



# **TAHSN CFO Symposium: Sustainable Procurement**

**May 19, 2023**

Hosted by:

TAHSN-CHS

Sustainable Health System  
Community of Practice

*Sustainable Procurement  
Working Group*

SUSTAINABLE HEALTH SYSTEM  
COMMUNITY of PRACTICE

## Sustainable Procurement Working Group



Cathy Bailey, VP Finance & CFO



Sarah Chow, VP Corporate Services & CFO



Michele Beals, VP Finance & CFO

Genny Ng, Co-Chair, President's Green Task Force;  
Manager for Quality & Patient Safety



Varma Maharaj, Director, Patient Support Services

Wanda Page, Director of Operations, Stores &  
Supply Chain Management



Greg Chow, VP Finance, Partnerships & CFO

*Secretariat*

Fiona Miller, Professor, IHPME, DLSPH, University of Toronto;  
Director, Centre for Sustainable Health Systems

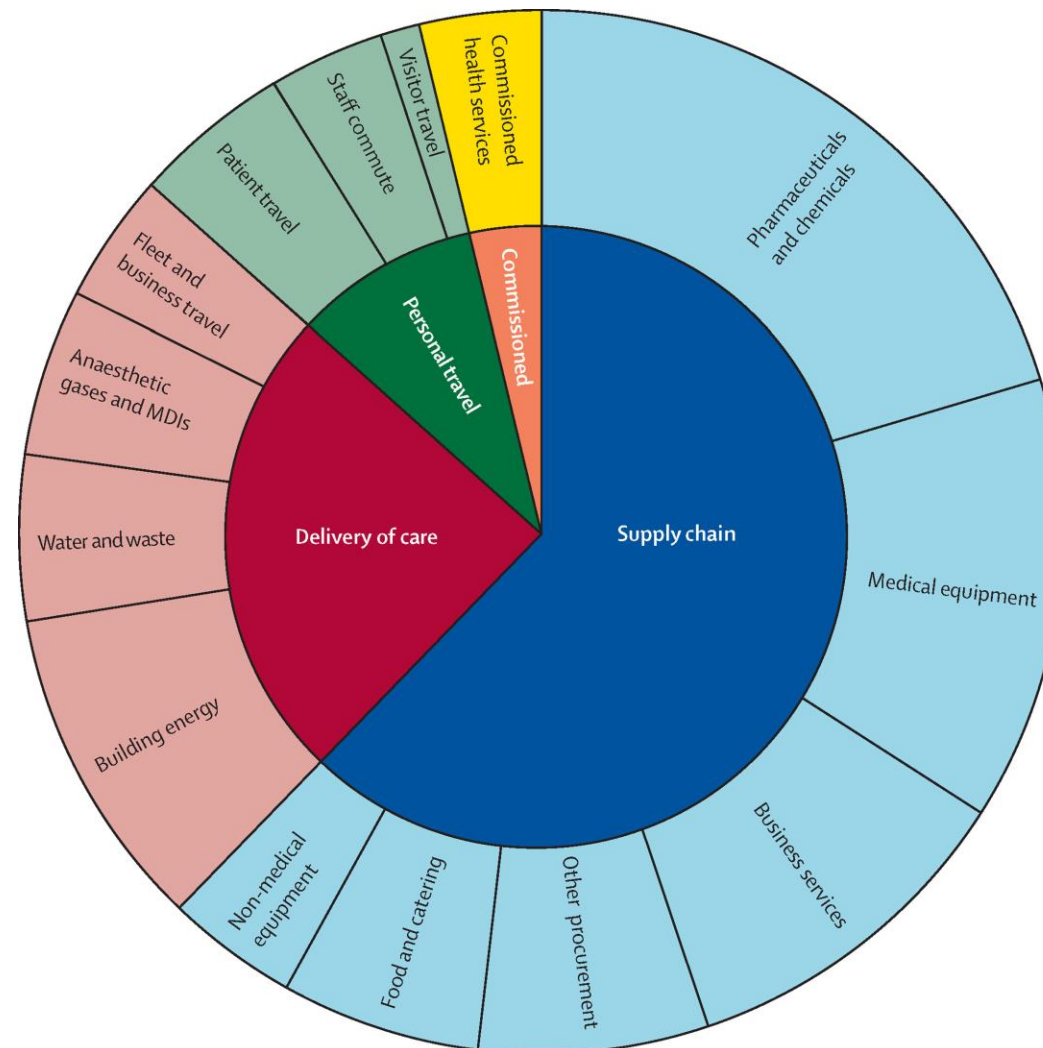


Brittany Maguire, Managing Director, Centre for Sustainable  
Health Systems, University of Toronto

# Healthcare has a significant environmental footprint



Supply chains account for the majority of healthcare's greenhouse gas emissions



Tennison, I, Roschnik, S, Ashby, B, Boyd, R, Hamilton, I, Oreszczyn, T, et al. Health care's response to climate change: a carbon footprint assessment of the NHS in England. The Lancet Planetary Health. 2021 Feb; 5(2):E84-E92.

# Symposium Aims & Agenda

---



**Understand the landscape and trends in sustainable procurement**

**9-10**

**Panel Presentations**  
followed by Q&A  
*Moderated by Sarah Chow*



**Identify specific opportunities and challenges to spread & scale across the network**

**10-10:35**

**Case Study Presentations**  
followed by Q&A  
*Moderated by Sarah Chow*



**Discuss opportunity for TAHSN to help define the direction of travel for sustainable procurement in the healthcare sector**

**10:35-11**

**Discussion: collaborative movement forward**  
*Moderated by Greg Chow*

# Panelists



***Moderator: Sarah Chow***  
VP Corporate Support & CFO,  
Michael Garron Hospital



**Andy Smith**  
President & CEO,  
Sunnybrook Health  
Sciences Centre



**Heather McPherson**  
President & CEO,  
Women's College Hospital



**Frances Edmonds**  
Head of Sustainable  
Impact, HP Canada



**Dr. Andy Smith**  
President & CEO  
Sunnybrook Health Sciences Centre

TAHSN collaborative action on sustainability

# The Changing Landscape of Health Care Procurement in Ontario

CFO Symposium on Sustainable Procurement  
May 19, 2023

Heather McPherson  
President & CEO – Women's College Hospital  
MMC Board Vice Chair

# What I'll Touch On



Centralization of Procurement



Value-Based Procurement



Implementation of Technology



Focus on Sustainability



# Centralization of Procurement

- Healthcare procurement landscape in Ontario has undergone significant changes
- Consolidation / Collaboration of Ontario Shared Services Organizations happening at a rapid pace with expectation of more to come
- Allows increased purchasing power, reduced costs for healthcare organizations and best value outcomes
- Ontario Government involvement via Supply Ontario

# Role of Supply Ontario



- **Vision:**  
Harness Ontario's buying power to enable economic development, province-wide resilience, and value for Ontarians.
- **Mission:**  
Bring cohesion to the public sector supply chain by embracing innovation and leveraging diverse partnerships and relationships with suppliers.
- **Engagement:**  
Established collaborative agreements with SSO's
  - Data & Systems integration
  - Product disruption
  - Potential for ESG collaboration

# Value-Based Procurement

## Traditional Procurement

- Focus on **price**
- **Volume**-based
- Fragmented, episodic
- Basket of goods
- Retrospective
- Transactional
- Average time commitment
- Suitable for low or high-spend procurements
- Considered the “norm”

## Value-Based Procurement

- Focus on **value**
- **Outcomes**-based
- Integrated, **total cost**
- Holistic solution(s)
- Prospective
- Strategic
- Significant time commitment
- Suitable for complex, high-spend procurements
- Considered an “exception”

# Value-Based Procurement

- Appropriate where the single, best solution is not known or commonly available in the market
- Can achieve better, broader-based / holistic / integrated solutions
- Accommodates the evaluation of multiple alternatives
- Based on meeting outcomes rather than specifications
- More collaborative process with suppliers – including significant pre-contract dialogue to hone solutions
- Seeking value and lowest cost of ownership
- Not a standard procurement process – time and effort intensive

## Ontario Examples

### Implantable Cardioverter Defibrillators (ICDs)

– provincial initiative evaluating lifetime cost

### St. Mary's General Hospital Cardiac Program

– broad-based undertaking to address increased demand & provide care closer to home

# Implementation of Technology

## Leveraging the Power of Big Data

- Aggregate data from many hospitals & other pools
- Used to identify savings available to individual hospitals through contract participation
- Provides broader visibility of new sourcing opportunities for sector

## Digital Inventory Management

- Accurate, efficient scan & capture technology
- Streamlines & automates order requisitioning
- Use in procedural areas connects product usage to patient visit – traceability of implants enhances patient safety
- Supports case costing

## Robotic Process Automation (RPA)

- Application of RPA software expedites analysis and actionable data
- Streamlines workflows
- Faster & more consistent – reduces time frame of repetitive data tasks from days to hours

# Focus on Sustainability

## Best Practices

### Contract Language

- Environmentally preferred purchasing / green procurement

### Supplier Performance/Business Reviews

- Embed into Quarterly & Annual Business Reviews

### Non-Financial Criteria

- Scored response to ESG-related questions

### Proactive Vendor Engagement

- Engage on their Sustainability Plans and “Wins”

### Innovation

- Seek ESG products/solutions

## Other Regions

### England NHS

#### Net Zero Supplier Roadmap

- Multi-year roadmap for carbon reduction for health care suppliers
- Milestones through to 2030, which must be met to be eligible for NHS contracts

### US Health & Human Services

#### Climate Pledge

- Signed by 100+ health care organizations
- Bold targets for emissions reduction & climate resilience

# Sustainable procurement: action & leadership

Opportunities to meet your climate and Sustainable Development Goals

Frances Edmonds, Head of Sustainable Impact at HP Canada



# HP: Canada's Most Sustainable Technology Company



## Planet

- Listed on Canada's Greenest Employers [list](#) in 2023 for the 16<sup>th</sup> year in a row, the only PC and print vendor on the list.
- More than 1.7 million lbs of [ocean-bound plastics](#) used in HP products since 2016. These come from Haiti & are processed in Montreal.
- HP [Planet Partners Program](#) has recycled 642,300 tonnes of hardware and supplies since 2016, with a goal to recycle 1.2 million tonnes from 2016 to 2025.
- Canada's Clean 50: Only tech company with 2 [Clean 16](#) awards for sustainability leadership and 3 Clean 50 Top Project [awards](#) (2 with WWF).
- Proudly participated in Credit Valley Conservation's [Greening Corporate Grounds program](#) with our ecological landscaping and education.
- First tech company globally to disclose full [carbon footprint](#) including Scope 3 emissions, independently audited and verified.
- Among the first 10% of companies with GHG emissions reduction goals approved by [the Science Based Targets Initiative](#).
- Only tech company to receive triple A list rankings [by CDP](#) in Climate Change, Water Security and Forests categories in 2022 (only 12 companies worldwide).

## People

- Only tech company to have received Canada's Best Diversity Employers [award](#) in 2021.
- Ranked 2<sup>nd</sup> in the Know The Chain's [ICT Benchmark](#) in 2020/21 for addressing forced labour in the supply chain.
- HP offers employees 4 hours of paid [volunteer time](#) per month dollars for doers, donation cash matching and time off grants.
- HP has the [world's most secure](#) printers and PCs<sup>1,2</sup>.

## Community

- Listed as one of Canada's 2021 [Top international Corporate Citizens](#) by Corporate Knights for the 7<sup>th</sup> year in a row.
- Developed transformational [partnerships](#) with various Canadian NGOs.
- Most comprehensive [environmental education program](#) in Canada's tech industry. Goal to improve education outcomes for 100 million people from 2015 to 2025. 28.7+M students and adult learners reached.

## Sustainable Impact



- Listed 8<sup>th</sup> on Corporate Knights' [Clean200](#) Companies in 2022, a list of the world's 200 largest companies ranked by their clean revenues.
- Listed on Corporate Knights [2023 Global 100](#) Most Sustainable Corporations.
- Committed to UN Sustainable Development [goals](#) (SDGs), driving progress on select goals.
- For a multi-year view HP's achievements, see HP global [Sustainable Impact report](#).

1 HP's most advanced embedded security features are available on HP Enterprise-class devices with FutureSmart firmware 4.5 or above and is based on HP review of 2019 published embedded security features of competitive in-class printers. Only HP offers a combination of security features for integrity checking down to the BIOS with self-healing capabilities. For more information visit: [hp.com/go/printersecurityclaims](http://hp.com/go/printersecurityclaims)

2. Based on HP's unique and comprehensive security capabilities at no additional cost and HP's Manageability Integration Kit's management of every aspect of a PC including hardware, BIOS and software management using Microsoft System Center Configuration Manager among desktop workstation vendors as of July 2018 on HP Desktop Workstations with 8th Gen and higher Intel® Processors

© Copyright 2022 HP Development Company, L.P. The information contained herein is subject to change without notice. HP shall not be liable for technical or editorial errors or omissions contained herein. 4AA7-0671ENCA, May 2022.





WIRED [+Subscribe](#)

## **Warnings About Humanity's Future Don't Get More Dire Than This**

The planet is on track for catastrophic warming unless countries take extreme action, according to the IPCC's latest climate report.



**Our actions now will resonate  
for thousands of years**

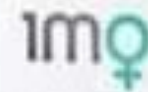
WIRED [+Subscribe](#)

## **... About Humanity's Future Don't Get More Dire Than This**

The planet is on track for catastrophic warming unless countries take extreme action, according to the IPCC's latest climate report.

How many of  
the services or  
goods  
that your  
organization  
purchases meet  
these criteria?

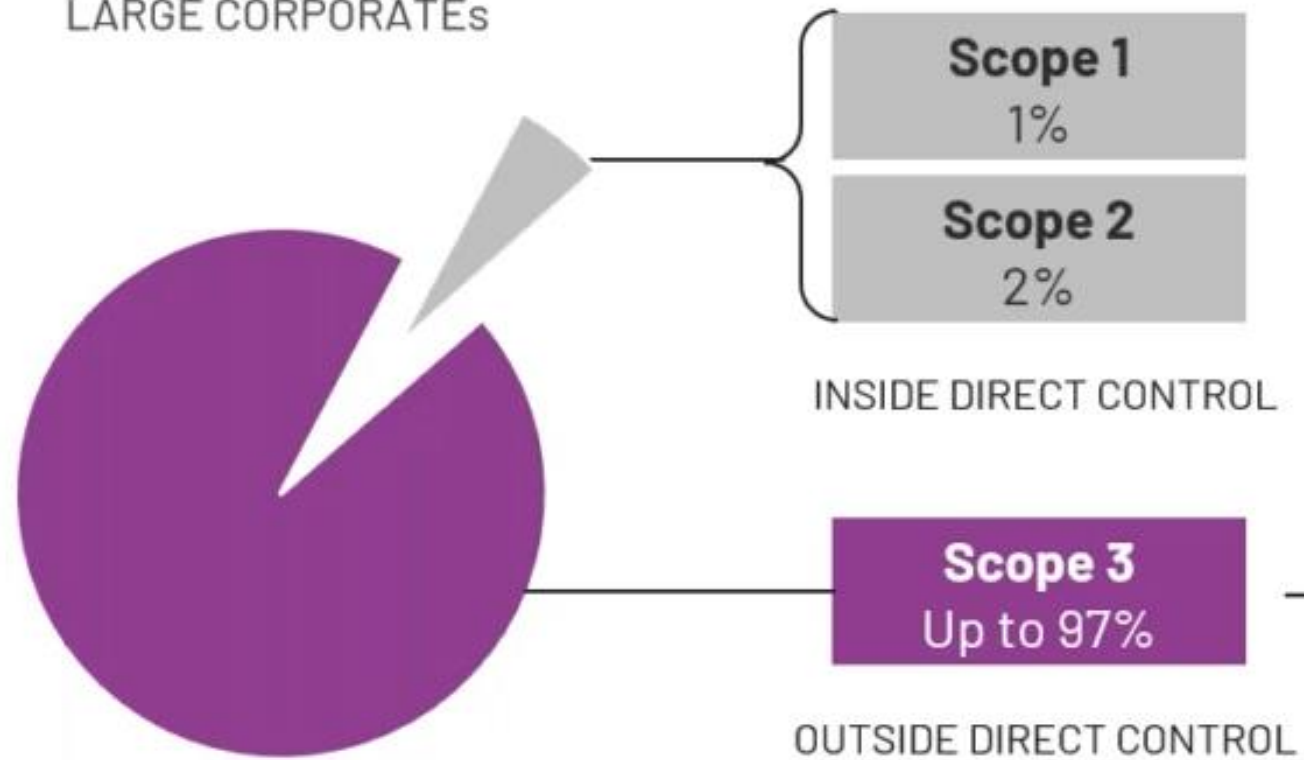
If it can't be  
reduced, reused,  
repaired, rebuilt,  
refurbished,  
refinished, resold,  
recycled or  
composted,  
then it should  
be restricted,  
redesigned  
or removed  
from production.



- Pete Seeger

# The largest share of emissions is outside a reporting company's direct control...

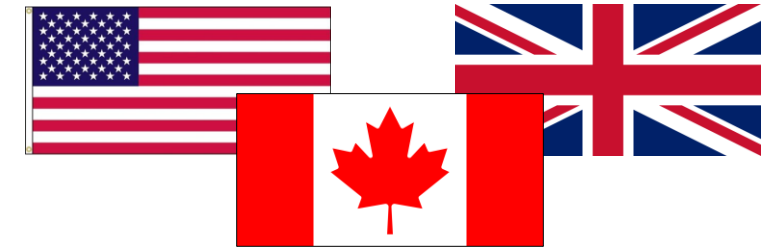
TYPICAL GHG EMISSIONS FOR LARGE CORPORATES



TYPICAL BREAKDOWN OF SCOPE 3 EMISSIONS



# Comparison: US / UK / Canadian Supplier Net-Zero GHG Disclosures

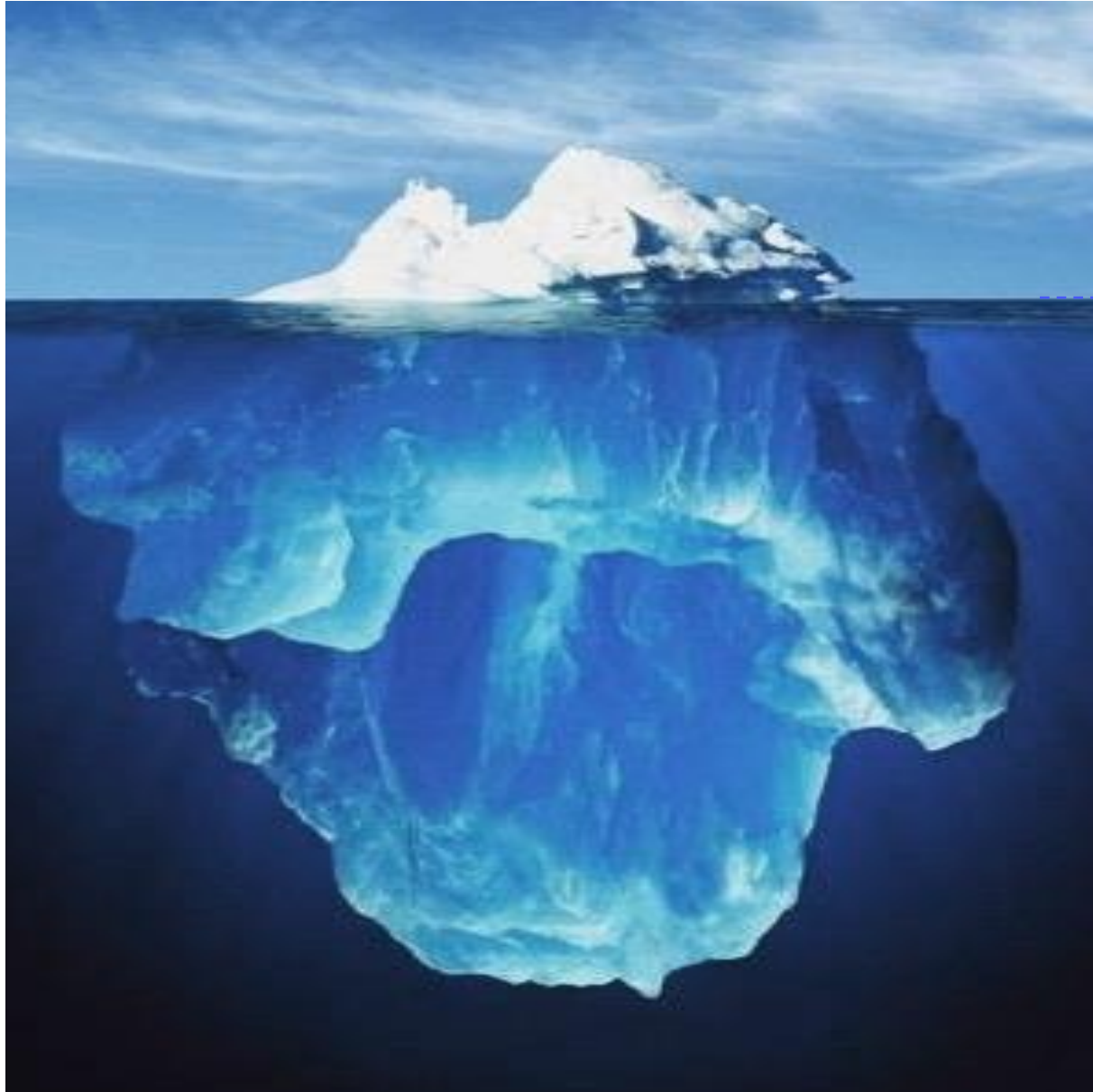


Country	Value of contractor's annual federal contracts		Public disclosures of GHGs (thru GHG Protocol)	GHG net-zero reduction targets validated	TCFD-aligned assessment of climate-related financial risks
US	"Significant" contractors	\$7.5M to \$50M	Scope 1 & 2	No	No
	"Major" contractors	> \$50M	Scope 1, 2 & relevant Scope 3	Yes (thru SBTi)	Yes (thru CDP)
UK	(Any) suppliers	> £5M	Current Scope 1, 2 & relevant Scope 3 GHGs	Net zero by 2050 for UK operations	(Silent on this)
CA	"Major" suppliers	> \$25M	"GHGs" (Scope 1, 2 & relevant Scope 3)?	"Science-based targets in line with Paris Agreement"	(Silent on this)

# Where are the impacts and risks in an organization?

OPERATIONS

SUPPLY CHAIN



Deforestation

Waste

Biodiversity

Plastics

Human Health

Supplier Diversity

Discrimination

Worker Safety

Toxic Exposure

Climate Change

Living Wages

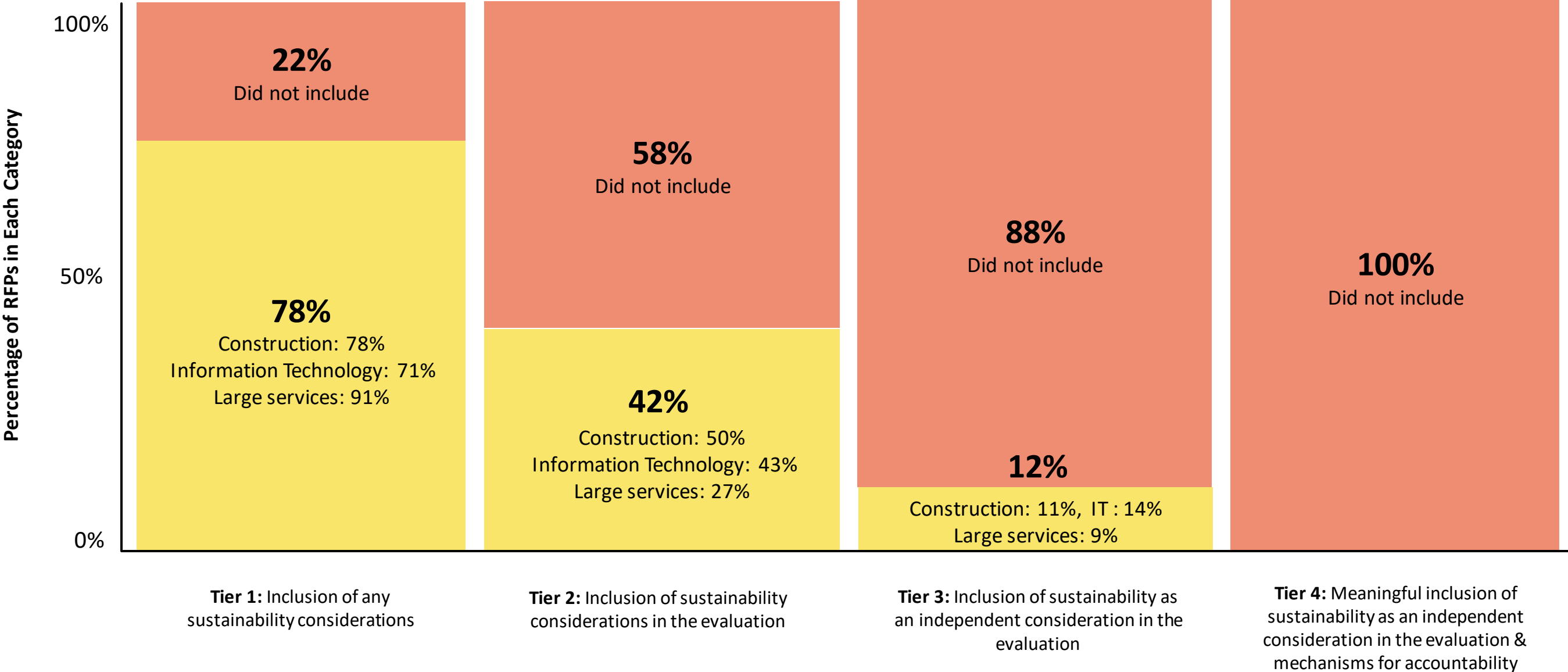
Collusion &  
Fraud

Economic  
Development



# Sustainability integration into public sector procurement

Research findings from Shift & Build (academically published)

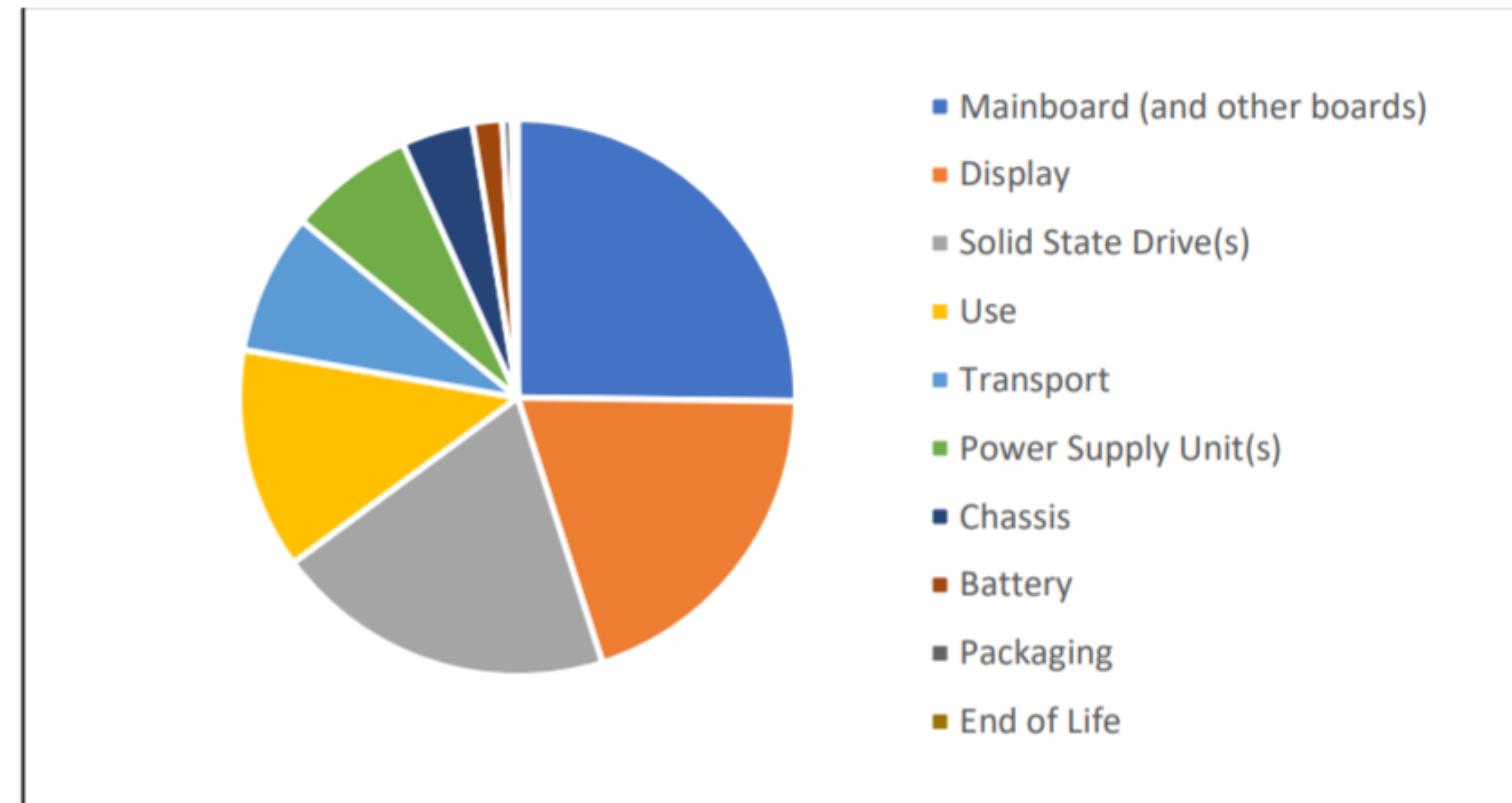


# A recent Government bid document for PCs

1. EPEAT = bare minimum requirement
2. Energy Star = irrelevant as it is a requirement of EPEAT
3. Packaging specs quite detailed - but miss the mark in terms of impact! (See pie chart)
4. Total points = 5000 - sustainability was 15 points!!! (0.3%)

Typical notebook computer carbon footprint

**GHG emissions [percentage of total]**





**Houston!**  
**We have a problem!**

Canada has declared a national climate emergency  
Failure is not an option  
There is no planet B

# NET-ZERO SUSTAINABLE PROCUREMENT

The Under-Exploited Fix To The Climate Emergency



## TOP-DOWN APPROACHES ARE NOT WORKING

Canada is missing the IPCC targets

Most municipalities are not engaged

Canada is missing our COP pledges

Confusion over targets and indicators

Most businesses are not engaged

**We need a multi-level approach**

## TWO-LEVEL APPROACH

1  
Public Services and Procurement Canada (PSPC) implements Net-Zero Sustainable Procurement

2  
Municipalities implement Net-Zero Sustainable Procurement

Engage a critical mass of companies in their supply chains in the race to net-zero

## NET-ZERO SUSTAINABLE PROCUREMENT (SP)

When assessing bids, give significant weight (10+%) to each of three things

1  
Suppliers' overall sustainability performance scores

2  
Suppliers' GHG emissions and their plan to reduce GHGs 50% by 2030

3  
Proposed products' low-carbon attributes

Net-zero SP makes GHG reductions matter to suppliers

# The “4 things” needed to make sustainable supply chains a reality that sticks in your organization

1. Executive level commitment to use sustainable procurement to meet your goals
2. A vision with SMART procurement goals connected to your sustainability objectives/goals
3. Adequate resources to get the job done – *this cannot be a side project for staff with no training or support and metrics that reflect the old paradigm e.g. how much money did we save today as opposed to “did we get the best value over the life of the service or the good?” Aligned to policies that help procurement deliver on this so that they have the backup needed when pushed by their internal clients*
4. **Mechanisms of accountability to goals & outcomes**

# Actions to take now in YOUR procurement activity

1. Require all vendors to have measured, disclosed and set targets to reduce their carbon emissions.
2. Require all vendors to set and disclosure postconsumer plastic content goals and tonnages used in their goods and packaging.
3. Buy whatever you can as a service.
4. Signal that you expect companies to invest in Social impact i.e. Indigenous Peoples support (e.g.: digital equity work and/or hiring).
5. Signal your intention to give significant weightings (30% +) to sustainability, transparency and performance (using the full definition of sustainable procurement).





# SUSTAINABLE PROCUREMENT IS A SUPERPOWER

LEARN HOW WE CAN USE IT ►



Green  
Economy  
Canada



## Buying a Better Future

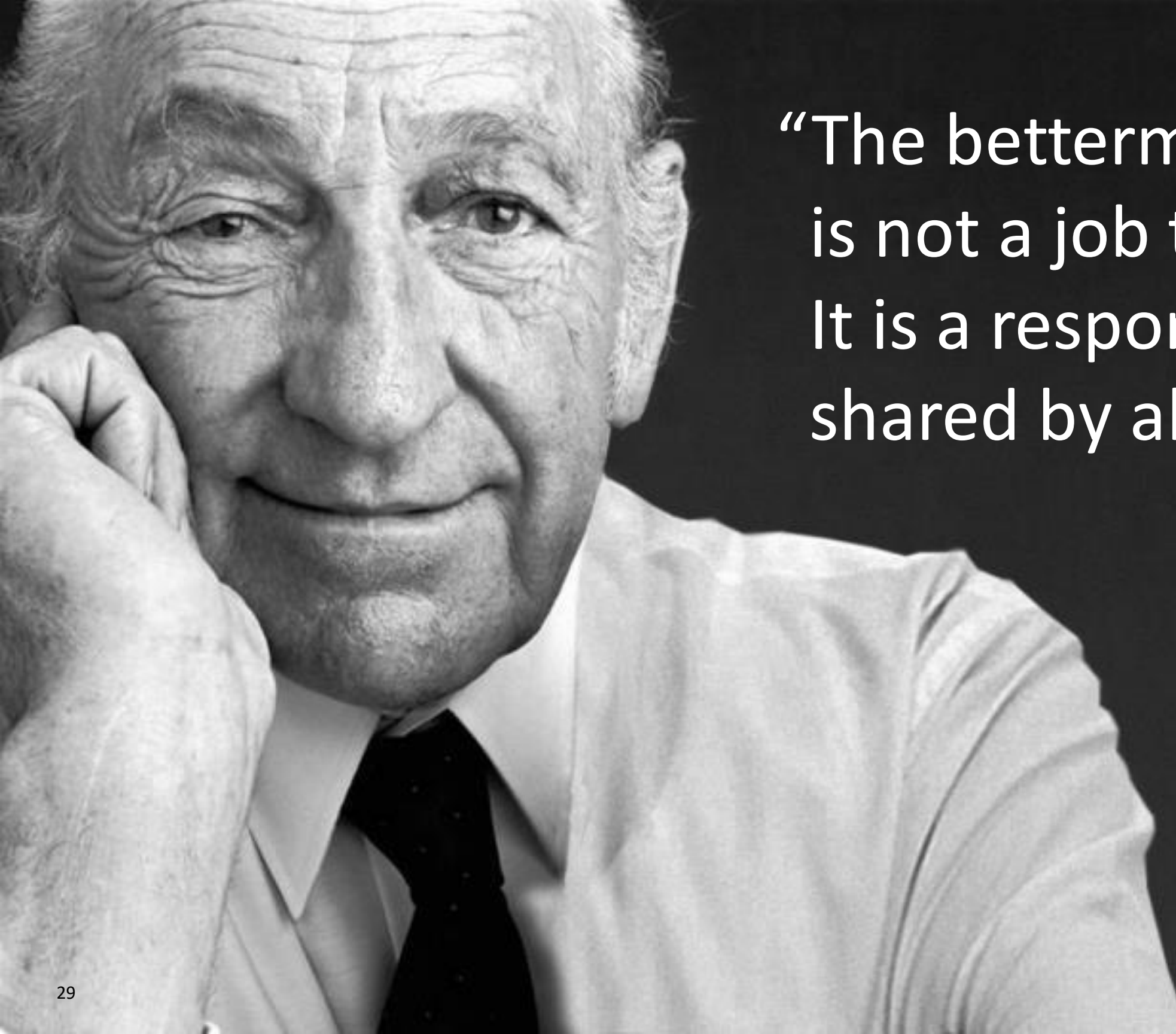
Insights from a Sustainable  
IT Procurement Project

November 2021



Green  
Economy  
Canada





“The betterment of our society is not a job to be left to a few. It is a responsibility to be shared by all.”

- Dave Packard

# Sustainable Procurement Case Study Evaluation

---

## Key Considerations

### Business Case

- Evidence**
- Sustainability
  - Clinical

- Change Management**
- Internal
  - External

### Supply Availability & Reliability

# Sustainable Procurement Case Study Evaluation

Key Considerations	Win-Win Opportunity: <b>Desflurane</b>	Business Case & Corporate Strategy Alignment: <b>EV Charging Stations</b>	Quality & Safety Evaluation: <b>Bioplastics</b>	Change Management: <b>Reusable Gowns</b>
<b>Business Case</b>	<ul style="list-style-type: none"> <li>Cost Savings</li> </ul>	<ul style="list-style-type: none"> <li>Negative business case</li> <li>Strong alignment with corporate strategy</li> </ul>	<ul style="list-style-type: none"> <li>No cost savings or other value add</li> <li>Reputational risk</li> </ul>	<ul style="list-style-type: none"> <li>Cost savings when considering total cost of ownership</li> </ul>
<b>Evidence</b> <ul style="list-style-type: none"> <li>Sustainability</li> <li>Clinical</li> </ul>	<ul style="list-style-type: none"> <li>Strong sustainability and clinical evidence</li> </ul>	<ul style="list-style-type: none"> <li>Strong sustainability evidence</li> </ul>	<ul style="list-style-type: none"> <li>Little to no clinical or environmental evidence</li> </ul>	<ul style="list-style-type: none"> <li>Strong sustainability and clinical evidence</li> </ul>
<b>Change Management</b> <ul style="list-style-type: none"> <li>Internal</li> <li>External</li> </ul>	<ul style="list-style-type: none"> <li>Guidance &amp; resources available to support change</li> <li>No external contract issues in reducing use</li> </ul>	<ul style="list-style-type: none"> <li>Limited change management required</li> </ul>	<ul style="list-style-type: none"> <li>Careful change management required for necessary waste segregation</li> </ul>	<ul style="list-style-type: none"> <li>Internal resistance may be significant</li> <li>Need to navigate existing contracts</li> <li>Need to change or set-up laundering system</li> </ul>
<b>Supply Availability &amp; Reliability</b>	<ul style="list-style-type: none"> <li>Quality alternatives readily available</li> </ul>	<ul style="list-style-type: none"> <li>No issues with availability and reliability of products/vendors</li> </ul>	<ul style="list-style-type: none"> <li>Limited availability of quality products / reliable vendors</li> </ul>	<ul style="list-style-type: none"> <li>Range of quality products from numerous vendors</li> <li>Mitigates supply risks</li> </ul>

# Case Studies



**Dr. Anita Rao**  
Anesthesiologist,  
Trillium Health Partners



**Greg Chow**  
VP Finance, Partnerships & CFO,  
Women's College Hospital



**Ed Rubinstein**  
Director of Environmental  
Compliance, Risk &  
Sustainability,  
UHN



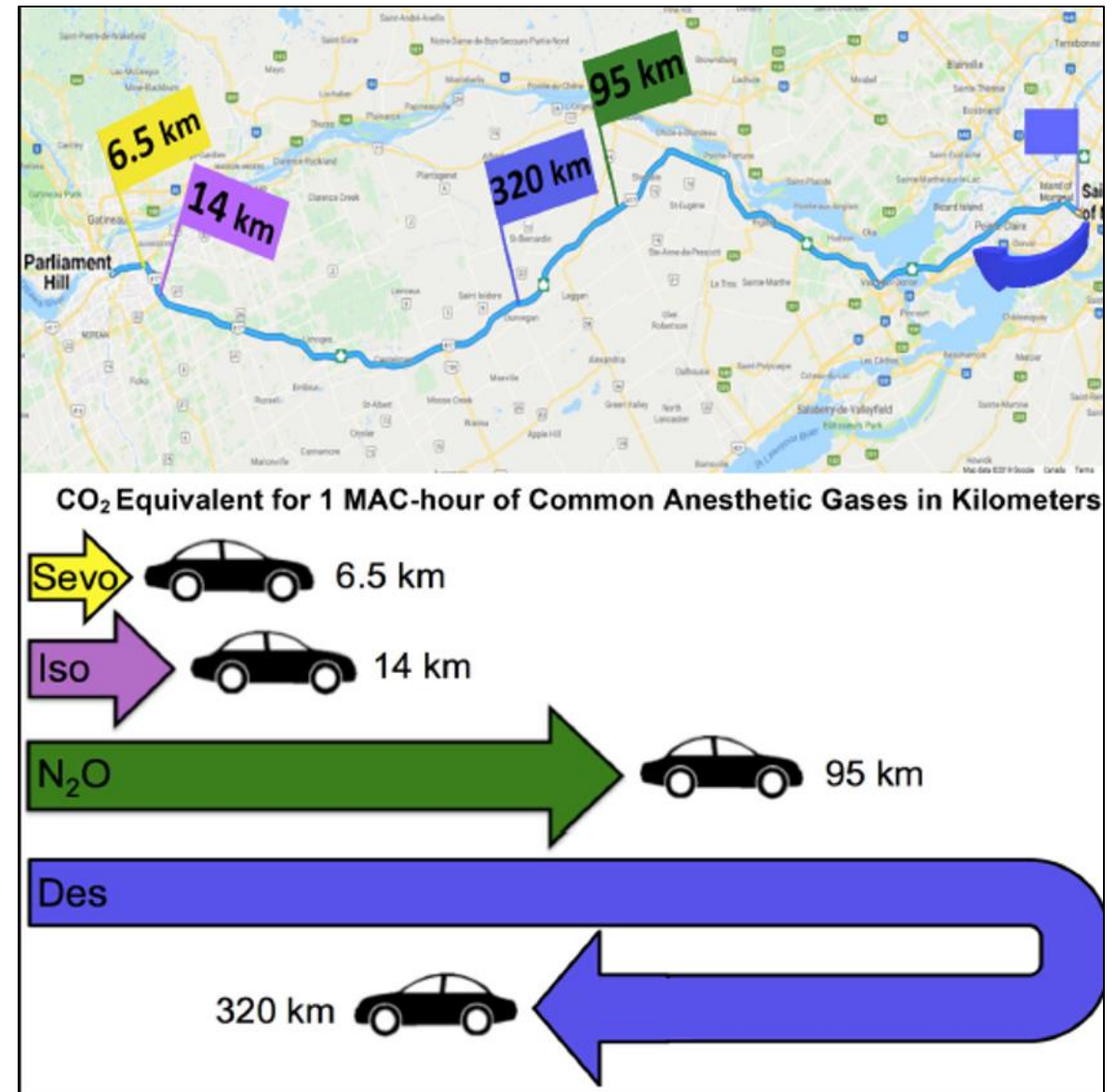
**Jhanvi Solanki**  
VP Clinical Programs,  
Humber River Hospital



# Anesthetic Gases



- Used for procedure, exhaled by patient and vented directly to atmosphere, unchanged.
- In North America, Anesthetic Gases are primary source of OR emissions\*
- Hydrofluorocarbons that are GHG magnitudes worse than CO<sub>2</sub>.



\*McNeil, A., Lillywhite R., Brown, C. The impact of surgery on global climate: a carbon footprinting study of operating theatres in three health systems Lancet Planet Health 2017;1: e381–88

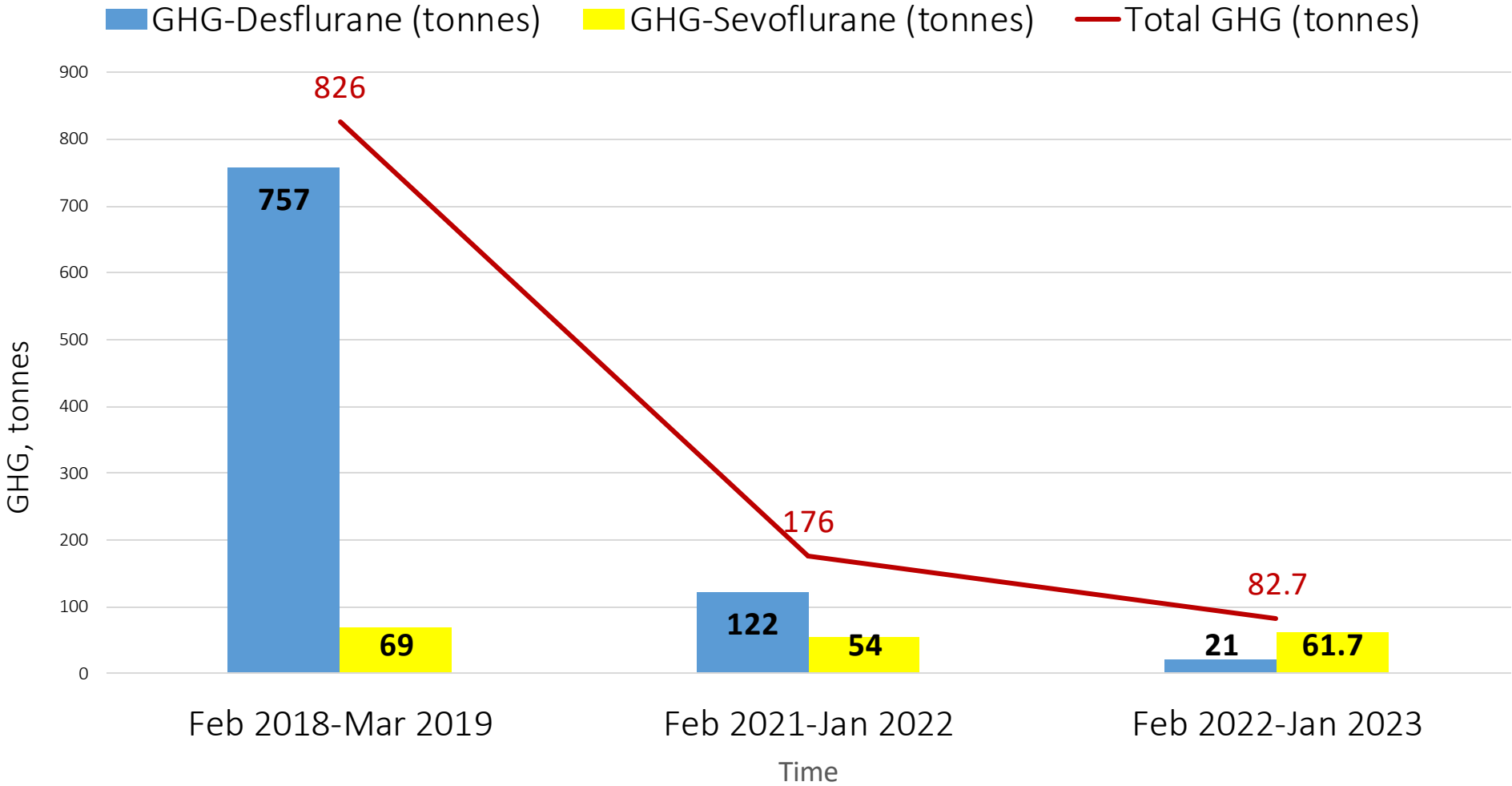
# Anesthetic GHG Reduction in Community Hospital

Step-wise QI initiative to decrease desflurane use 2019.

Programmed FGF on Etcontrol on Aysis machine to default of 0.5 L/min.

Eliminated desflurane from operating room February 2022.

## Trends in volatile GHG at THP



### Savings from desflurane reduction

- 743 tonnes CO<sub>2</sub> equivalent
- \$125,000

**2018 CO<sub>2</sub> equivalent: 826 tonnes**

**2018 volatile costs = \$278,450**

**2022 CO<sub>2</sub> equivalent: 83 tonnes**

**2022 volatile costs = \$153,609**

# Win-Win Opportunity Case Study: Responsible Anesthetic Gas Use

## Case Study Evaluation (green/yellow/red ranking)

### Business Case

- **Cost savings:** Desflurane is less potent than the alternative (sevoflurane) and as a result, more expensive per patient

### Evidence

- **Strong Sustainability Evidence:** Desflurane unequivocally worse for the environment than other anesthetic gases.
- **Strong Clinical Evidence:**
  - Multiple studies show desflurane is not superior to alternatives for wide range of populations (ambulatory surgery, geriatric patients, bariatric patients). Additionally, it is not suitable for inhalational inductions, which are often used for children and patients with respiratory disease.
  - Multiple clinical guidelines have recommended that desflurane be eliminated (Canadian Anesthesiologists' Society, American Society of Anesthesiologists, World Federation of Societies of Anesthesiologists).

### Change Management

#### Internal: examples, guidelines, and resources available to support change

- All anesthesia departments should comply with current guidelines from their professional societies. The 2023 CAS Guidelines to the Practice of Anesthesia support the elimination of the use of desflurane.
- Multiple hospitals in Ontario and internationally have removed desflurane from their hospitals with NO effects of the quality of patient care.
- Ontario's Anesthesiologists Environmental Sustainability Working Group (OA ESWG) will present rounds to anesthesia departments on greening strategies and provide the evidence to support the discontinuation of desflurane use.
  - *If your hospital's anesthesia department is hesitant or unwilling to give up desflurane, consider having OA ESWG provide a presentation.*
- UK is banning desflurane as of 2024. EU proposed banning in 2026. Clearly desflurane is not needed to provide high quality anesthetic care.

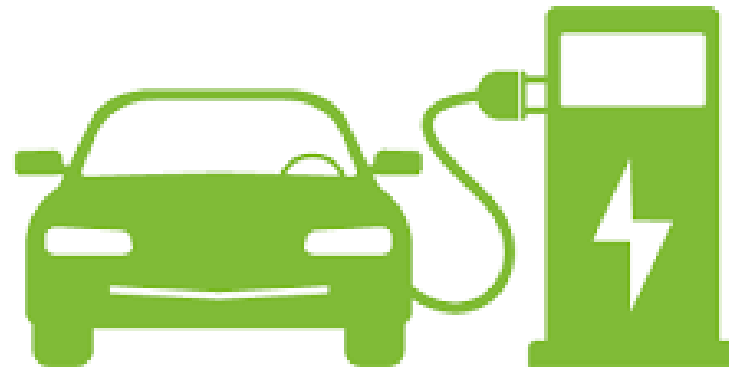
#### External: no contract issues with reducing use

- Not contractually obligated to buy more than needed; can send unused product back to Baxter or use all remaining desflurane and not re-order.

### Supply Availability & Reliability

- **Quality alternatives readily available:**
  - Sevoflurane is made in several locations by multiple pharmaceutical companies; less vulnerable to supply chain disruptions than desflurane.
  - Intravenous anesthetics are an alternative to volatile anesthetics.

# Electric Vehicle (EV) Charging Station Case Study



# Zero Emission Vehicle Infrastructure Program (ZEVIP)

- Transportation accounts for a quarter of Canada's greenhouse gas emissions (GHG), of which almost half comes from passenger cars and light trucks.
- The Government of Canada has set ambitious federal targets of zero emission vehicles (ZEVs) reaching 10% of light-duty vehicles sales by 2025, 30% by 2030 and 100% by 2035.
- ZEVIP, a program funded by the Federal Government aims at addressing the lack of charging infrastructure in Canada, a key barrier to zero emission vehicle adoption
- The program incentivizes the build out of charging infrastructure across Canada to support broader decarbonization goals which supports the same goals at WCH



## ZEV Infrastructure Program Qualifications:

- Must submit an RFP - targets projects in public places, on-street, multi-unit residential buildings, workplaces and vehicle fleets
- Install a minimum of 20 level 2 charging pedestals & government will fund up to 50% of project cost to a maximum of \$5,000 per unit
- <https://greeneconomy.ca/evchargerincentive/>



# WCH Current EV Charging Situation

- WCH has 12 EV charging stations located in our underground parking facility, the chargers were installed in 2015 and helped WCH earn credits towards our LEED Gold Designation for new builds
- The existing EV stations are currently available at no cost for patients/visitors and staff
- The EV chargers are not metered which means we can't track energy consumption & utilization
- EV chargers provide a visible symbol of our interest and commitment to sustainability, and we know there are more electric vehicles on the road therefore it makes sense for WCH to install more charging units to help make EV adoption more accessible for our patients/visitors and staff
- Out of the 12 existing EV charging stations, 4 chargers are end of life due to outdated software and are not functioning. This need was identified and submitted to the Capital Committee as part of the FY2324 capital planning cycle.



# Capital Needs

- On an annual basis, the capital needs of the organization are identified, evaluated and prioritized by the Capital Committee, and then recommended to Senior Leadership Team (SLT) for budget approval.
- The Committee uses a risk & reward framework to evaluate and score capital needs, including evaluating strategic alignment. With emphasis on impact towards patient care and financial resources. Refer to next slide for summary of ranking criteria.
- Results of the Committee's evaluation for FY2324 capital needs, identified the 4 EV charging stations as a low priority. The benefits and risks did not directly correlate with patient care, nor was environmental sustainability considered a benefit or viewed as highly strategic.
- It wasn't until the Capital Committee brought forward the list of prioritized needs to the Senior Leadership Team (SLT), that the prioritization and scoring of the EV Charging Stations were challenged.
- SLT discussed this outcome and concluded that the charging stations support the reduction of air pollution, leading to healthier outcomes for people and patients, and promote environmental sustainability. The EV charging stations were subsequently approved for capital budget by SLT, despite having been initially ranked as a low priority by the Capital Committee.





# Capital Ranking Criteria

Alignment with Strategic Plan	
Low	High
Has minimal or indirect contribution to the objectives aligned with the Hospital Strategic Plan	Has direct and significant contribution to the objectives aligned with the Hospital Strategic Plan

Risk		
Low	Medium	High
Insignificant to minor patient/staff injuries, or negligible resource loss or operational impact	Moderate patient/staff injuries requiring major medical treatment but not life threatening, or major operational or resource impact (i.e. causing changes in service delivery or opratiging financial impact equivalent to 2%-5% of program annual operating budget)	Patient/staff deaths, or operational impacts leading to program shut down, or financial loss greater than 5% of program annual operating budget.  Critical to "keeping the lights on"

Rewards		
Low	Medium	High
Payback period greater than 5 years  Minor or indirect impact to improving or advancing the Hospital's reputation or strategy  Minor or indirect contribution to achieving internal/external performance targets	Payback period between 4-5 years  Moderate impact to improving or advancing the Hospital's reputation and strategy, resulting in becoming a significant player or contributor  Moderate contribution to achieving internal/external performance targets	Payback period is less than 3 years  Significant impact to improving or advancing the Hospital's reputation and strategy, resulting in becoming the industry leader  Significant and direct contribution to achieving internal/external performance targets

Likelihood of Risk / Reward		
Low	Medium	High
Outcome may occur or unlikely in the next 1-3 yrs.	Harm or risk outcome is likely and expected to occur within 1-2 years	Harm or risk outcome is certain and expected to occur in next 0-1 year

# Lessons Learned

- Environmental sustainability is not viewed as a key priority in the existing capital ranking criteria, and often overlooked.
- How do we change behavior and encourage leaders to factor green initiatives and environmental sustainability into their operational and capital needs assessments? Examples, during business case analysis, or when developing product or service specification.



# Business Case & Corporate Strategy Alignment Case Study: EV Charging Station

Case Study Evaluation (green/yellow/red ranking)
<b>Business Case</b> <ul style="list-style-type: none"><li>• Negative businesses case</li><li>• Pursued due to alignment with corporate strategy to maintain LEED certification</li></ul>
<b>Evidence</b> <ul style="list-style-type: none"><li>• Strong environmental evidence</li></ul>
<b>Change Management</b> <ul style="list-style-type: none"><li>• Limited change management required</li></ul>
<b>Supply Availability &amp; Reliability</b> <ul style="list-style-type: none"><li>• No issues with availability &amp; reliability of product or vendors</li></ul>



# Biodegradable PPE: A Critical Look at “Bioplastics”

---

TAHSN CFO Symposium on Sustainable Procurement

# Outline

---

- Background information
  - What are “bioplastics”?
  - What does “biodegradable” mean?
  - What are the potential benefits of bioplastics?
  - Are there environmental concerns associated with bioplastics?
- What questions should I ask when evaluating bioplastic products?
  - Are environmental claims verified?
  - What process would we need to put in place to collect biodegradable products?
  - What happens to bioplastics collected in my hospital?
  - Are bioplastics worth collecting?



# What are “bioplastics”? What does “biodegradable” mean?

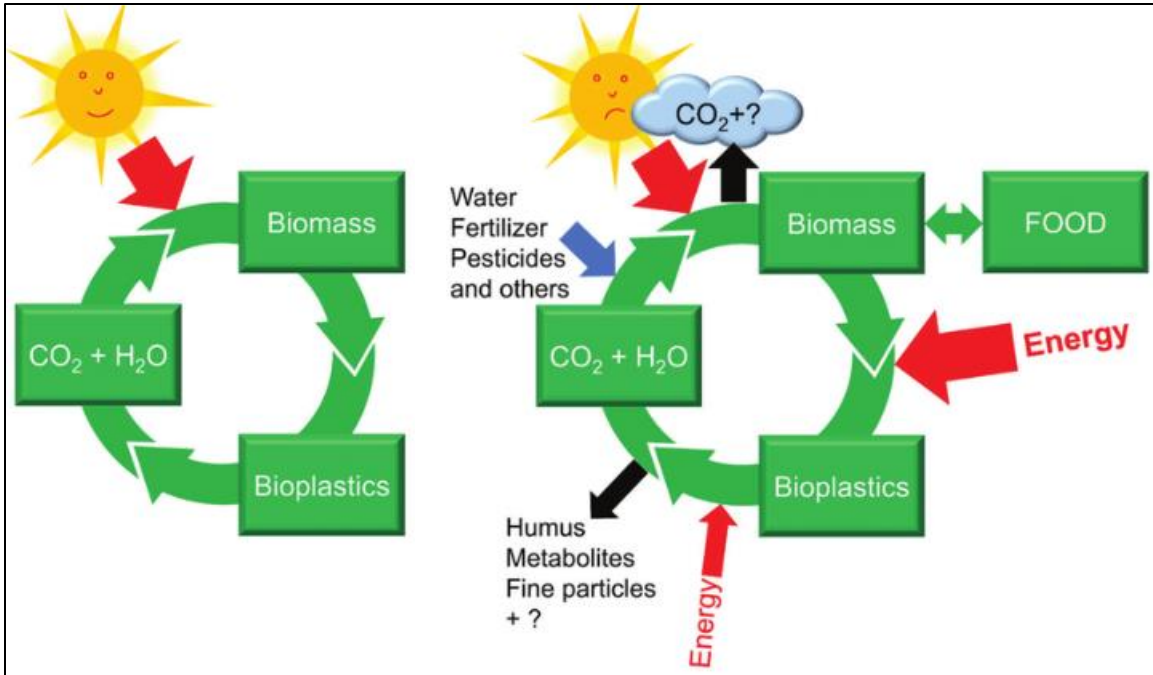
- Biobased plastics
  - Plastics derived from plant based materials.
  - Are still plastics (just getting carbon from plants not fossil fuels).
- Biodegradable plastics
  - Plastics designed to decompose through of naturally occurring processes (e.g. microorganisms, etc.) under the “right” conditions.
  - All plastic degrades (some not as quickly as others).
  - “Compostable” is a subset of biodegradable.
  - Commercial and backyard composting are not the same.
  - Also - photodegradable, oxo-degradable...and more!



Biobased PET bottle  
PET = Polyethylene terephthalate  
(usually made from oil)



# What are the potential benefits of biodegradable bioplastics?



“Dream (left) and reality (right) of a closed carbon loop in bioplastic economy.”

**[M]acro-molecular Rapid Communications**

Review | [Open Access](#) | [©](#) [f](#) [=](#) [=](#)  
 Closing the Carbon Loop in the Circular Plastics Economy  
 Carl G. Schirmeister, Rolf Mülhaupt  
 First published: 30 May 2022 | <https://doi.org/10.1002/marc.202200247> | Citations: 1

## Bioplastics for a circular economy

Jan-Georg Rosenboom, Robert Langer & Giovanni Traverso

*Nature Reviews Materials* 7, 117–137 (2022) | [Cite this article](#)

**Table 1 Comparison of environmental properties and typical prices of some commercially relevant synthetic fossil-based and bio-based polymers**

From: *Bioplastics for a circular economy*

Polymer	Biodegradation (industrial)	Biodegradation (ocean)	GWP cradle-to-gate (tonne CO <sub>2</sub> e per tonne polymer)	AP cradle-to-gate (kg SO <sub>2</sub> e per tonne polymer)	Price (US\$ per kg) <sup>1,2,3</sup>	Refs
<b>Fossil-based and durable</b>						
HDPE	NA	NA	1.8–2.6	6–22	1.4–1.6	[11]
LDPE	NA	NA	1.9–3.1	27	1.36	[11]
PP	NA	NA	1.5–3.6	49	1.1	[11, 60]
PS	NA	NA	3.2	NA	0.7–1.5	[60]
PET	NA	NA	2.4–5	10–18	1.2–1.4	[11]
PVC	NA	NA	1.5–2.2	3	1.9	[60]
<b>Fossil-based and degradable</b>						
PBAT	2–3 months	>1 year	NA	NA	4.1	[11, 102, 61, 62]
PBS	2–5 months	>1 year	NA	NA	4.5	[11, 102, 61, 62]
PVA	1–2 weeks	4 months	NA	NA	2	[62]
PCL	4–6 weeks	6 weeks	NA	NA	NA	[49, 102, 61, 62]
<b>Bio-based and durable</b>						
PEF	9 months	NA	2.1	NA	NA	[10, 102, 61, 62]
bioPET	NA	NA	2–5.5	15–75	NA	[11]
bioPE	NA	NA	0.68	30	1.6–2.4	[63]
<b>Bio-based and degradable</b>						
bioPBS	>3 months	>1 year	2.2	75	NA	[10, 102, 61, 62]
PLA	6–9 weeks	>1.5 years	0.5–2.9	7–21	2–3	[11, 102, 61, 62]
PGA	2–3 months	1–2 months	NA	NA	NA	[11, 102, 61, 62]
P3HB	1–4 months	1–6 months	~2.3–4	14–25	3–8	[10, 102, 61, 62]
P4HB	4–6 weeks	1–6 months	NA	NA	3–8	[11, 102, 61, 62]

“Bio-based replacements are available for almost every fossil-based application; however, these are mostly in small and costly quantities, and do not always have substantial environmental benefits.”

# Are there environmental concerns associated with bioplastics?

 Chemosphere  
Volume 293, April 2022, 133645

Hazardous contaminants in plastics contained in compost and agricultural soil

Costanza Scopetani<sup>a</sup>, David Chelazzi<sup>b</sup>, Alessandra Cincinelli<sup>b</sup>, Tania Martellini<sup>c</sup>, Ville Leiniö<sup>d</sup>, Jukka Pellinen<sup>a</sup>

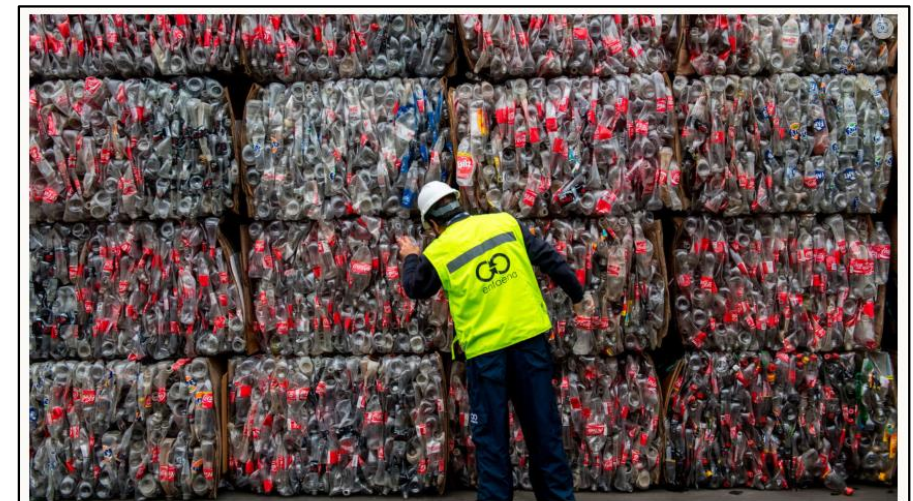
*“Not only can bioplastics find their way into the environment and take many years to break down, but because they are made from plants, they come with the environmental problems that large-scale agriculture causes.”*

Chemosphere  
Volume 309, Part 2, December 2022, 1368:

Bioplastics: known effects and potential consequences to marine and estuarine ecosystem services

Cátia Venâncio, Isabel Lopes, Miguel Oliveira

*“Overall, the available studies support the idea that **bioplastics are likely to cause physiological impairments** (feeding, reproduction, or locomotion) as well as cellular (proteome and enzyme activity) effects on biota... **It is evident that some reservations must be kept regarding conventional plastics substitutions by bioplastics.**”*



Why Bioplastics Will Not Solve the World's Plastics Problem

*Bioplastics are being touted by industry marketers as the solution to plastics pollution. But the idea that bottles and packaging made of plant-based material can simply be discarded and then break down and disappear is false - recycling and reuse are the only strategies that can work.*

BY JIM ROBBINS - AUGUST 31, 2020



# What questions should I ask when evaluating bioplastic products?

## Are environmental claims verified (and what do they actually mean)?

- ASTM biodegradability certification.
  - Which tests and for which landfill conditions?
- Biodegradable Products Institute certified compostable
  - Verifies product is compostable at a commercial composting facility.
- USDA Certified Biobased Product
  - Certifies product has at least 25% biobased content.
- Life-cycle analysis for greenhouse gas and other environmental impacts.



# What questions should I ask when evaluating bioplastic products?

## What process would we need to put in place to collect biodegradable products?

- Can they be co-mingled with other products or do they require a dedicated waste stream?
- Is any sort of “processing” required prior to collection (e.g. removal of nose clips and ear straps from masks)?



## What happens to bioplastics collected in my hospital?

- If going to landfill, will landfill conditions support biodegradation?
- If going to commercial composting facility, will they be screened out?



*“...compostable plastics are also ‘screened out by most organics facilities and sent to landfill because they have longer biodegradation times than food and yard waste.’”*

# What questions should I ask when evaluating bioplastic products?

## Are bioplastics worth collecting?

- Hospital mask recycling pilot
  - ~430 bed acute care, teaching, research hospital (similar to Toronto General)
  - 4 month pilot, 12 “separate stream” collection bins in various departments
  - ~30,000 masks collected, weighing 165 kg, **less than the average amount of non-hazardous waste TGH generates in an hour** (equivalent to 1 day of TGH paper recycling)
  - extrapolated cost for collection: \$30K/metric ton (for comparison: Toronto disposal rates <\$100/metric ton)



image source: <https://news.mit.edu/2021/covid-masks-environment-0720>

# Quality & Safety Evaluation Case Study: Bioplastics

Case Study Evaluation (green/yellow/red ranking)
<b>Business Case</b> <ul style="list-style-type: none"><li>• No cost savings or other significant value add</li><li>• Low value compared to other potential waste initiatives</li><li>• Organizational reputation risk (validity of biodegradable/ compostable claims)</li></ul>
<b>Quality &amp; Safety</b> <ul style="list-style-type: none"><li>• Little to no clinical or environmental evidence</li></ul>
<b>Change Management</b> <ul style="list-style-type: none"><li>• Careful change management planning required for effective implementation (waste segregation)</li><li>• Internal and/or external resistance a potential barrier (if extra workflow added)</li></ul>
<b>Supply Availability &amp; Reliability</b> <ul style="list-style-type: none"><li>• Somewhat limited availability of quality products/service</li><li>• Somewhat limited number of reliable vendors</li></ul>

# Thank you

*Ed Rubinstein*

*Director, Energy & Environment  
University Health Network*

*edward.rubinstein@uhn.ca*

***A Healthier World Through A  
Sustainable Environment***

## Talkin' Trash with UHN

*Free-range, organic, green healthcare ideas*



### From Earth Hour to a Supersized Earth Month

March 24, 2023



### Toronto Western Hospital Steam Boiler Feed Water System Upgrade

March 13, 2023



### Gather your loudest veggies and fruits, its #GreatBigCrunch time!



### Gardening in 24 Square Feet

February 21, 2023

<https://talkintrashwithuhn.com/>

# Change Management Case Study: Reusable Gowns

Case Study Evaluation (green/yellow/red ranking)
<p><b>Business Case</b></p> <ul style="list-style-type: none"> <li>• Cost savings when considering total cost of ownership</li> <li>• Justification of higher cost due to alignment with corporate strategy and values</li> </ul>
<p><b>Evidence</b></p> <ul style="list-style-type: none"> <li>• Strong clinical and sustainability evidence</li> </ul>
<p><b>Change Management</b></p> <p><i>Internal</i></p> <ul style="list-style-type: none"> <li>• Internal resistance can be a significant barrier           <ul style="list-style-type: none"> <li>• Need to leverage clinical community interest and commitment</li> </ul> </li> <li>• Requires evaluation of internal resources and systems to support change</li> <li>• Implementation strategies           <ul style="list-style-type: none"> <li>• Staff engagement: satisfaction and confidence</li> </ul> </li> </ul> <p><i>External</i></p> <ul style="list-style-type: none"> <li>• Evaluation of external systems required to support change</li> <li>• Navigation of contract terms and conditions           <ul style="list-style-type: none"> <li>• Alignment with contracts</li> <li>• Set-up/change of laundering contract &amp; system</li> </ul> </li> </ul>
<p><b>Supply Availability &amp; Reliability</b></p> <ul style="list-style-type: none"> <li>• Range of quality products/ services from numerous reliable vendors to meet requirements</li> <li>• Mitigates supply risk during disposable PPE shortages</li> </ul>

# Wrap-up & Key Takeaways



Please fill out the survey to provide feedback and inform the Sustainable Procurement Working Group

Survey to Inform the Sustainable  
Procurement Working Group

