

# Benchmarking for Water and Wastewater Utilities

2009 First Nation Water and Wastewater Operator Conference

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**AECOM**

# Presentation Outline

- Benchmarking has worked as an effective tool to support water and wastewater utility management
- What do we mean by “benchmarking”?
- Case study for benchmarking in Canada
- Is benchmarking applicable to First Nation communities?
- There are some unique challenges to benchmarking small communities, but the principles are the same.
- There are good “best practice” and INAC resources available, but to get the benefit, you need to get started and keep it simple.

# National Water and Wastewater Benchmarking Initiative

- Begun in 1998, is focused on the Canadian municipal water and wastewater sector
- Developed as a tool to help utilities learn from one another: It is not about ranking or “who is better”.
- It is not a “one time only” effort, but should be part of an annual management process
- Not technical in nature, but it is “hard work”
- Non-proprietary: Open methodology and metrics

# Our Definition of Benchmarking



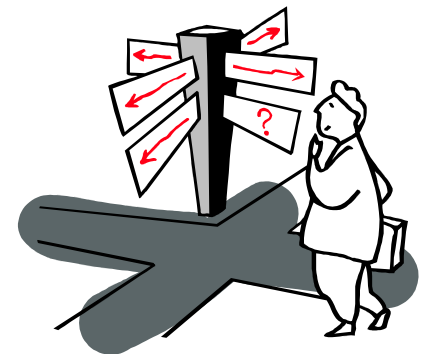
**How do we compare?**

**How well are we doing?**

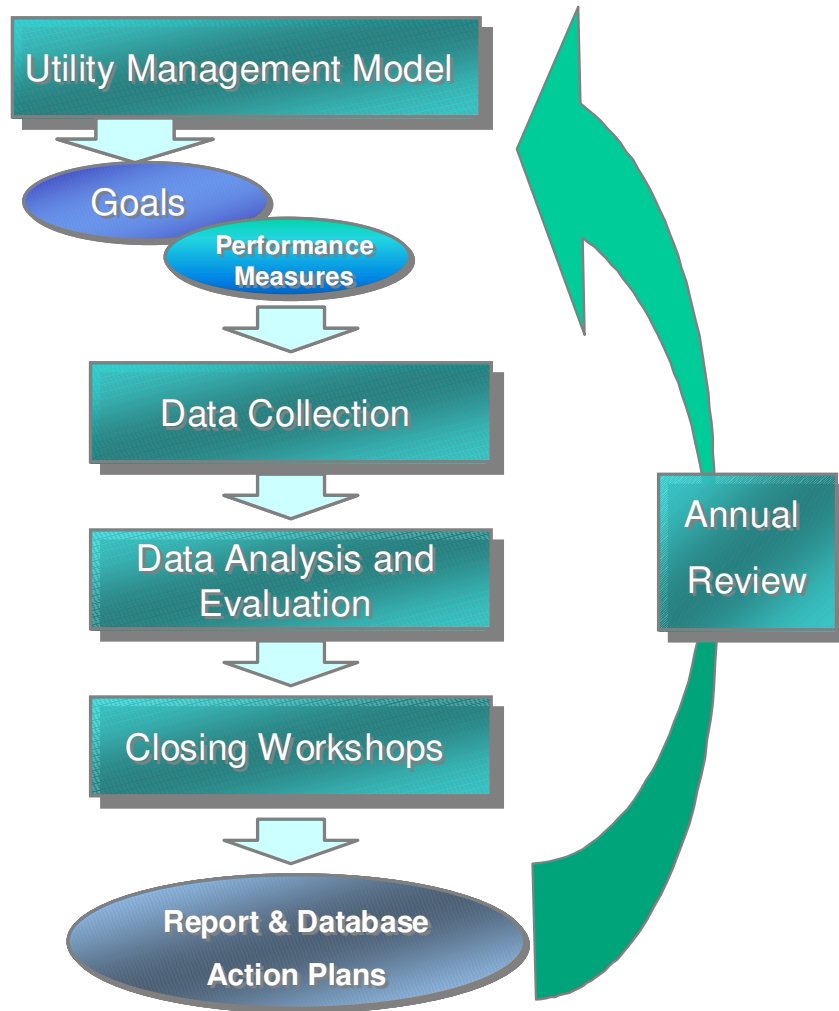
**Are we providing value for money?**

**And then:**

**How can we improve?**

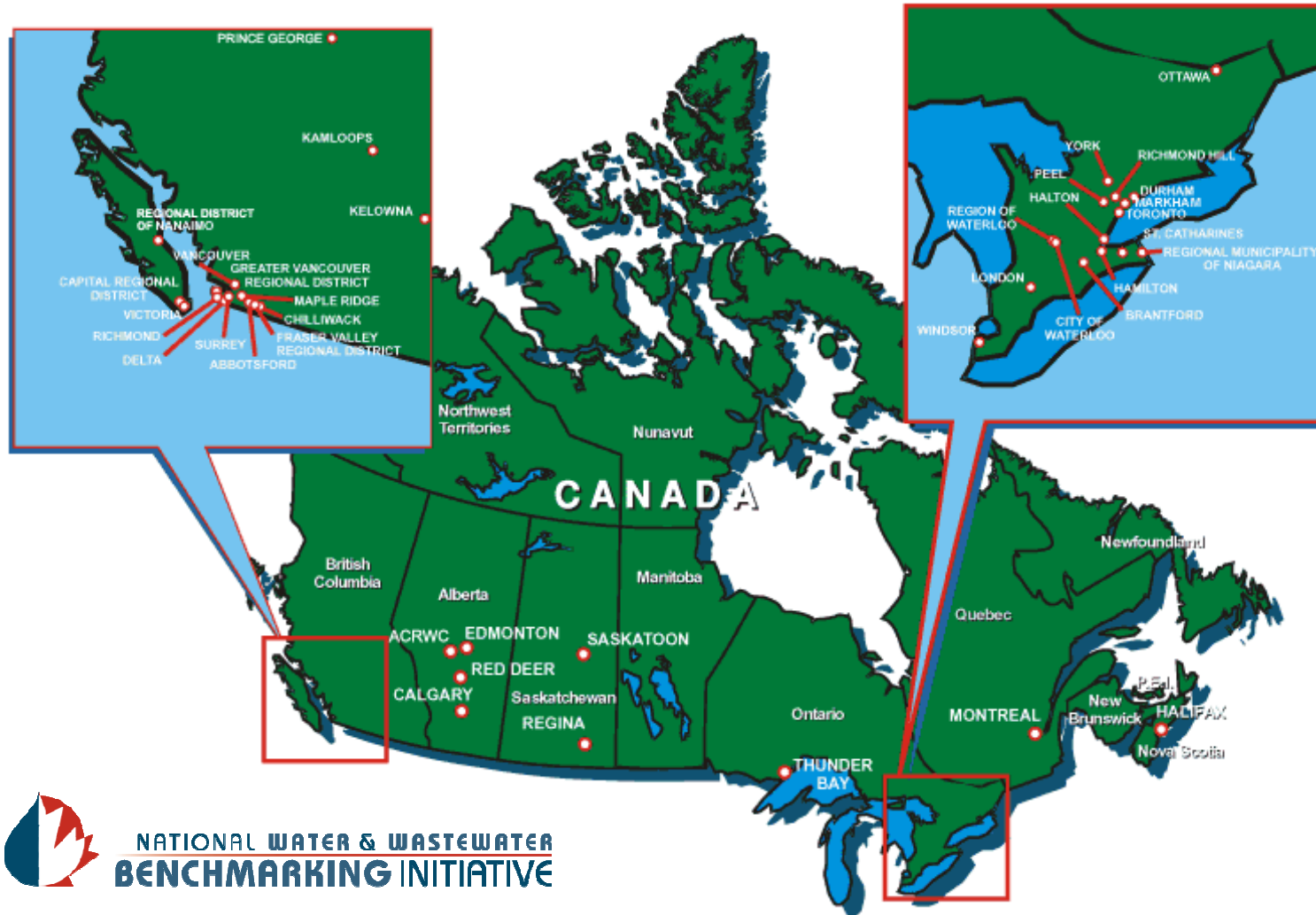


# Annual Benchmarking Cycle



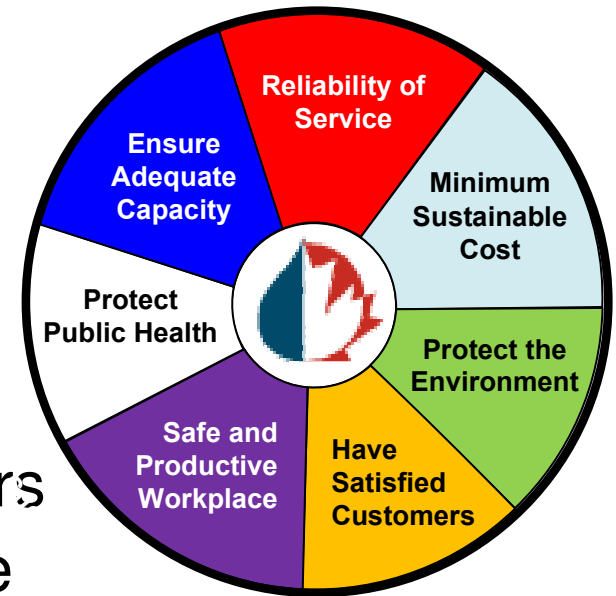
- Conventional methodology
- Annual cycle
- Great care taken to ensure each task is completed thoroughly
- Communication amongst participants is key to success

# Participation is National: Coast to Coast



# Measuring the Attainment of Key Utility “Goals”

1. Reliable and sustainable infrastructure
2. Provide sufficient capacity
3. Meet service requirements at sustainable cost
4. Protect public health and safety
5. Provide a safe and productive workplace
6. Have satisfied and informed customers
7. Protect the environment and minimize environmental impacts



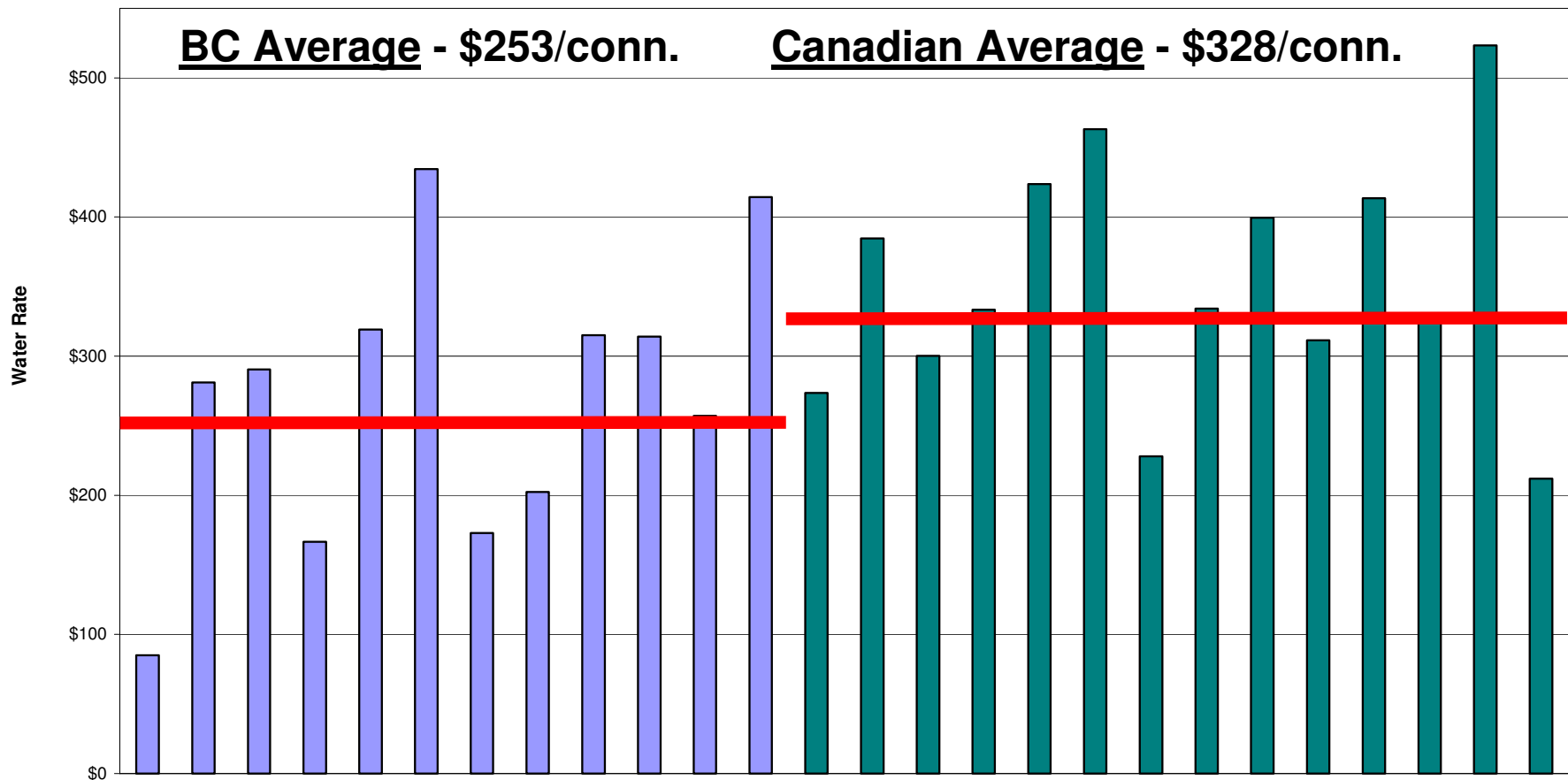
# Case Study: Water Utilities in BC Compared to Water Utilities in the Rest of Canada

## Part 1: Costs and Fees

# Average Annual Charge for a Typical Residential Water Connection: ( based on 330 m<sup>3</sup>/year where metered)

## BC Water Utilities

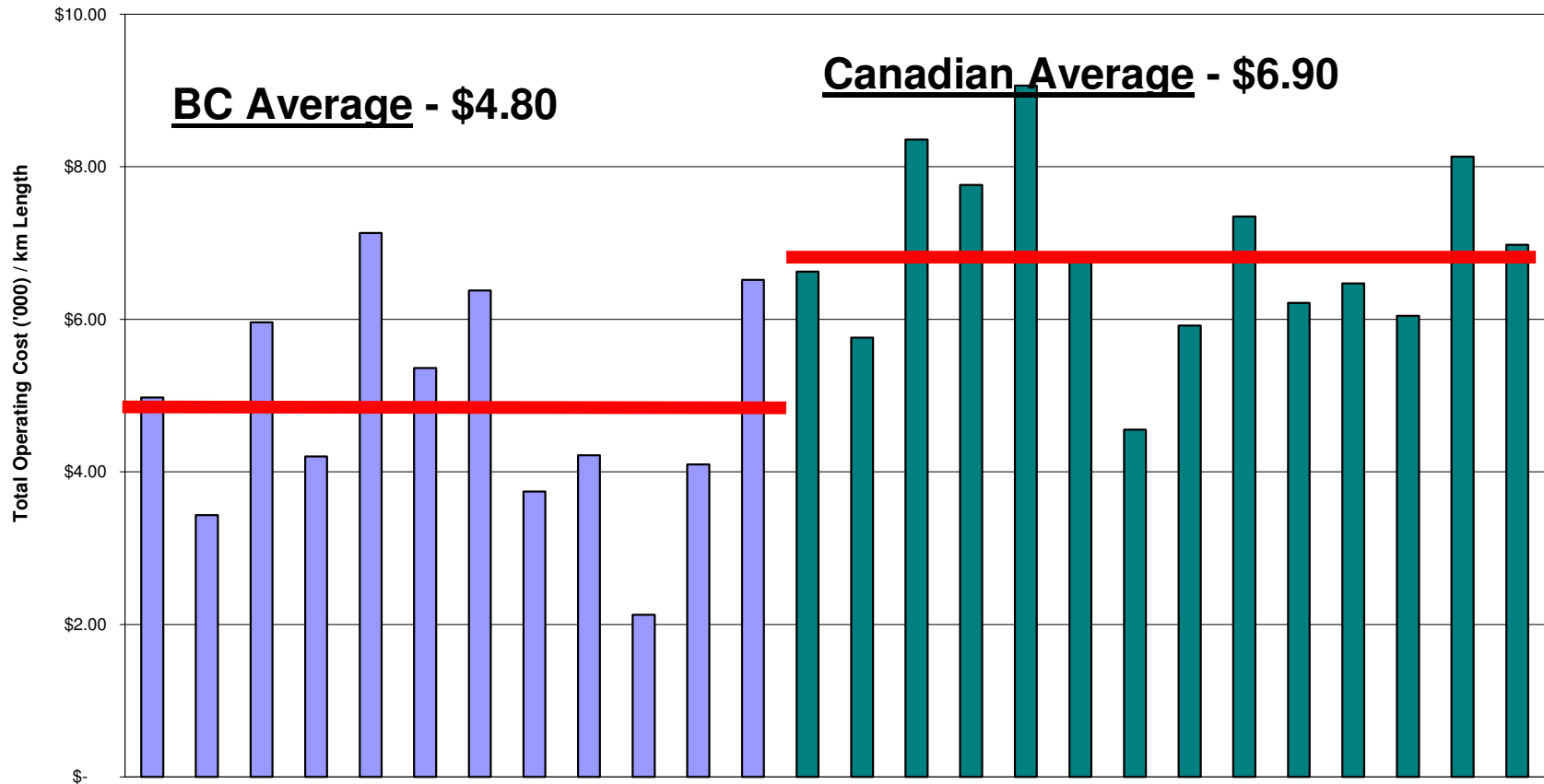
## Water Utilities from Other Provinces



# Operations & Maintenance Cost: (\$/km Length)

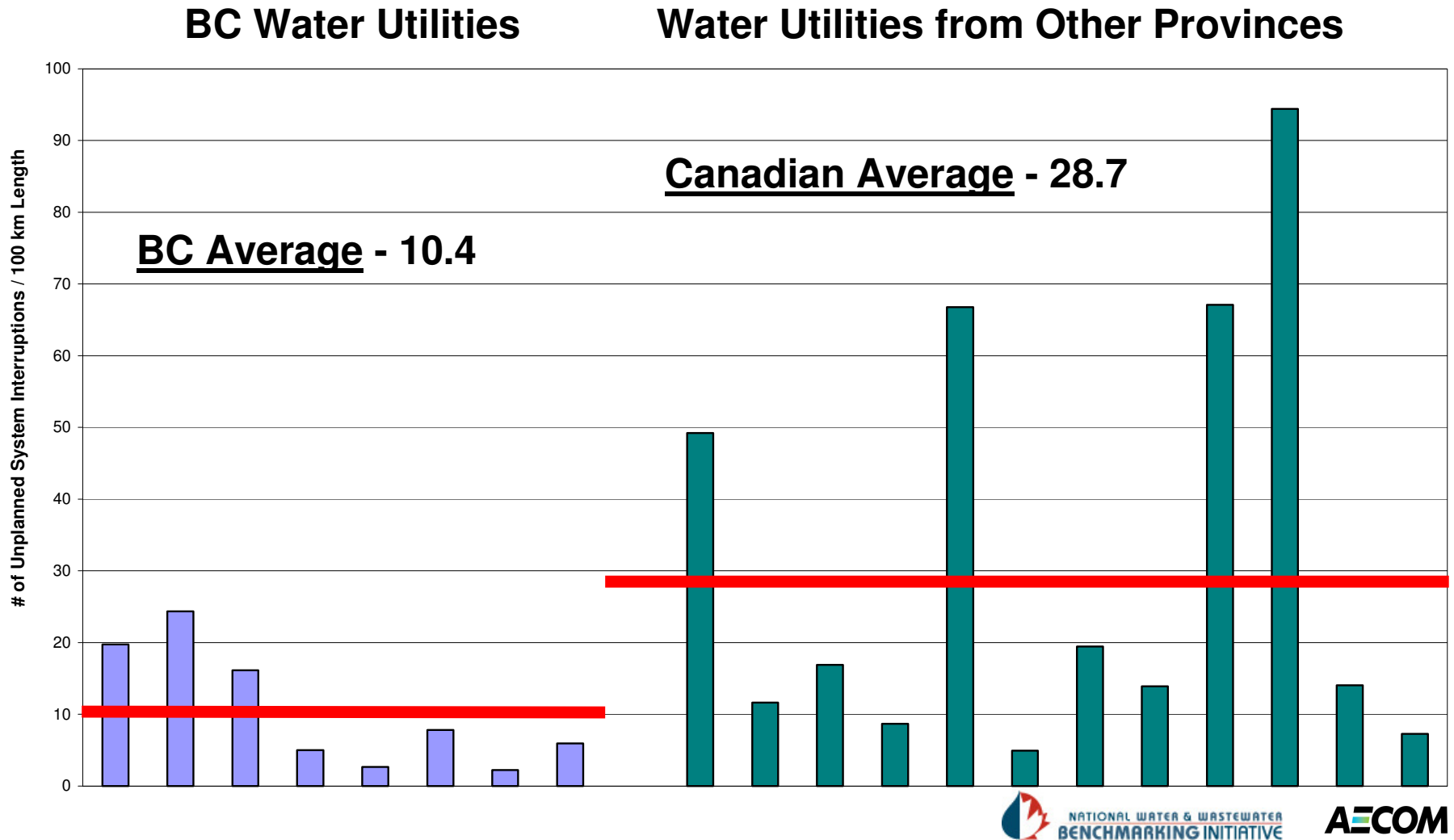
## BC Water Utilities

## Water Utilities from Other Provinces

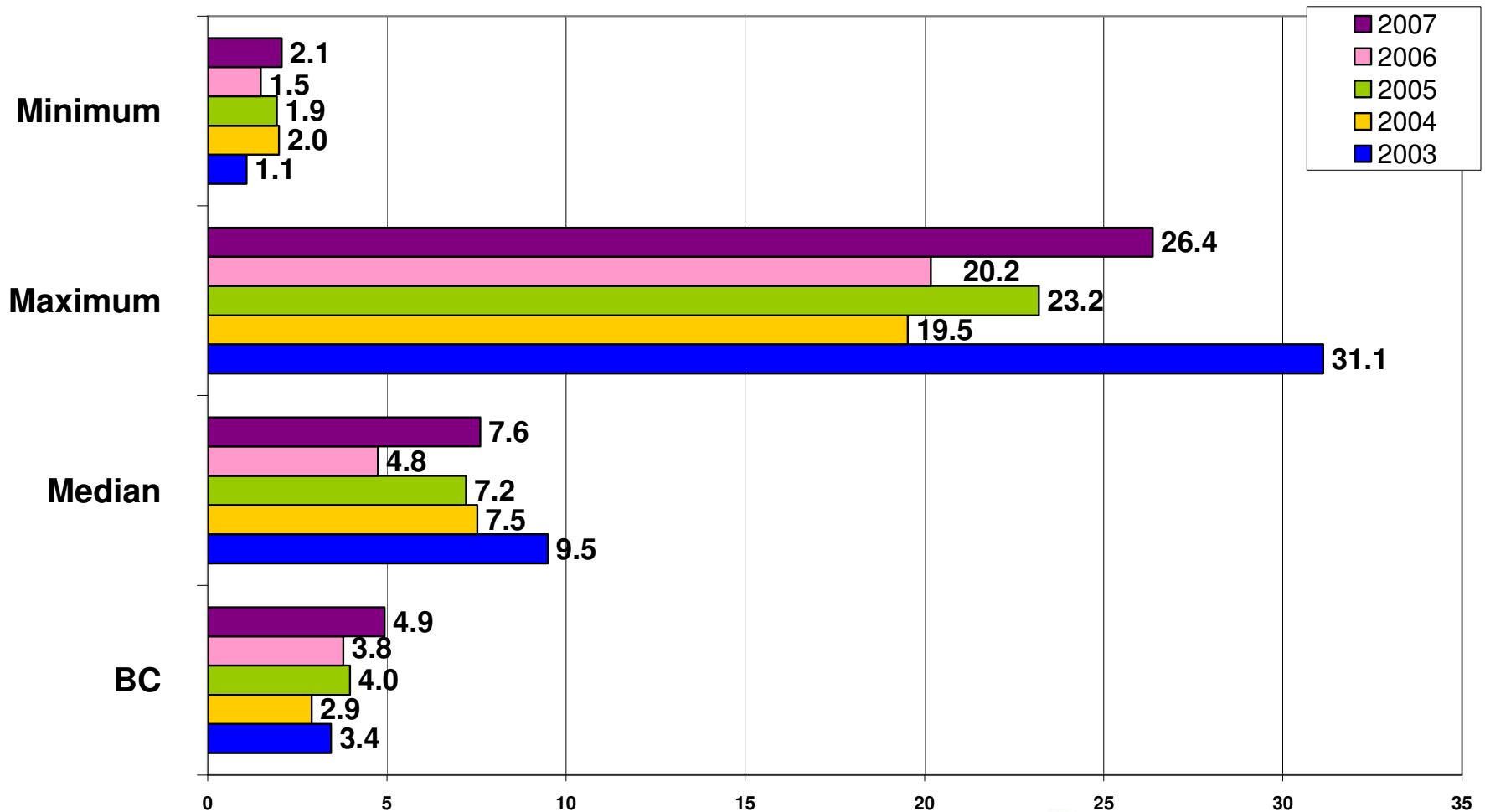


# Part 2: System Reliability

# Unplanned System Interruptions: (#/100km)



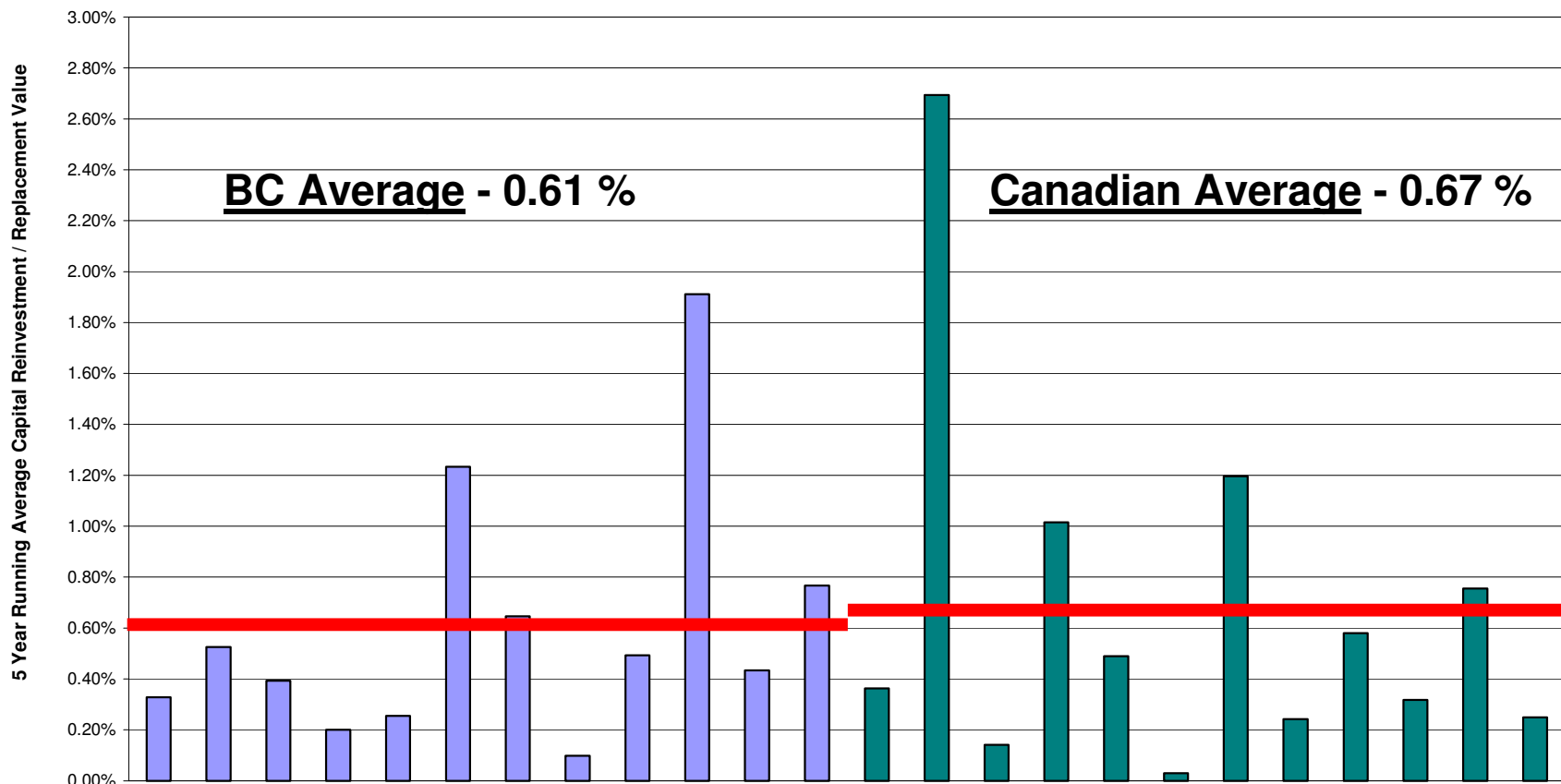
# Reliability: Water Main Breaks / 100 km of Length



# Infrastructure Renewal through Capital Reinvestment: (5 year Average Reinvested/ Replacement Value)

## BC Water Utilities

## Water Utilities from Other Provinces

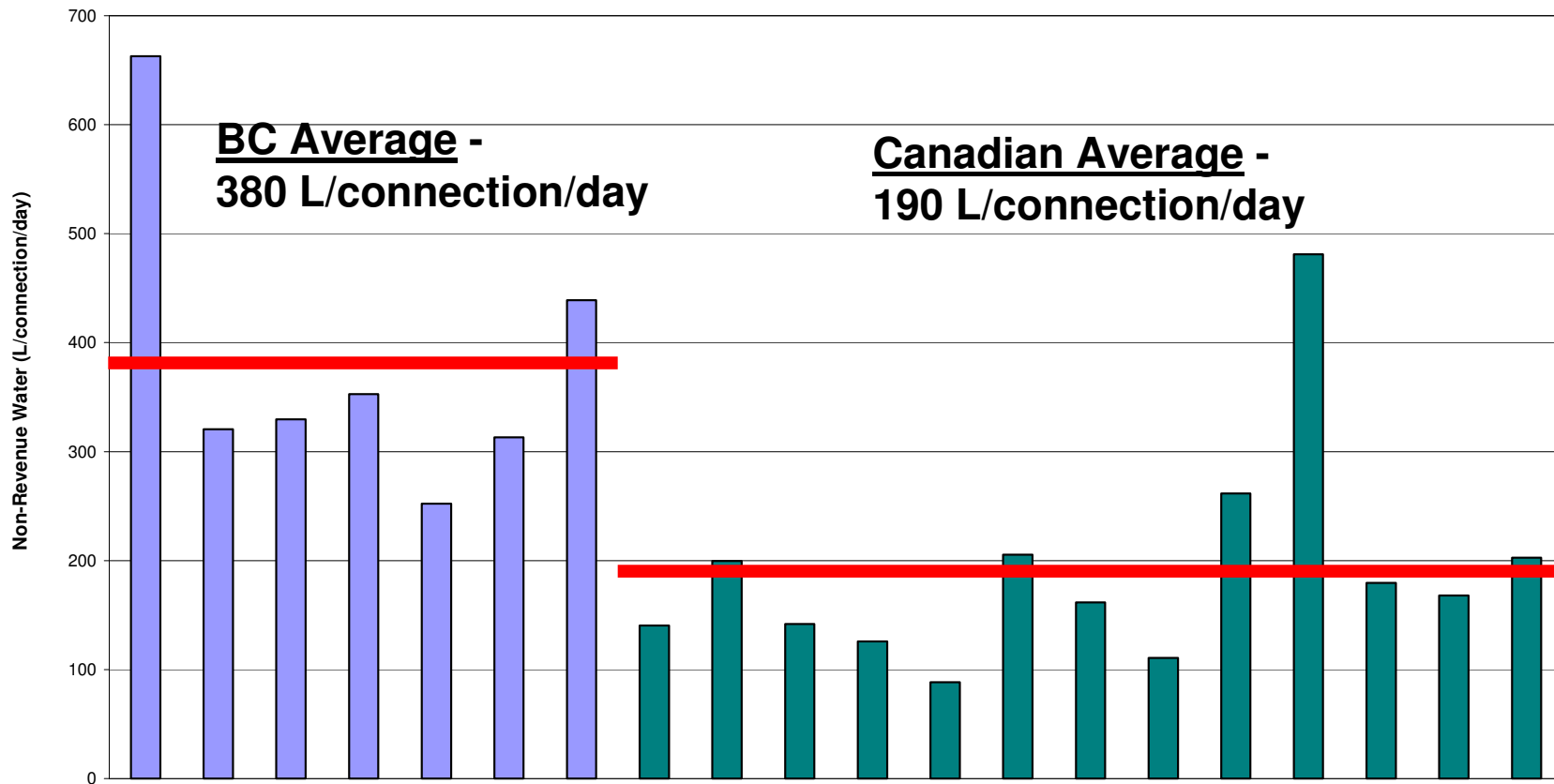


# Part 3: Water Use and Resource Stewardship

# Non Revenue Water: (Litres/connection/day)

## BC Water Utilities

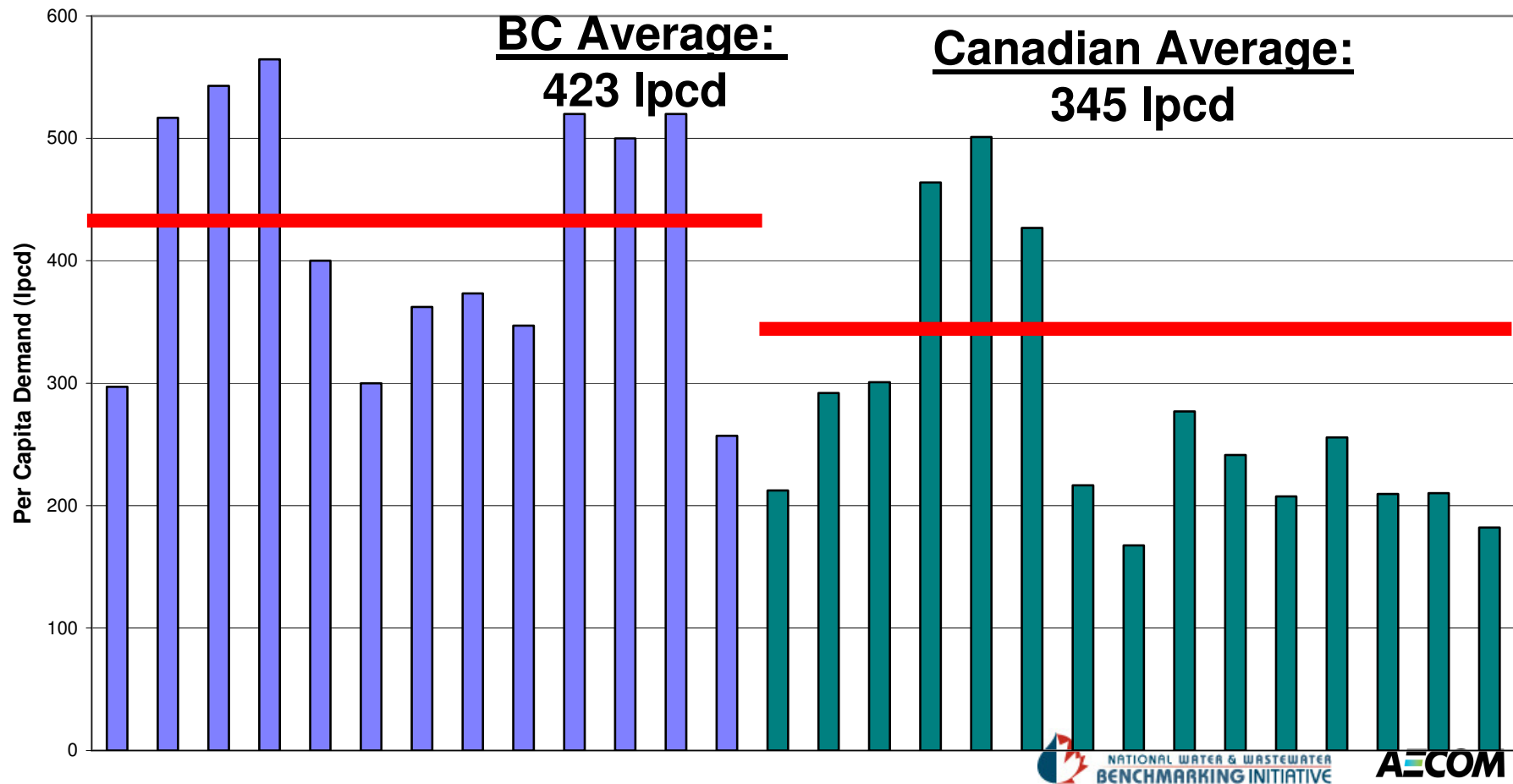
## Water Utilities from Other Provinces



# Single Family Residential Water Use: (Litres/capita/day)

## BC Water Utilities

## Water Utilities from Other Provinces

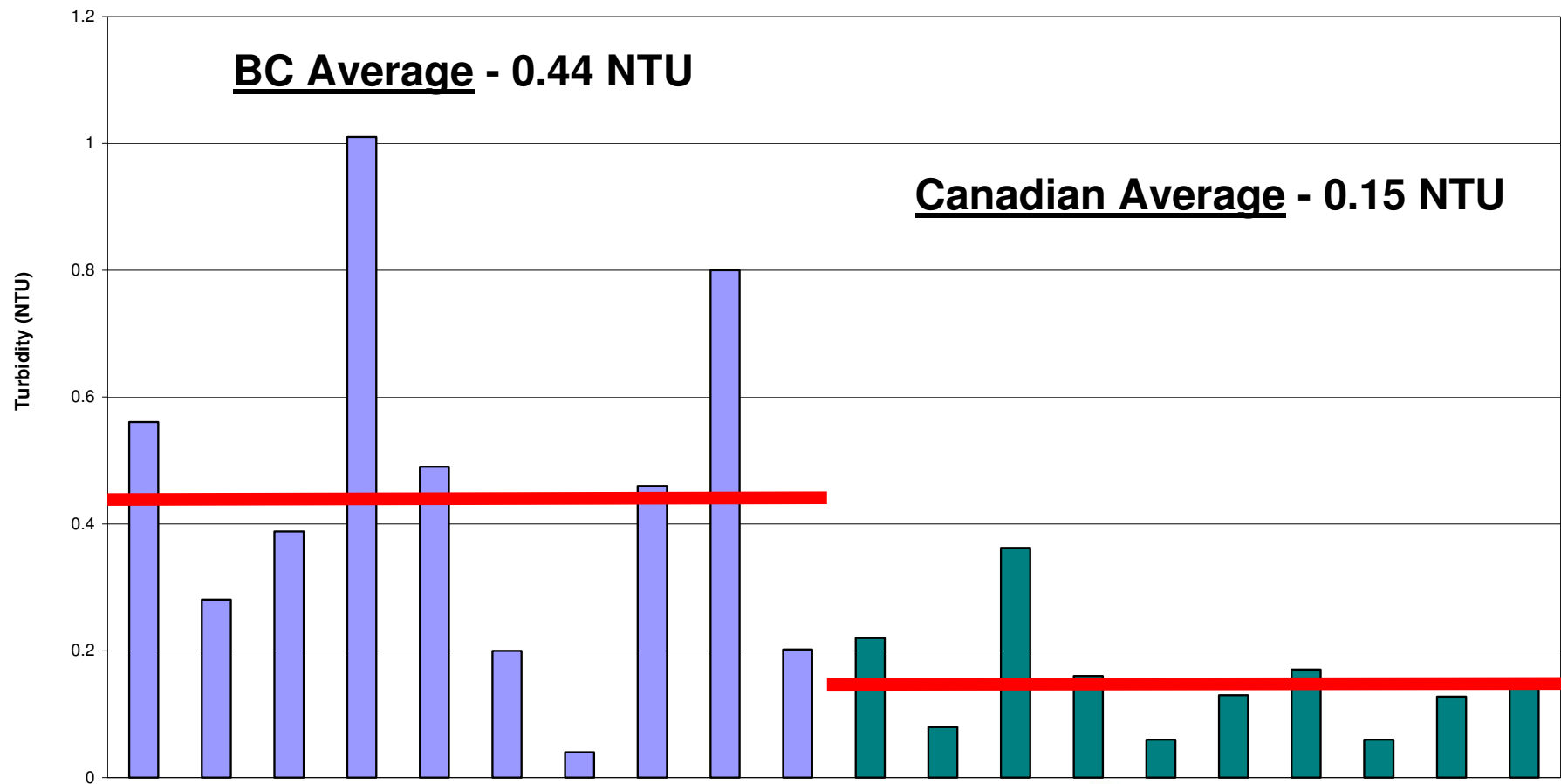


# Part 4: Water Quality

# Drinking Water Turbidity: (NTU)

## BC Water Utilities

## Water Utilities from Other Provinces



# Some Observations

# BC's Water Sector is in Transition

- Many systems are still unfiltered (and moving to filtration)
  - Significant cost impact
  - Results in higher quality water
- We consume a large volume of water. With globally standard management practices, many non-metered systems can reduce consumption by as much as 50%
- Our water systems tend to be reliable...for now.
- Water is still very cheap. Too cheap.
  - Get ready to pay for filtration, metering, and renewal all at the same time.

# The Situation in BC according to Benchmarking

- Water distribution sector is on the 166 year renewal plan: Though it is up from the 250 year plan in 2001, it is still not sustainable.
- Water demand side management works, but you will need universal metering to make large progress
- DO NOT implement metering with a message that it will save consumers money. It won't. This is the flaw with voluntary metering. You risk running short of revenue.
- Water rates in BC are way too cheap. We are nowhere near full cost recovery.

# Benefit of Benchmarking and Performance Measurement

- Did anything I tell you surprise you?
- Performance measurement adds context to issues.
  - Start dealing with facts supported with numbers
  - Get away from “antidotal” examples.
  - Allows you to build true business cases: How much money would I be willing to spend to deal with the problem?
- Allows Councils and Stakeholder to provide quality input
  - Their questions and directives can be translated to numerically supported impacts.
  - Allows informed decision making.

# Using Benchmarking Results:

- Benchmarking “results” are only a start and almost never express “good” or “bad”.
- You need to look “behind the numbers”;
- Benchmarking mean nothing if you don’t do something with the results.
- To improve, you have to change, and change is always hard.
- Performance measurement is not a “one time only” activity. It must be part of continuous operations. It must become part of the organizational culture.

# Benchmarking in First Nation Communities

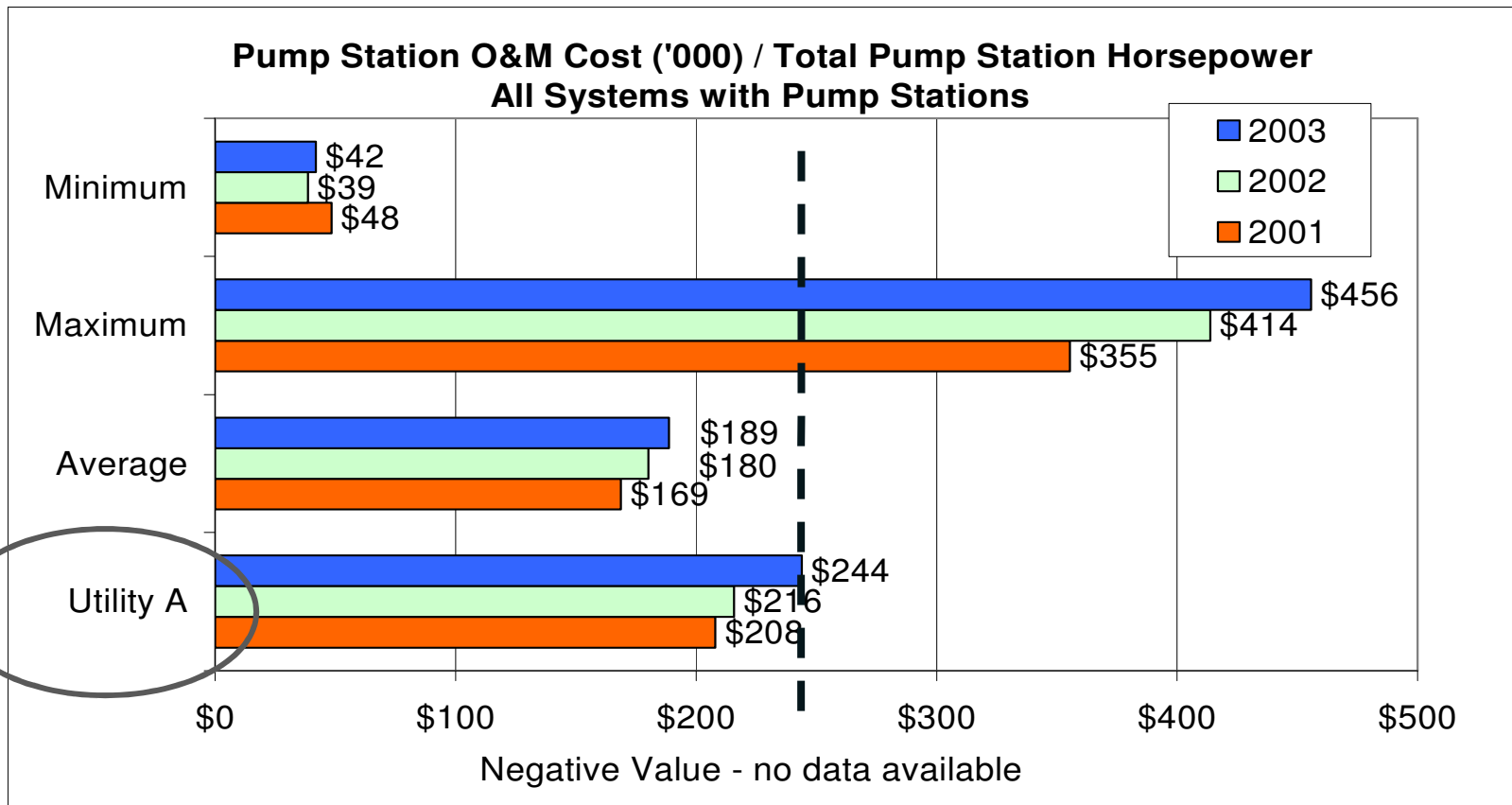
# Sounds great!

- ....but can this approach be applied to First Nation Communities?

# Benchmarking for First Nation Communities

- It's going to be difficult. There are challenges:
  - Economies of scale
  - Lack of documentation/data
  - Remoteness of some communities
  - Turnover
  - ...etc...
- Metrics may be different...but the methodology is the same...

...because wouldn't you like to know where you are?



# Whatever you do must be performance based

- What do you want to accomplish?
- How do you know when you get there?
- How are you doing now?
- What can you do to improve?

Gap  
Analysis

***“You cannot improve what you do not measure”***

# Example Performance Measures

- Capital reinvestment cost / replacement value
- # of main breaks / km length
- O&M Staffing / km length
- O&M cost / km
- Pump Station Energy consumed / Pump station Hp
- # boil water advisories / year
- % passing Water Quality results / total

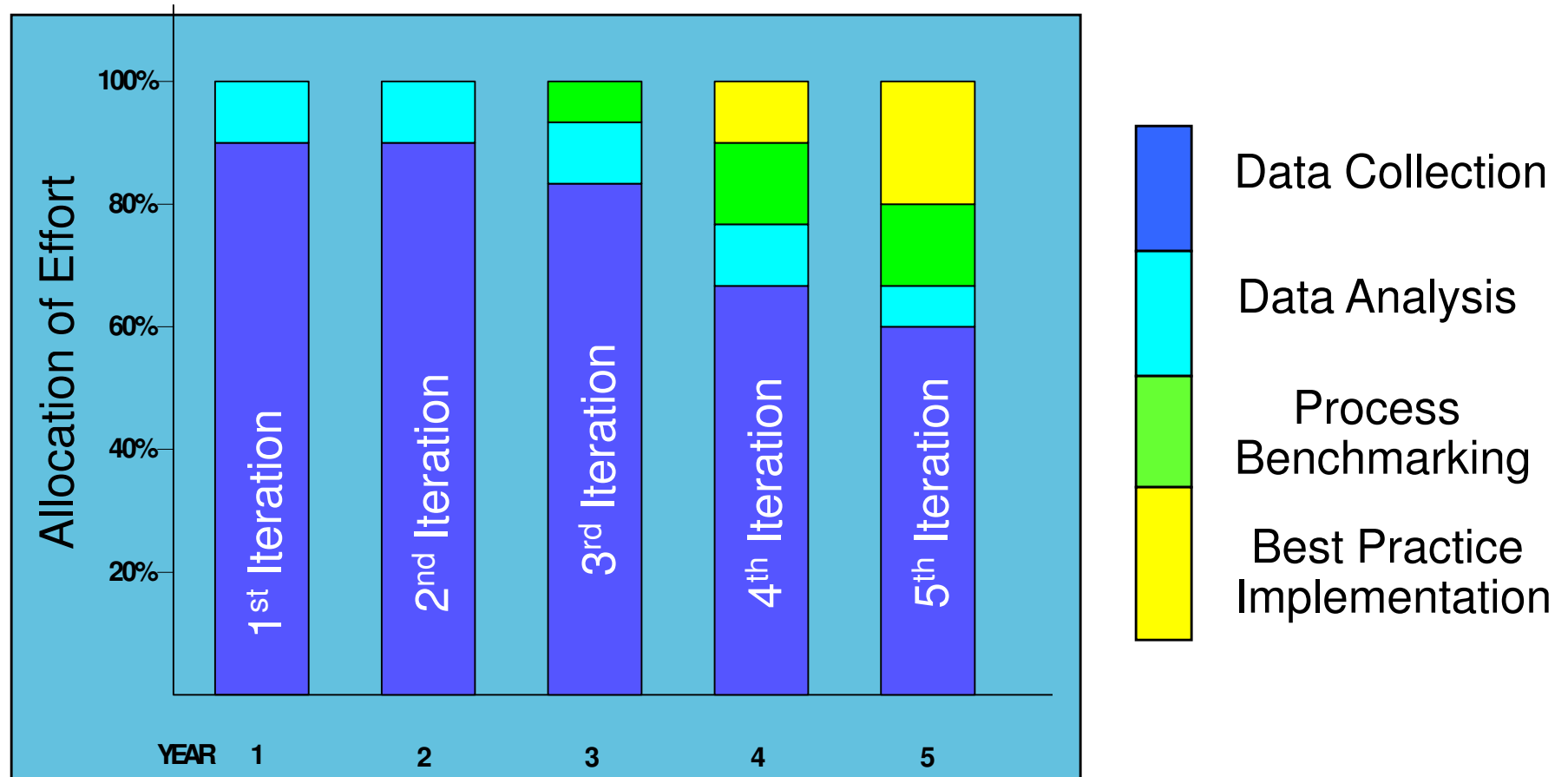
# Performance Indicators are Available and Ready for Use

- ...there are over 70 Key Performance Indicators for Water and Wastewater Utilities listed on the Benchmarking website....they're not a secret and they are free:

[www.nationalbenchmarking.ca](http://www.nationalbenchmarking.ca)

- CSA S2029 – Performance Improvement Tools for Small & Medium Sized Water Utilities DRAFT August 2009

# Perseverance is Required: Results Take Time



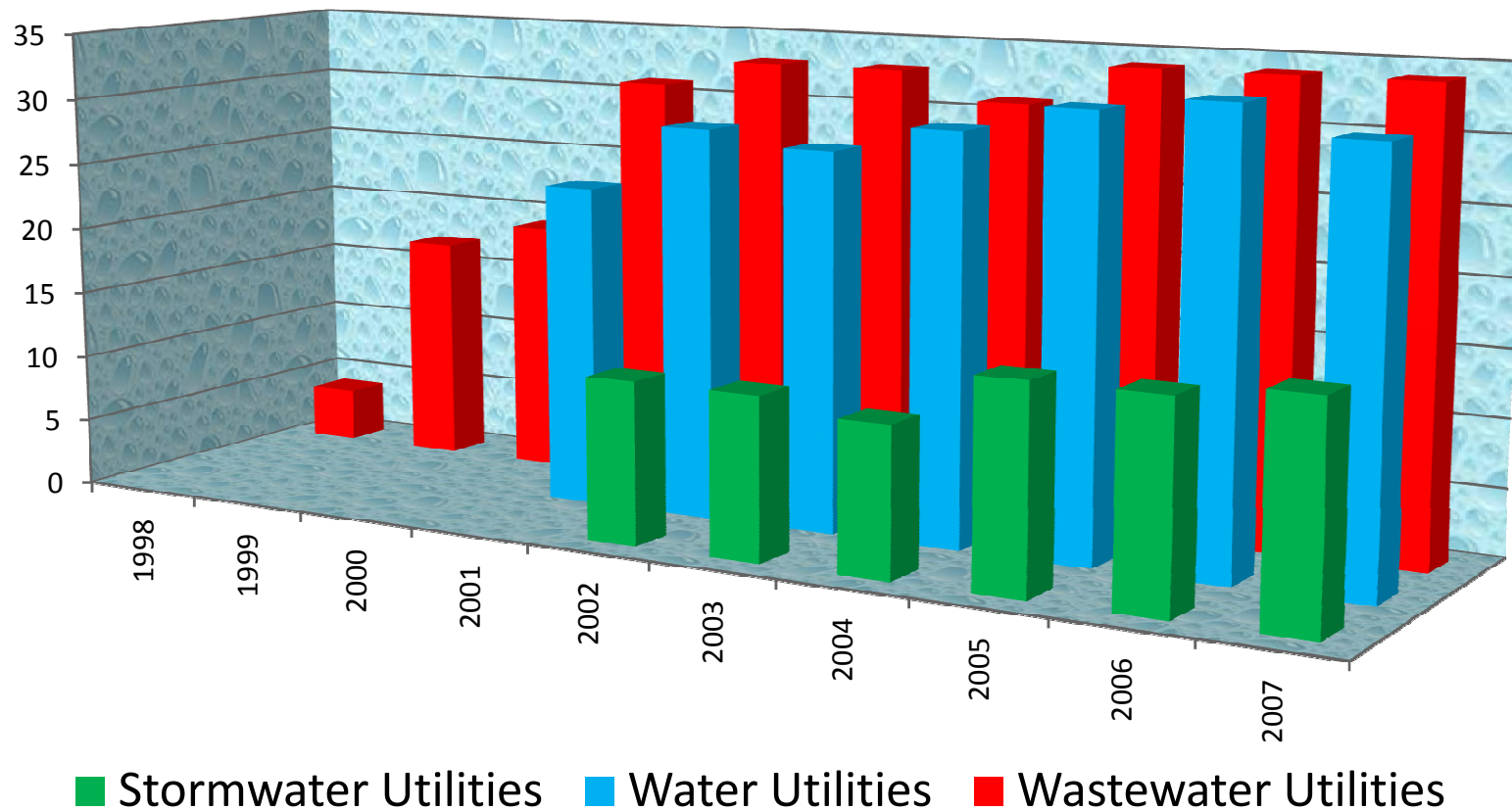
# Implementing...

- Keep it simple - getting started is more important than being comprehensive.
- Does not need to be complicated or expensive
- What KPIs are currently available or easily attainable with minimal effort?
- Start easy to produce “early wins” – builds momentum

## **Always Remember.....**

- Benchmarking means nothing if you don't do something with the results.
- To improve, you have to change, and change is always hard.

# National Water and Wastewater Benchmarking Initiative Growth



- Next...why not First Nations??

# Questions?

This presentation can be downloaded from:

**[www.nationalbenchmarking.ca](http://www.nationalbenchmarking.ca)**

**Public Report, Performance Measures Index, and detailed glossaries are available at:**

**<http://www.nationalbenchmarking.ca/public/about/methodology.htm>**