPME.NcrOSME@tpsgc-pwgsc.gc.ca](mailto:RcnBPME.NcrOSME@tpsgc-pwgsc.gc.ca)

## Ontario Region

- Telephone: 416-512-5577
- Toll free: 1-800-668-5378
- Facsimile: 416-512-5200
- [Ont.BPME-OSME@tpsgc-pwgsc.gc.ca](mailto:Ont.BPME-OSME@tpsgc-pwgsc.gc.ca)

## Western Region

- Telephone: 780-497-3601
- Toll free: 1-855-281-6763
- Facsimile: 780-497-3506
- [OSME-BPME-Wst@tpsgc-pwgsc.gc.ca](mailto:OSME-BPME-Wst@tpsgc-pwgsc.gc.ca)

## Pacific Region

- Toll free: 1-866-602-0403
- Facsimile: 604-775-7395
- [OSME-BPME-Pac@tpsgc-pwgsc.gc.ca](mailto:OSME-BPME-Pac@tpsgc-pwgsc.gc.ca)

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# Electronic procurement solution

Under Budget 2018's commitment to simpler and better procurement, PSPC has launched a project to deploy a modern, cloud-based Electronic procurement solution (EPS).

Moving federal procurement online and changing the way government and suppliers interact to buy and sell goods and services.



## Clients Easier to buy

- One-stop shop for procurement
- Streamlined service delivery and reduced process burden
- Better value through increased competition



## Suppliers Easier to sell

- Lower cost and burden to bid
- Simplified processes and shortened procurement cycles
- Reduced duplication of information entry



## PSPC Better service

- Faster contract with less risk
- Better information and more control
- Replace 40 legacy applications with modern systems



## Procurement Professionals Increased effectiveness

- Reduced process burden
- Improved productivity, and effectiveness
- Decreased risk and better data



## Canadians Better value

- More efficient support to government operations
- Increased visibility and transparency
- Greening government operations

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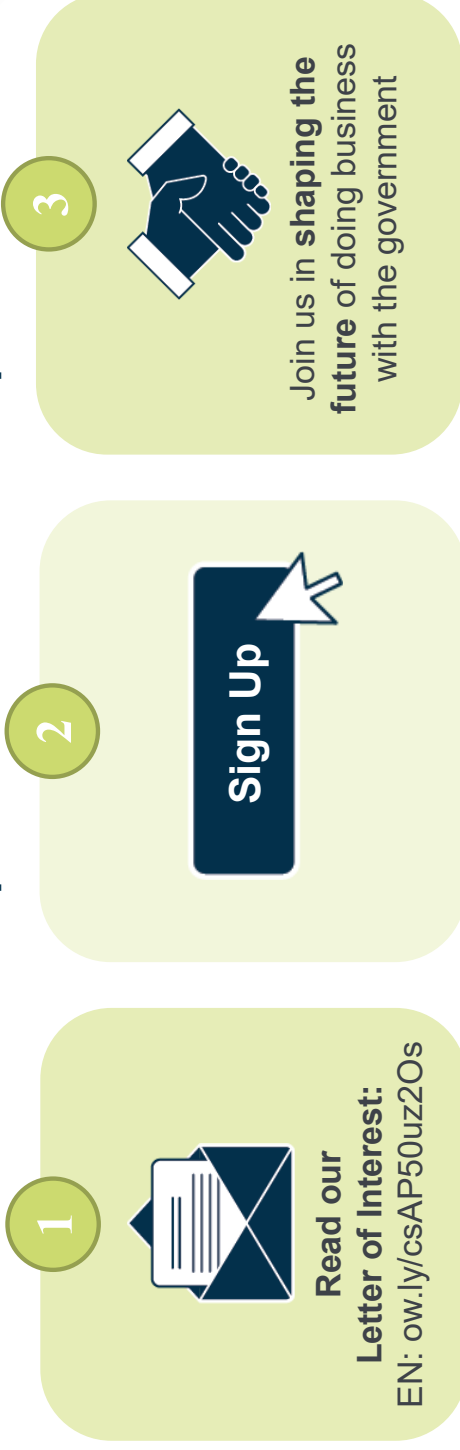
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# Help us with testing!

Our goal is to take a **user centric approach** to design by involving and consulting with users in the process



**If you are interested in becoming a member of our design network, please follow these steps:**



**For more information, contact:**

[TPSGC.PASAECCO-APEPSOCM.PWGSC@tpsgc-pwgsc.gc.ca](mailto:TPSGC.PASAECCO-APEPSOCM.PWGSC@tpsgc-pwgsc.gc.ca)

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Canadian  
Coast Guard

Garde côtière  
canadienne

# Aids To Navigation Program Update



Safety First, Service Always



## How we move from requirements to reality

*Gatineau, Quebec*

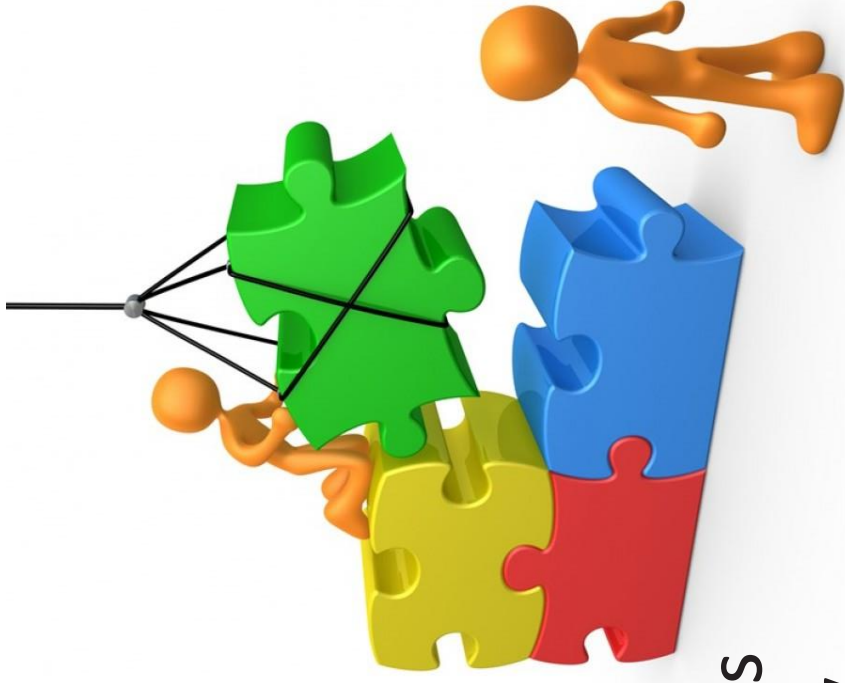
*January 21, 2020*

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# Introduction



- A member of the project delivery team
- My colleagues and I hold various responsibilities contributing national equipment and commodity procurements in support of the delivery of AtoN services.



# Primary Purpose



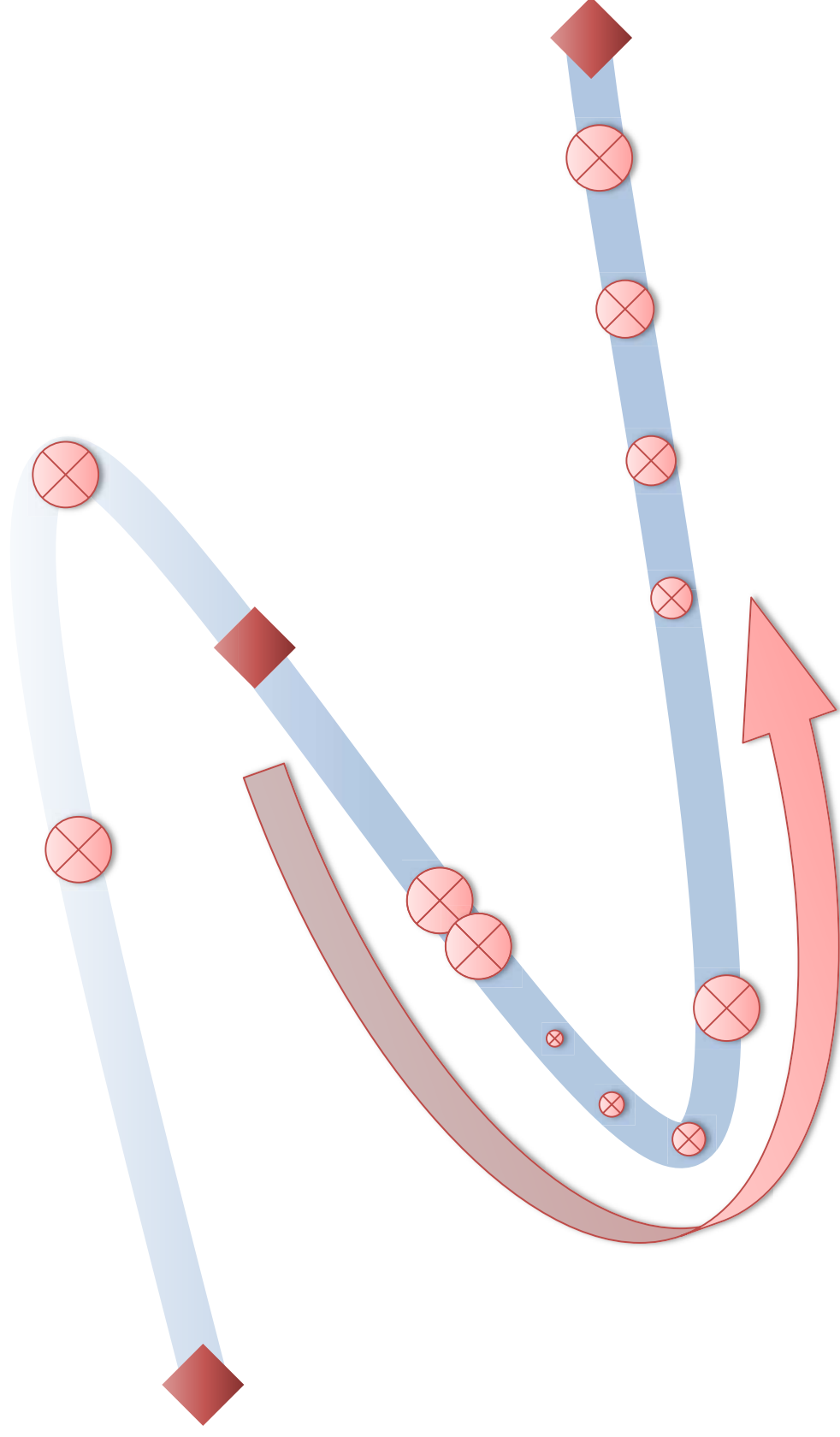
- To shed some light on
  - the relatively extensive process leading up to a *given* procurement,
  - and the opportunity industry has to provide input during these early stages.
- The procurement process occurs after a great deal of effort



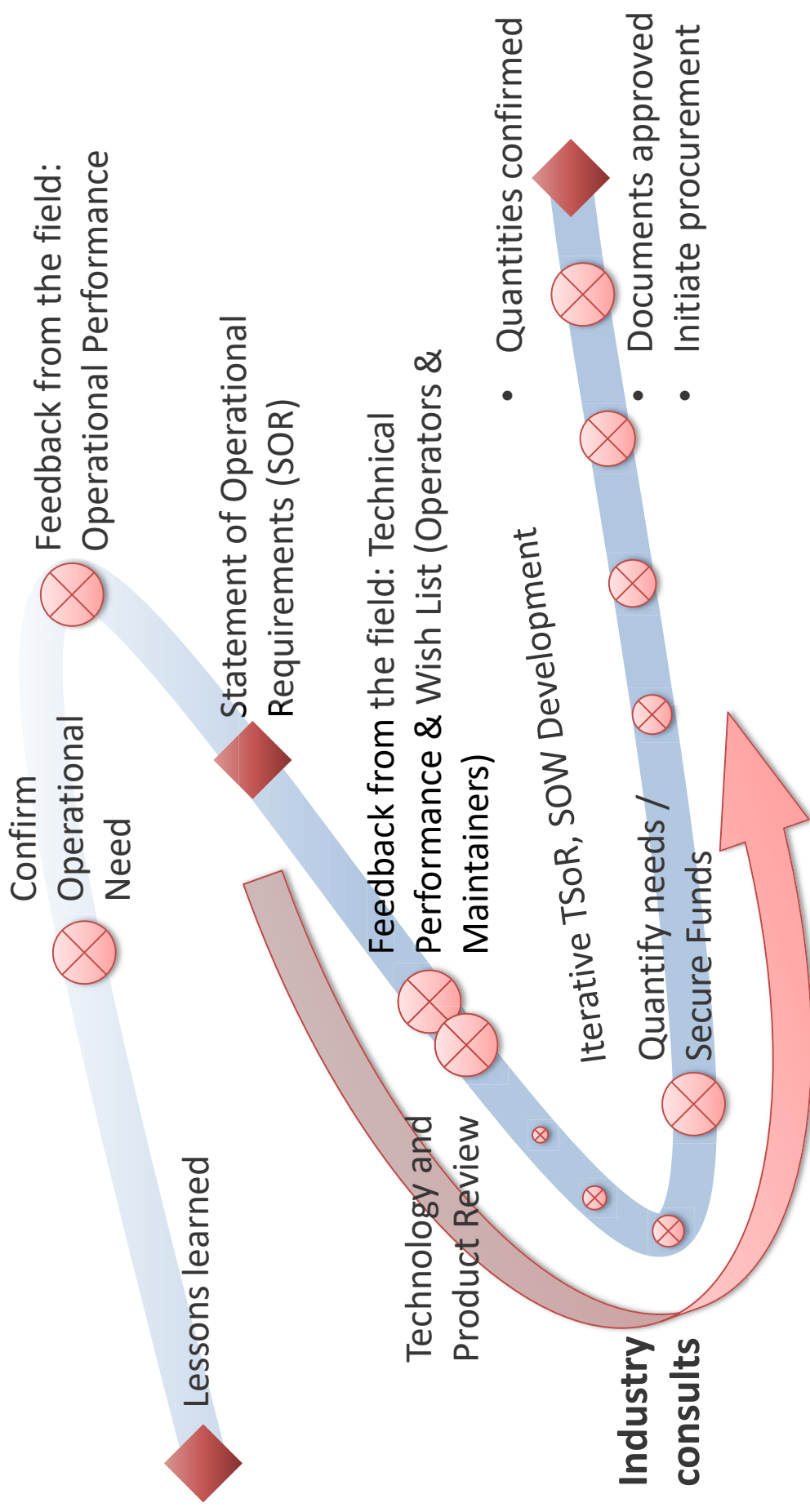
# The Pre (Post) Procurement Process



- How do we get from requirements to reality?



# The Pre (Post) Procurement Process



# Typical Timelines ~ It Depends



- Considerations:
  - Nature of the requirement
  - Type of procurement (Contract, Contract with options, Standing Offer, Supply Arrangement)
  - Budgetary Constraints
- Regular AtoN procurements are typically renewed every ONE to THREE years
- Frequency for more specialty equipment/commodities are less predictable



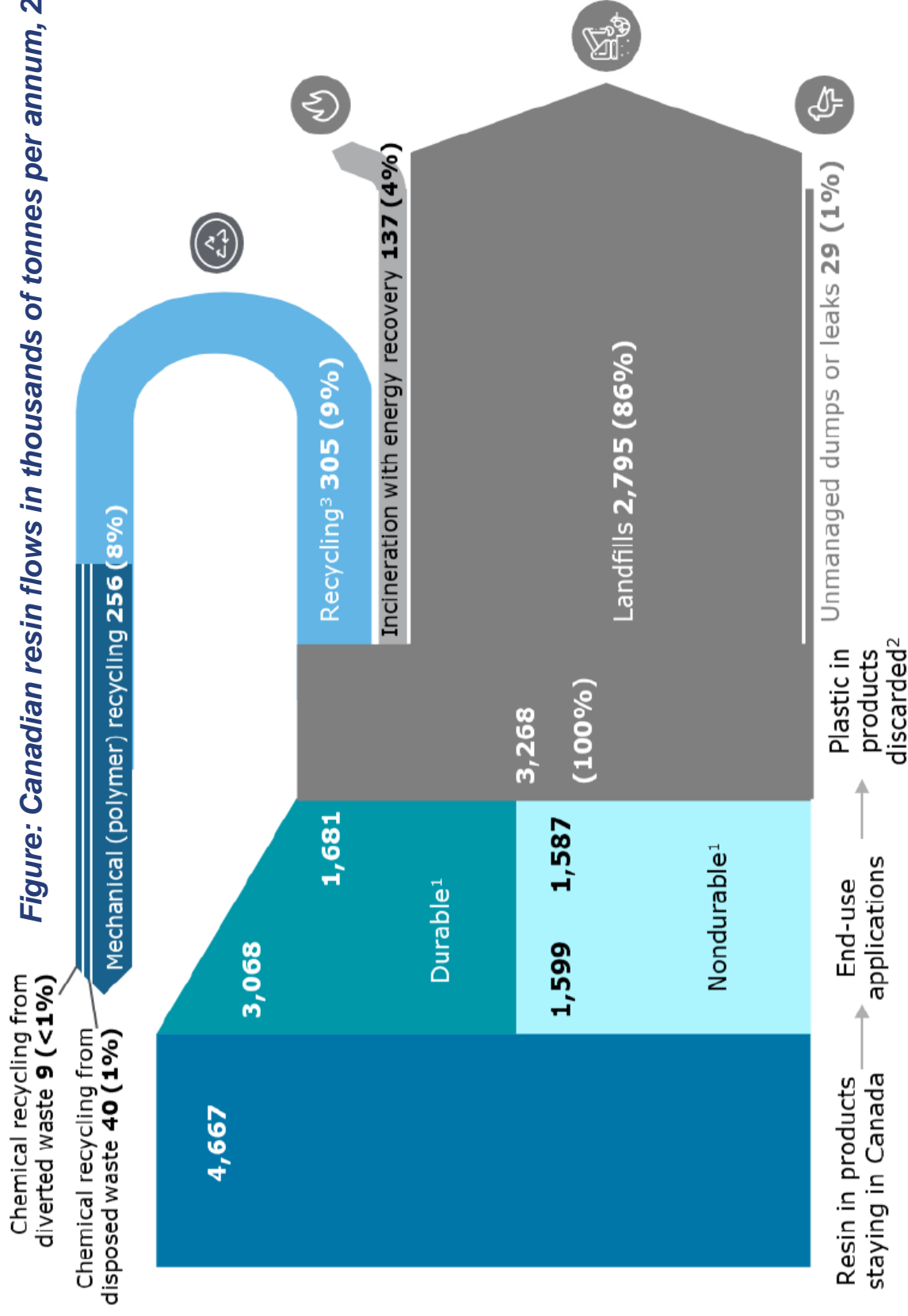
# Questions



# Recycling Plastics: Canadian Context



Figure: Canadian resin flows in thousands of tonnes per annum, 2016





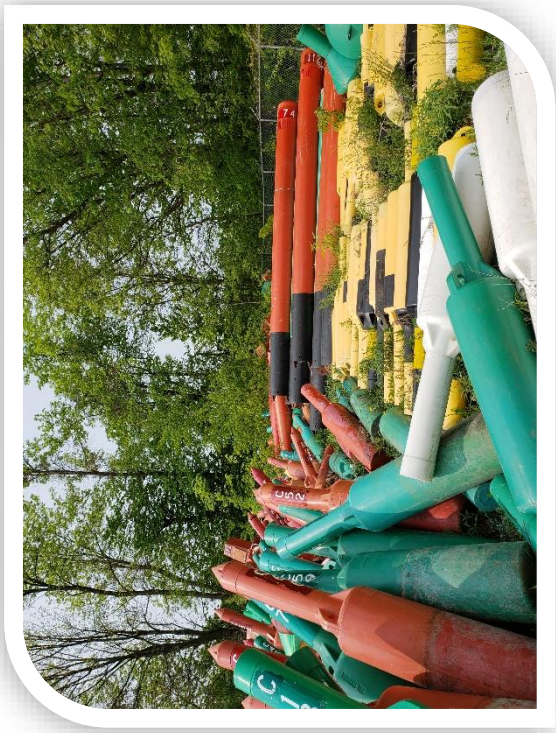
# Plastic Buoys: End-of-Life Issues



## The end-of-life management of plastic buoys is costly

Physical Design	<ul style="list-style-type: none"><li>• Not designed for disposal in mind (one piece)</li><li>• Material separation and disassembly difficult, therefore labour cost is high</li></ul>
Contamination	<ul style="list-style-type: none"><li>• In the form of organic growth &amp; zebra mussels</li><li>• Traditional recyclers only accept 5% contamination max.</li></ul>
Weight & Volume	<ul style="list-style-type: none"><li>• Freight is costly to ship whole buoys to recycler</li></ul>
Styrofoam	<ul style="list-style-type: none"><li>• low value material</li><li>• Not all recyclers can accept this material</li></ul>
Increasing Inventory	<ul style="list-style-type: none"><li>• Stockpiles at some locations continue to grow until economically feasible solution is found</li></ul>

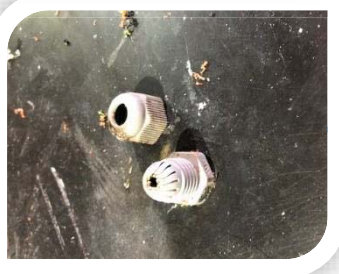
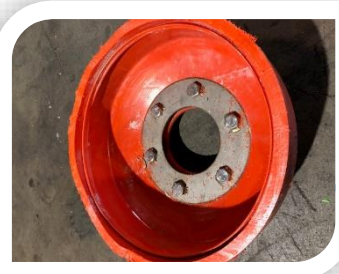
# Examples of Plastic Buoy Stockpiles







# Buoy Deconstruction (Photos)



Plastic



Metal

# Contact information



- Sarah Burger, P.Eng.
- [Sarah.burger@dfo-mpo.gc.ca](mailto:Sarah.burger@dfo-mpo.gc.ca)



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## Industry Day- Future of Plastic buoys January 2020

 Canada

# **This presentation**



- 1. Buoy Disposal.**
- 2. Colour Fading Issues**
- 3. New Buoy Direction**
- 4. Impact Requirements**



# 1. Buoy Disposal



- **Historical use of plastic buoys.**

- We have been using plastic buoys for 30 year
- Here are some of the buoys we use.



SR-30



SR-40



SR-75



SR-104



SR-60



SR-98

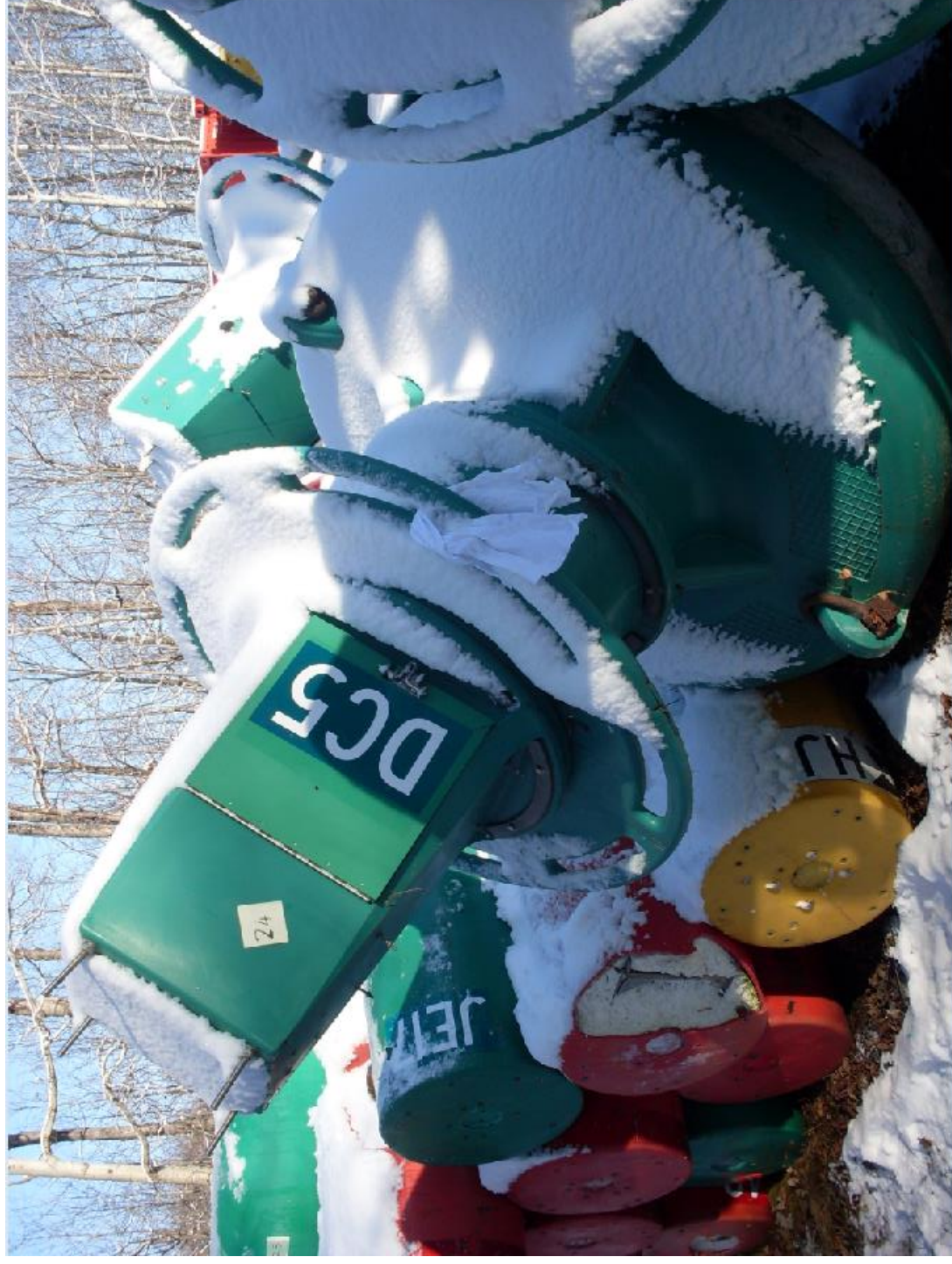
# 1. Buoy Disposal – cont'd



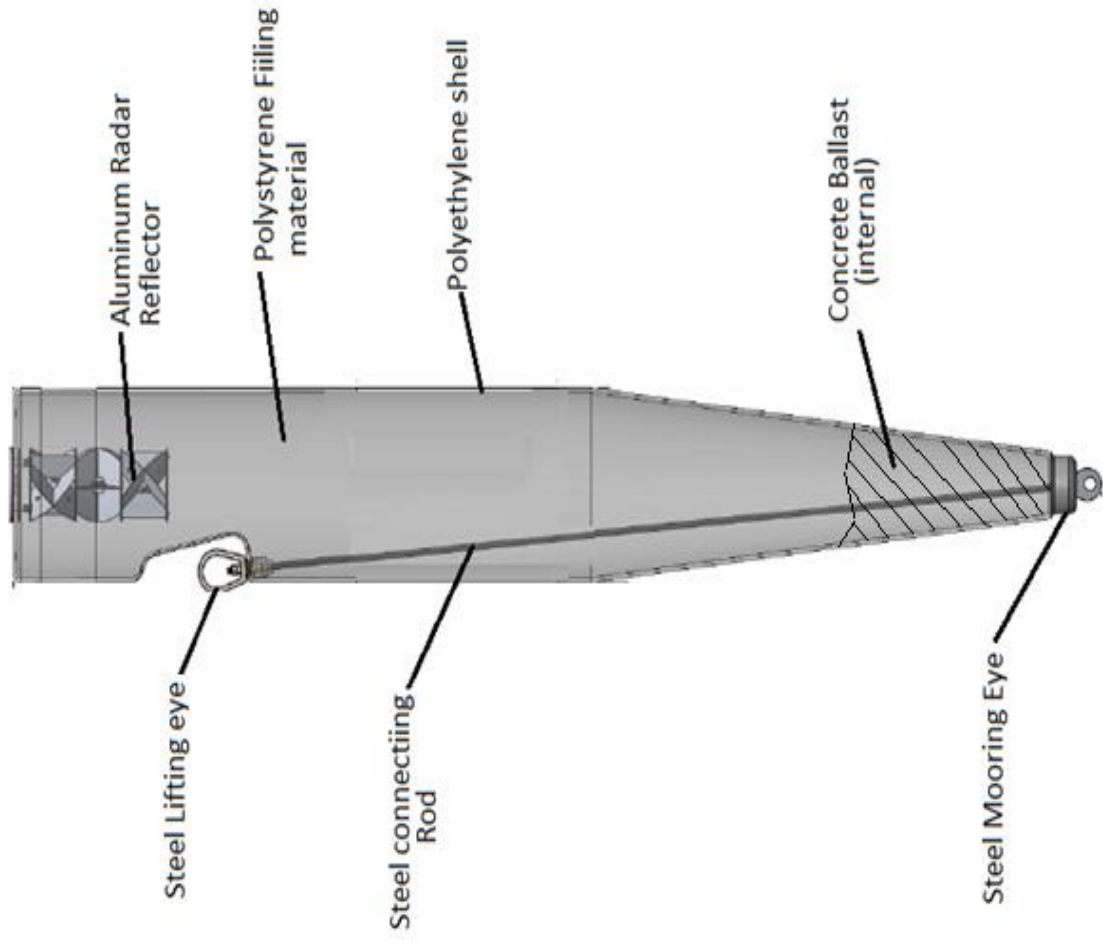
- **What's the problem:**
  - CCG bases are filling up with (discarded) buoys
  - Many different materials in buoy construction
  - Recyclers want plastics pre-separated
  - Lack of local plastics recyclers
  - Costs (recycling and transportation)



# Prescott Base Facility



# Materials within a buoy

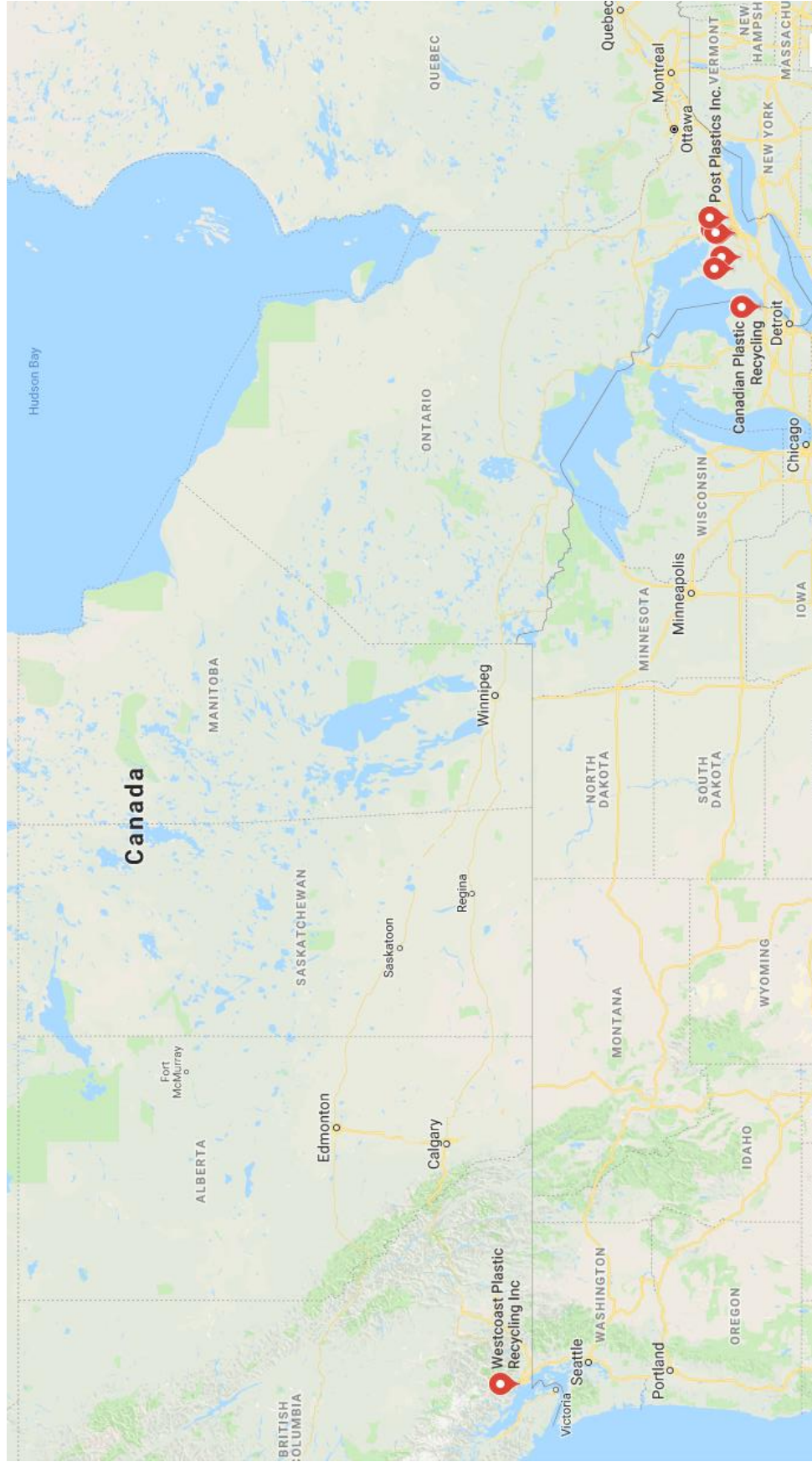




# Plastic Waste- Reality



# Plastic Recyclers in Canada



Less than 10 country wide !

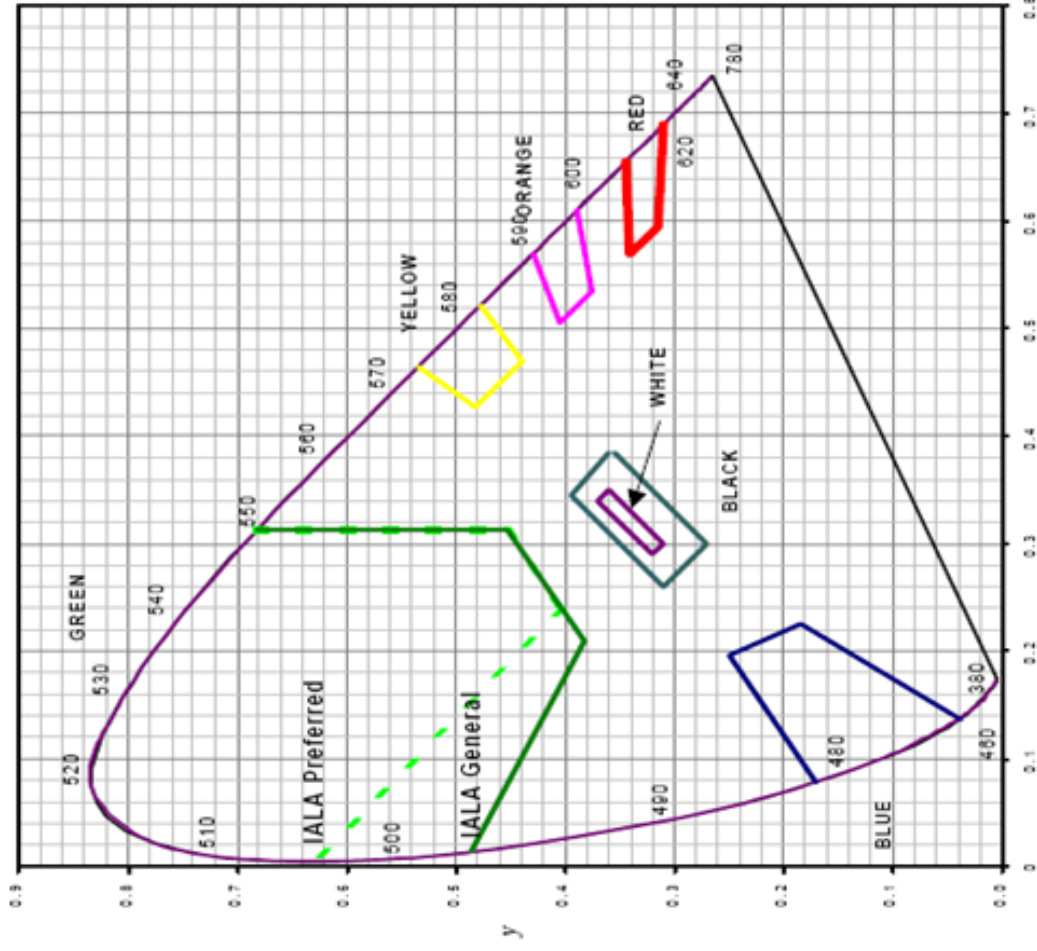


## 2. Plastic Buoy Colour Fading



Recommendation E-108 – Surface colours used as visual signals on aids to navigation  
May 1998 - Revised May 2004

Chromaticity Regions for Ordinary Colours



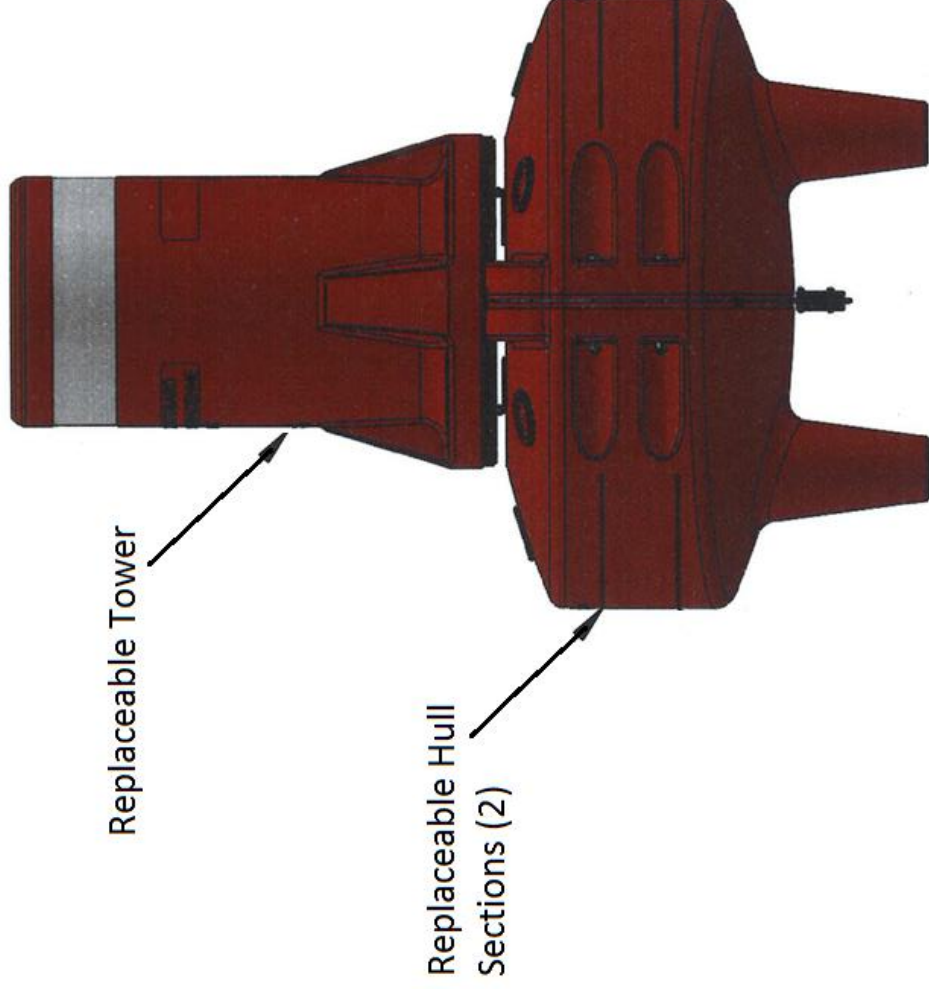
# Faded Plastic buoys



# Options 1- Buoy Modularity

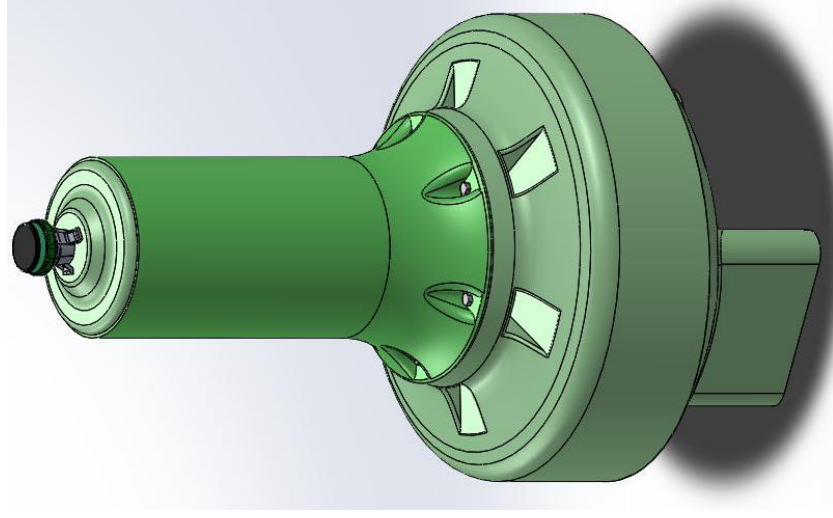
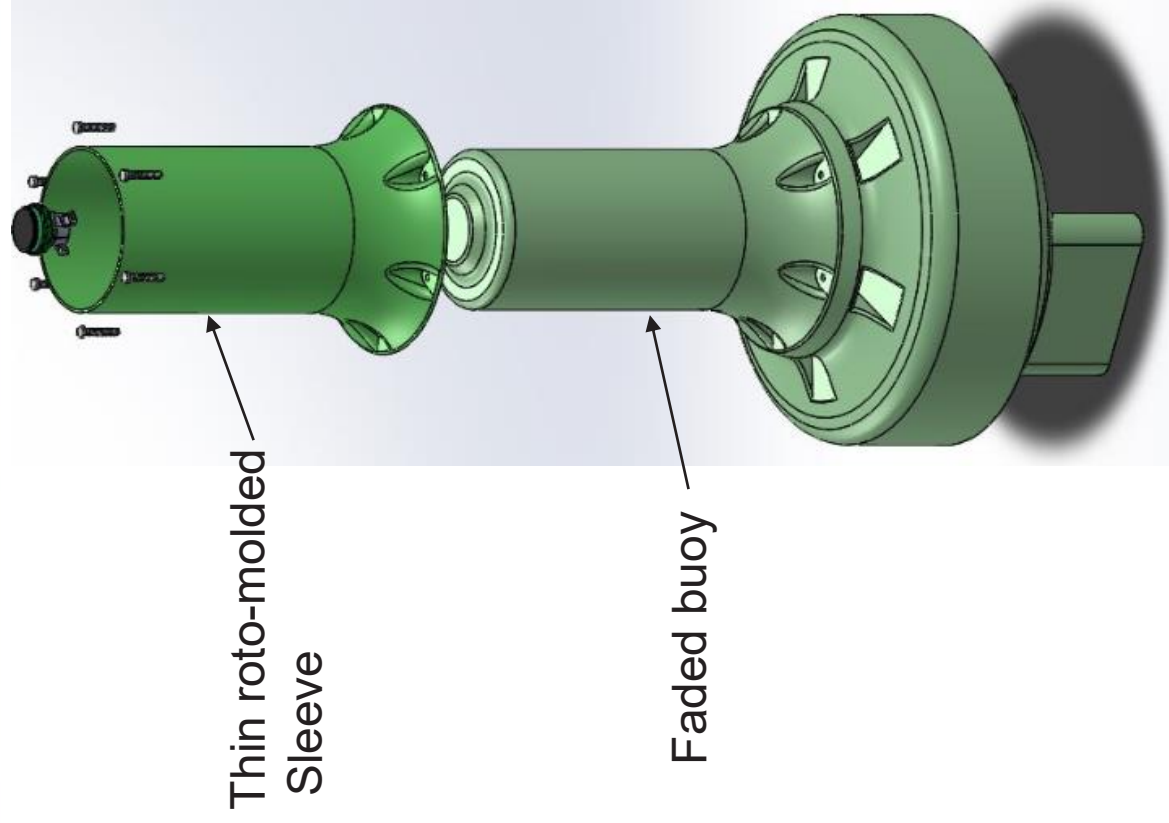


Making buoys modular means that parts can be replaced.





## Options 2- Replaceable Tower Sleeve (Rigid)



=



# Options 3- Shrink Wrap?



Polyethylene  
or  
Polyolefin



All-Shrink-Film-Styles-2\_2017.jpg



# Options 3- Replaceable Tower Sleeve (Soft)

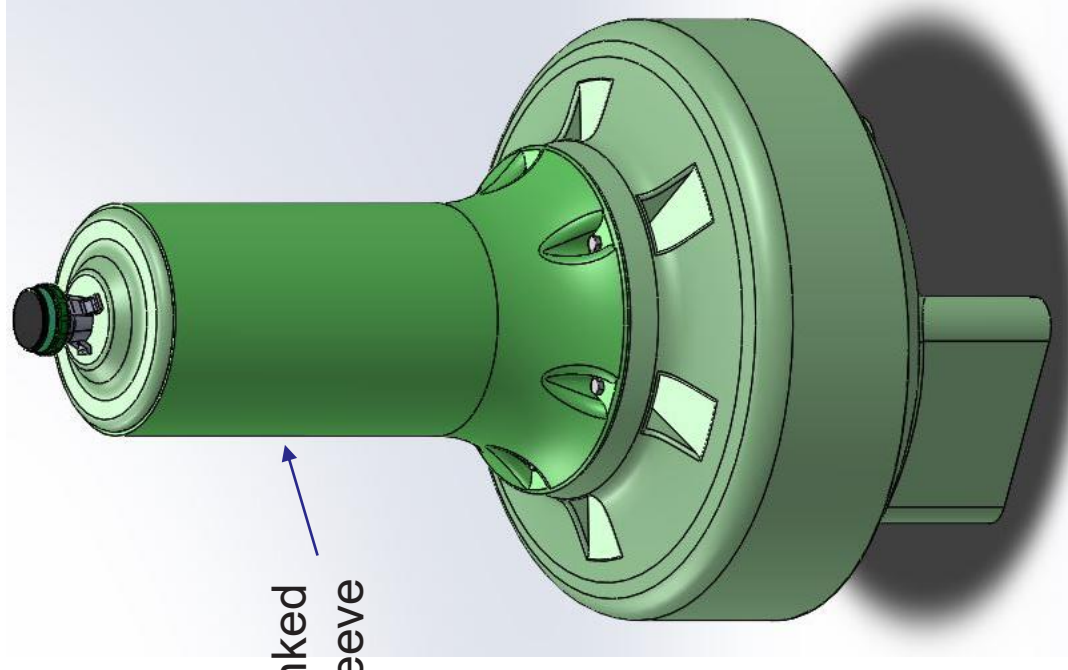


## TE Connectivity PD CAP Black, Polyolefin

RS Stock No.: 874-1504 | Mfr. Part No.: PD-CAP-3/8-0 | Brand: TE Connectivity



Heat shrunk  
Plastic Sleeve

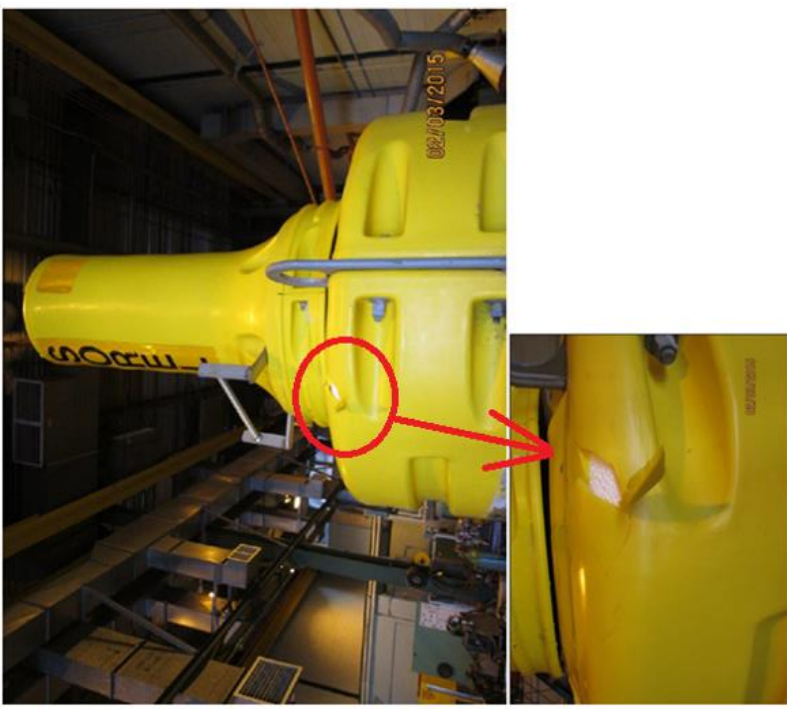


2:1 Polyolefin Heat Shrink  
Tubing - Kable kontrol®

### 3. Buoy Impact Requirement - Topics



- ***Known about polyethylene:***
  - Impact resistance relies on shell thickness and material resilience
  - UV light can affect buoy impact strength over the life of the buoy.
- ***Why we need impact requirements?***
  1. To ensure buoy quality and longevity for the CCG
  2. To 'level the playing field' so that all manufactures buoys meet the minimal impact requirements.



# Solution



- **We need an impact standard that can be used internationally**
  - CCG worked with Lloyds Register to develop the standard (last year)
  - Lloyds Register is known around the world as ‘maritime classification society’
  - After the standard is developed- they will ‘own it’ - Lloyds Register standard
- **We will use this ‘Lloyds spec as a reference ‘standard’ on future buoy specifications**



# Lloyds Testing- Prescott Ontario



## Summary- Future Buoy designs?



### ***What can we do to buoy that will:***

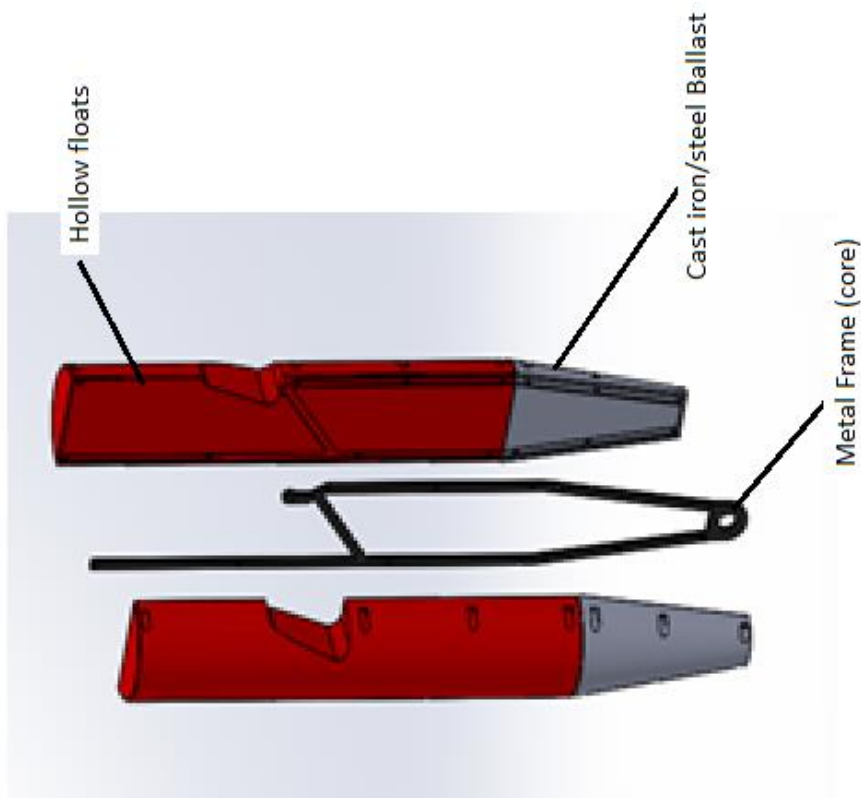
- *Reduce the amount of plastics used*
- *Make our buoys more easily recyclable*
- *Make our buoy colours last longer*
- *Make our buoys more durable*
- *Reduce life cycle costs*

## 4.New Buoy Direction: Conceptual Design



### ***Possible Solution (all parts are bolted on)***

- Making buoys more modular in construction.
  - Central structural frame connects mooring eye and lifting eye as well plastic floats and cast iron ballast .
  - Separate float sections acts like a bulkhead. If one get punctured it will not necessarily sink. Thus removing the need for Styrofoam within the float.
  - Separate steel ballast.
- Next revision will include a hollow pocket on the inner side of the float sections where the radar reflector housed.





## Questions/ Feedback







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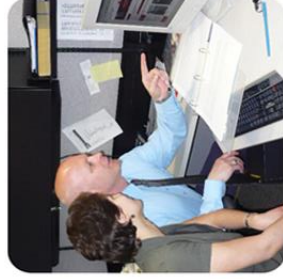
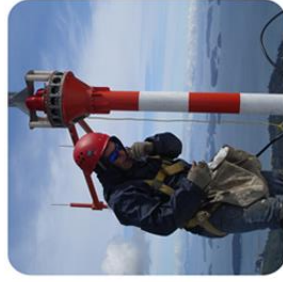
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January 2020



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# Aids to Navigation (AToN) Batteries

**Sarah Burger, P.Eng**

CCG AToN Industry Day

January 21, 2019

**Canada**

# Outline



- Background
- Operating Environment
- Challenges
- Battery Requirements
- Strategy Options

# Background



- CCG uses alkaline battery pack to power lanterns for Sabik and Four Season Buoys (4SB)
- Alkaline D-cells wired together
- In waterproof polyethylene pipe



Sabik Buoys



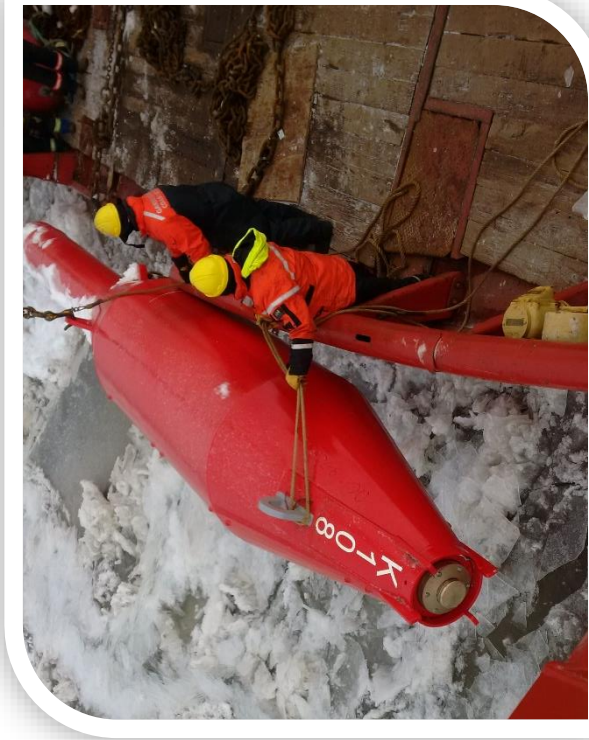
Battery Packs



# Environment



- St. Lawrence Seaway (& Great Lakes)
- Water temperature: of 0°C to +20°C
- Air temperature: -35°C to +35°C
- Handling: high shock
- Environment: Ice & current



# Challenges with Current Battery



- **Drawbacks with current Alkaline battery**

Issue	Description
Weight	<ul style="list-style-type: none"><li>• Weight ranges typically from 60kg - 90kg</li><li>• Cumbersome</li><li>• Occupational health/safety issue (max 23 kg/person)</li></ul>
Supply Chain	<ul style="list-style-type: none"><li>• Vulnerable to supply chain interruptions</li><li>• Potential impact on operations if delivery unavailable</li></ul>
Hydrogen Gas	<ul style="list-style-type: none"><li>• Alkaline batteries produce hydrogen gas (H<sub>2</sub>)</li></ul>
Disposal Costs	<ul style="list-style-type: none"><li>• Outer casing not designed for disassembly</li><li>• Heavy: high freight costs for shipping units for recycling</li></ul>

# Battery Compartment – 4SB



- Battery is located below the water-line in both the 4SB and the Sabik buoy





# General Requirements



Requirement	Description
Service Life	<ul style="list-style-type: none"><li>▪ Minimum: 2 years</li><li>▪ <b>Target: 4+ years</b></li></ul>
Season of Operation	<ul style="list-style-type: none"><li>▪ <b>12 months:</b> majority of lanterns</li><li>▪ 9 months: select # of lanterns</li></ul>
Operating Temperature	<ul style="list-style-type: none"><li>▪ 0°C to 20°C</li></ul>
Physical Design	<ul style="list-style-type: none"><li>▪ Lighter (50lbs target)</li><li>▪ <b>Fully waterproof</b></li><li>▪ Capable of handling shock</li><li>▪ Environmentally friendly to fullest extent possible</li><li>▪ Modularity: add or subtract capacity depending on power needs.</li><li>▪ <b>Ease of disposal at end of life</b> (i.e. reusable casing)</li></ul>

# Strategy Options



## Status Quo (stay with Alkaline)

- Source more suppliers of current technology

## New Primary Battery Technology

- Evaluate alternative battery technologies (i.e. lithium)

## Hybrid system – solar power and primary battery

- Develop “ice lantern” for 4SB capable of solar power

## Overarching Policy Review – Changing user requirements

- Potential lantern intensity reduction – currently at 4nm
- Reduced lantern intensity = reduce battery power needs

# Contact information



- Sarah Burger, P.Eng.
- [Sarah.burger@dfo-mpo.gc.ca](mailto:Sarah.burger@dfo-mpo.gc.ca)

# Questions?





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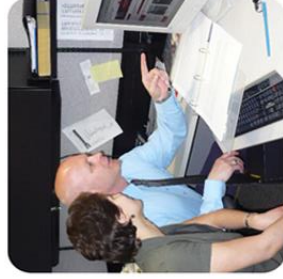
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# Aids to Navigation (AtoN) Program



Sécurité d'abord, Service constant



## Smart Lantern Project for 4SB

Industry Day

January 2020

 Canada

# Actual Electrical System - Challenge



- **A rugged Ice Lantern | Sabik MPV-LED**

- 6 Watts output
- 4 nm (focus)
- Poor vertical divergence
- Communication is difficult



- **A huge primary battery pack | Celltech**

- 24.5 V
- 85 kg
- Not green (Alkaline cells)
- Produces hydrogen gas





# Objectives



- Improve energy efficiency / vertical divergence
- Enhance connectivity
- Adapt the programming with the Environment
- Additional sensors
  - battery status, buoy behavior, fog and heavy rain
- Reduce battery pack size / mass and greener solution (rechargeable, or a mix of primary and rechargeable battery)
- Add solar panel - increase reliability & reduce battery pack

# Trial at Laval University

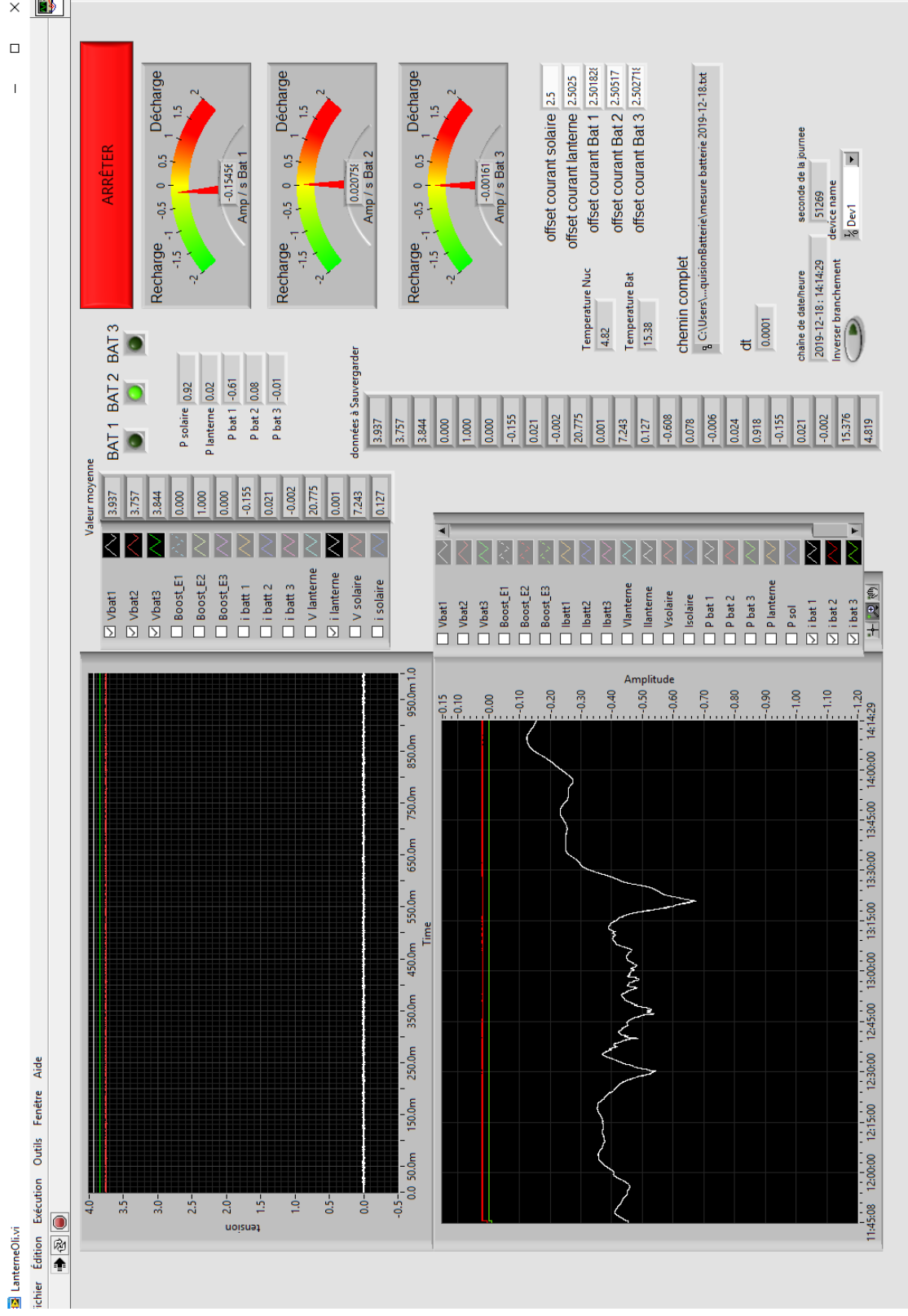


- **Bench test**
  - Bench test installed on University roof (Laval)
  - Sabik MPV-LED (using quick mode – 0.3s ON, 0.7s OFF)
  - 6 solar panels (7.2V, 10W, 440in<sup>2</sup>)
  - Battery divided in 3 separate packs, using rechargeable lithium cells with an autonomy of 3x 10 days (30 days total)
- **Goal**
  - Proof of concept
  - Gather data on the available energy during winter
  - Design a new battery pack and solar panel

# Bench Test – Laval University

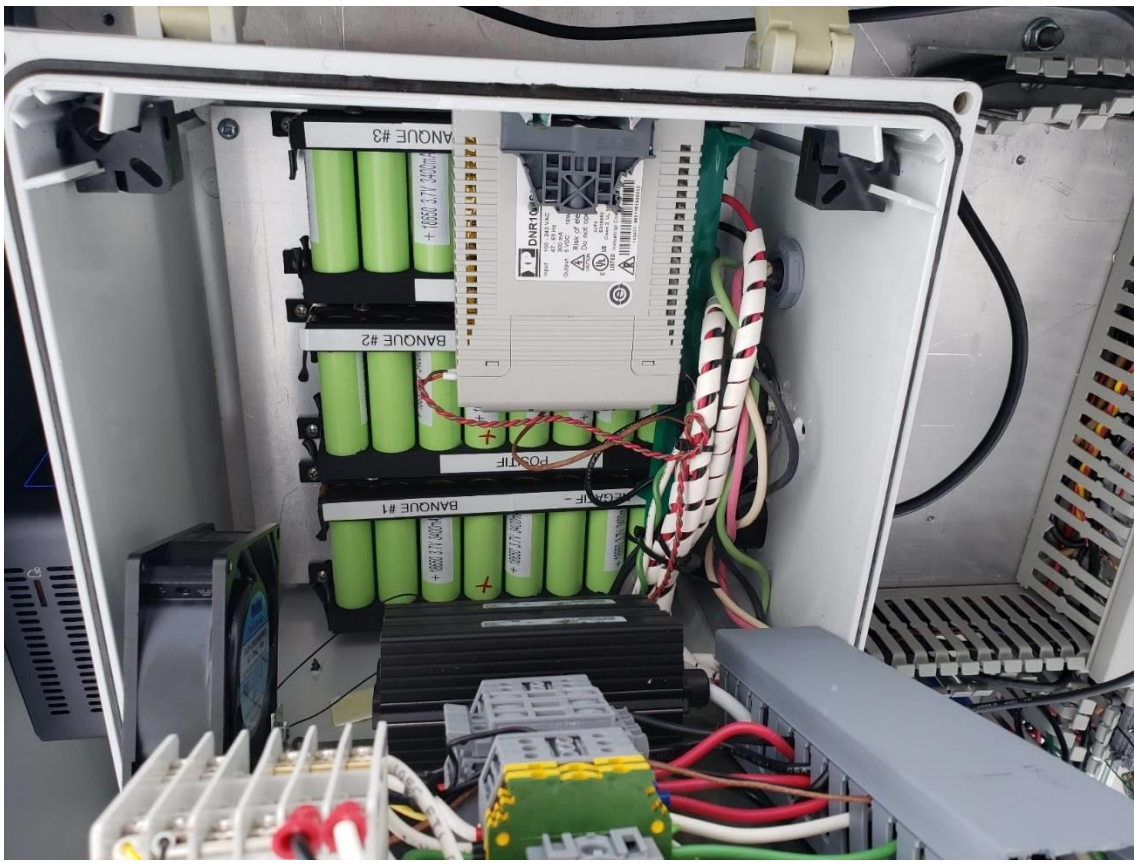
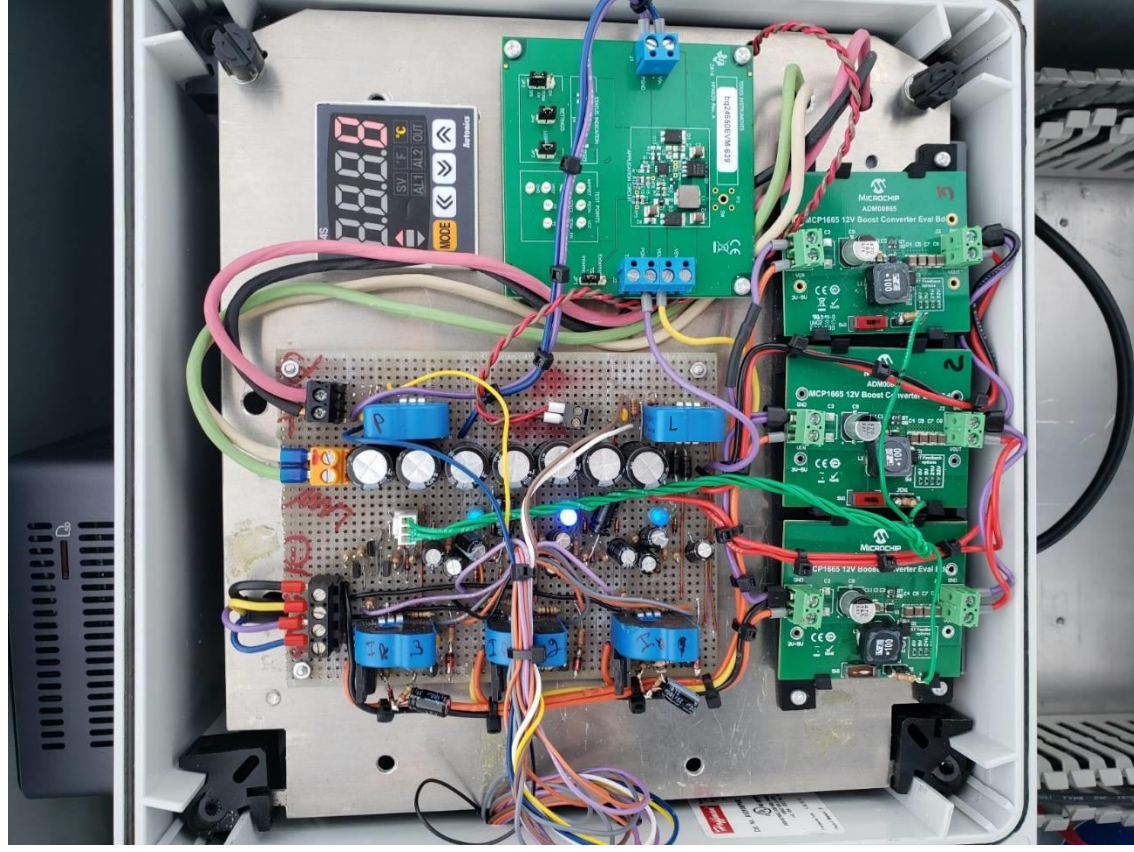


# Bench Test – Laval University

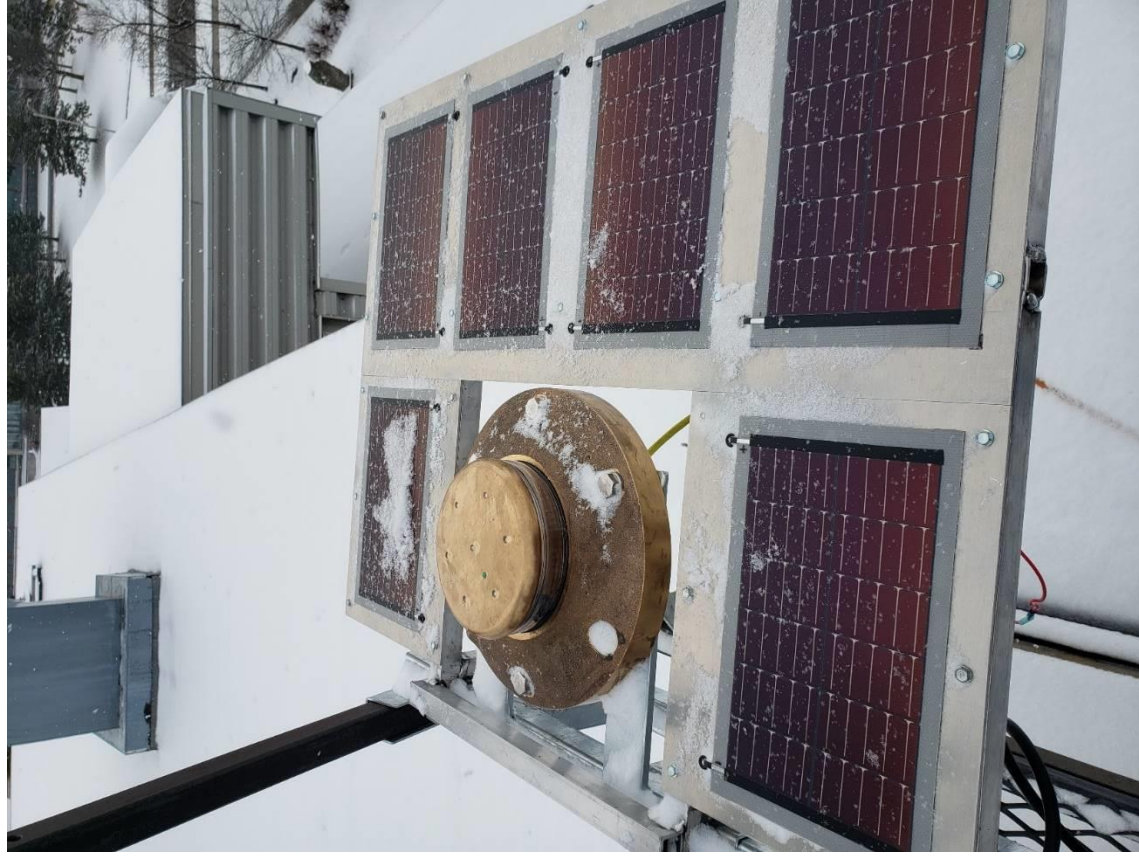




# Bench Test – Laval University



# Bench Test – Laval University





The background of the slide is a dark teal color with a complex network of thin, light blue lines connecting various points. Some of these points are highlighted with small, bright blue starburst or lens flare effects, giving the impression of a digital or technological network.

# CGX Innovation Hub

# Presentation Overview

- [1] CGX Innovation Hub and Strategic Vision
- [2] Core Areas of Interest and Inquiry
- [3] The Bigger Picture – Interconnectivity
- [4] Communication – Open Discussion



# CGX Strategic Vision

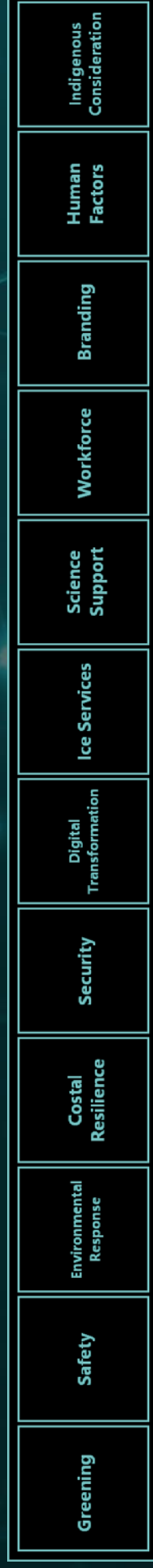


Work with partners across the organization and beyond to find opportunities, understand challenges for which new and novel concepts or designs might provide solutions to organizational requirements or initiatives.

Identify challenges that exist today, tomorrow and into the future:

- applying innovative solutions that currently exist
- identifying innovation in early or conceptual phases of development
- fostering innovation to solve the problems for which there are no current solutions (challenge programs)
- ensuring evolving operational requirements and future technologies are considered to meet Coast Guard's needs into the future

# CORE Pillars of Consideration



**Identify** and **Target** key areas within broader Coast Guard mandate with the aim of:

- improving operational efficiencies
- meeting climate and environmental goals
- fostering a healthy and productive work environment
- improving indigenous relations and opening channels for positive discourse
- helping secure and protect Canada and all Canadians
- promoting Canadian innovation and commercialization
- keeping Canadian waterways clear and navigable in support of economic activity



# CORE Questions

## Environmental Response

- adding sensors that could detect environmental conditions including:
  - presence of synthetic materials
  - oil
  - algal blooms, etc.
- early warning for environmental responders
- interconnectivity could help to quantify scale
- data to feed into machine learning models

## Greening

- responsible manufacture / environmentally safe materials
- reduction of ocean gear and waste
- considering AtoNs that reduce visual pollution and underwater radiated noise
  - Infrared or "Smart" illumination
  - synthetic moorings, etc.
- leveraging opportunities to improve vessel routing through enhanced navigational information, and thus reduce energy consumption

## Safety

- increase effective response time
- real time data transmission
- increased situational awareness

## Digital Transformation

- "Smart Grid" of interconnected sensors
- easily accessible real time data (meteorological / climatological / ice / sea-state)
- signal boosting
- increased efficiency from AtoNs (more from less)
- direct and rapid communication between AtoNs and vessels:
  - enabler of autonomous vessels / fleet navigation
  - increased situational awareness
  - automatic network alerts for weather or other adverse conditions



# CORE Questions

## Science Support

- adding science packages to AtoNs equipped with data uplink
  - climate research/modeling
  - forecasting
  - monitoring biodiversity
- large interconnected datasets to feed into machine learning programs for:

## Security

- adding “detection” packages to AtoNs equipped with data uplink to improve MDA (Maritime Domain Awareness) and detecting unknown vessels
- rapid transmission of tactical information through signal boosting and network connectivity
- cyber security

## Indigenous Consideration

- reducing visual and material presence in waterways and oceans
- reducing impact on economic and cultural practices
- quantifying climatological effects on indigenous life

## Economic Sustainability

- keeping waterways clear / Ice Services
- ensuring viability of marine ecosystems in support of sustainable economic activity

# The Bigger Picture

**CGX**  
Innovation Hub

What unites the **CORE** areas in relation to the AtoNs?

- navigation
- climate change
- sustainable economic development

Can **AtoN** help realize broader initiatives in the Canadian Coast Guard **BEYOND** the realm of **NAVIGATION** ?

What do you think?

**Let's have the discussion.**