Canada’s Air Pollution Regulations
Port State Enforcement

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OBJECTIVES

• Canada’s experience enforcing air pollution regulations under the North American Emission Control Area
  o Enforcement
  o Best Practices/Lessons Learned

• Links to future enforcement of GHG regulations under the Initial IMO Strategy on Reduction of GHG Emissions from Ships
TIMELINE FOR AIR EMISSIONS RELATED STANDARDS

2011
- Global sulphur standard 4.5%
- Emission Control Areas at 1%
- New ships need to meet NOx Tier II standards

2012
- January, global sulphur standard reduced to 3.5%
- August, North American ECA comes into force (1% sulphur)

2013
- May 8, 2013, Updated Canadian Regulations come into effect
- EEDI required for new ships
- No EEDI reduction target
- SEEMP required for all ships

2015
- All ECAs set to 0.1% sulphur
- EEDI target set to 10%

2016
- All new ships operating in an North American ECA must meet NOx Tier III standard
- Study of supply of low sulphur fuels to be completed

2020
- Based on fuel study, global standard for sulphur reduced to 0.5%
- EEDI target set to 20%
EMISSION CONTROL AREA (ECA)

- North American ECA (NA –ECA) proposed by Canada, the United States, and France was adopted by IMO on March 26, 2010.
- The NA-ECA came into force on August 1 2012, along with related regulatory changes…which are stricter limits:
  - on high sulphur fuels used by ships; and
  - on nitrogen oxides (NOx) emissions from ships.
NORTH AMERICAN ECA: BENEFITS

Expected Canadian benefits

• The NA-ECA is expected to reduce ship emissions of sulphur oxides by 95% and nitrogen oxides by 80%
• Reducing these pollutants will have a range of public health benefits; from lower mortality to fewer hospital admissions and restricted activity days.
• Annual benefits estimated to be over $1 billion in public health savings

Reduced health impacts attributable to ship emissions
NORTH AMERICAN EMISSION CONTROL AREA (ECA)
ENFORCEMENT ACTIVITIES

- PAIRS report review and follow up
- FONAR review and follow up (approval/rejection)
- Fuel oil sampling during inspections followed by certified laboratory testing.
- Paris and TMOU MOU – concentration inspection campaign for 2018
FUEL OIL SAMPLING

- Introduced August, 2016
- Obtain and review relevant ship documents related to fuel quality
- Confirm sufficient fuel on board for remaining in ECA area
- FO change over procedure and changeover record
- Bunker delivery note
PRE-ARRIVAL INFORMATION REPORT SYSTEM (PAIRS)

• Required 96 Hours Prior To Arrival

• Vessels are required to report:
  • Classification society
  • Required certificates
  • P&I club
  • Master information
  • Cargo carried
  • Type and quantity of bunkers carried, including sulphur content
  • List of charts ID numbers and country catalogue to be used for transit approach to Canada
  • Any conditions of class against ship with brief details.
NON-AVAILABILITY OF LOW SULPHUR FUEL

• While voyaging in Canadian waters designated as an Emission Control Area, vessels must make an effort to obtain compliant fuel.

• If compliant fuel is not available, vessels must complete a Compliant Fuel Oil Non-Availability Report (FONAR) and submit it prior to arriving at the next Canadian port without deviating from the vessel’s planned route.
ALTERNATIVE COMPLIANCE

- Alternative compliance to meet SOx and NOx emissions is available through the use of:
  - Scrubbers
  - Selective Catalytic Reduction
  - Alternative fuels
  - Other technology
LESSONS LEARNED/PATH FORWARD

• The fuel testing results have shown a 94% compliance rate

• Fuel non-availability reports are declining yearly

• Continuing to encourage alternative measures such as better technologies where applicable

• Continue to work with Industry Stakeholders and NGO’s to improve environmental performance which is achievable
GREENHOUSE GAS MEASURES

• In April 2018, the International Maritime Organization (IMO) agreed on an ‘Initial IMO Strategy on Reduction of GHG Emissions from Ships’

• The initial strategy includes a list of 20 candidate measures that could be used to reduce GHG emissions in the short, medium and longer-term

• In October 2018, the IMO agreed to a Programme of follow-up actions up to 2023 and invited concrete proposals for candidate measures to be considered at the next meeting of the Marine Environment Protection Committee in Spring 2019.
IMO CANDIDATE MEASURES

The range of candidate measures is quite broad and complexity of enforcement would be varied. Measures could be categorized as follows:

Measures with no issues related to enforcement - these measures could be implemented with limited need for enforcement. Examples could include voluntary measures, R+D, national action plans, etc.

Measures that fit existing approaches to enforcement – these measures would fit into existing enforcement mechanisms. Examples could include measures tied to EEDI and fuels

Measures that would be more difficult to enforce and would need innovative approaches – enforcement of these measures would be complex and require significant analysis prior to implementation. Examples could include speed reduction and optimization and market-based measures
## ANTICIPATED CHALLENGES DURING IMPLEMENTATION

**EXAMPLE: SPEED REDUCTION AS A MEASURE**

<table>
<thead>
<tr>
<th>Expected challenges</th>
<th>Mitigation actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Reporting</td>
<td>• Require speed changes to be included in ship log book</td>
</tr>
</tbody>
</table>
| 2 Compliance        | • IMO Data Collection System  
                      | • Flexibility (e.g., operate at optimal speed for 70% of voyage) |
| 3 Safety issues     | • Exceptions for adverse weather |
EXAMPLE OF A VOLUNTARY SPEED MEASURE - CASE STUDY

• Implementation of a voluntary measure to mitigate whale collision risks in St. Lawrence River;
• Included a slow-down area, no-go area, caution area, and recommended route;
• Presence of a mandatory pilotage area overlapping with the slow-down area was instrumental to facilitate communication regarding mitigation measure;
• High compliance resulted from commitment from government to transparent process; use of available data, tools and institutions; involvement of environmental certification program; adoption of adaptive risk management approach; flexibility for industry to determine cost-effective and relevant mitigation measures.
THANK YOU

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