CCES 2025 Session Summary

We Can't Afford Not To: The Power of the Circular Economy to Address Today's Rising Cost of Living

Living within a linear economy while exceeding our planet's boundaries has imposed significant costs on both our environment and society. Severe weather patterns, resource scarcity, and food insecurity are directly impacting our ability to maintain our way of life. During this session, experts will explore these risks and their associated costs from various perspectives, including those of governments, businesses, and citizens and how circular economy strategies can alleviate them.

Date / Location: Wednesday, April 16, 2025 / Montreal, Canada

Speakers:

- **Chantal Rossignol**, Coordinator, ÉTS/CERIEC
- **Dan Duguay**, Sustainability Lead, CPMA
- **Lucy Saye**, Sustainability Board Member, Institute and Faculty of Actuaries
- **Alec Hay**, Chairman/Principal, Rethink Sustainability Initiatives/Southern Harbour Ltd.

SUMMARY

Speaker Presentations

Lucy Saye, Sustainability Board Member, Institute and Faculty of Actuaires

Lucy discusses reframing financial risk management to address societal risks on a planetary scale. The core idea is that human societies and economies are utterly dependent on the Earth system, which provides essential, often irreplaceable, benefits. To ensure ongoing prosperity, humanity must manage its activities within scientifically established "planetary boundaries" – critical Earth system processes like climate change, biodiversity, and fresh water use, which have limits beyond which the environment cannot self-regulate.

Currently, humanity is not operating within these boundaries. Climate change and nature loss, driven by human activity, are destabilizing the planet, leading to unprecedented natural disasters and threatening to trigger climate change tipping points. These tipping points are self-perpetuating processes that, once initiated, can lead to irreversible and unadaptable impacts. For instance, even at 1.5 degrees Celsius of warming, there's a risk of breaching thresholds for the Greenland and West Antarctic ice sheets (contributing ten meters to sea level rise), coral reefs, and boreal permafrost. The Atlantic Meridional Overturning Circulation (AMOC) collapse, potentially as early as 2040 with 2.5 degrees of warming, could halve the land suitable for growing staple food crops. Lucy emphasizes that from a risk management perspective, such high-impact risks are unacceptable. Furthermore, these tipping points can interact, collectively lowering the thresholds at which they are activated, leading to even worse outcomes.

"Planetary solvency" is defined as managing human activity to minimize the risk of societal disruption and the loss of critical planetary support systems. Actuaries, accustomed to managing financial risks to ensure long-term solvency of institutions, apply a similar lens to the planet. The Earth is seen as providing "services" (raw materials, food, water), and if natural assets are eroded, these services are lost, leading to planetary insolvency. Monitoring planetary boundaries serves as a "dashboard" indicating the need for corrective actions, such as limiting global warming in line with the Paris Agreement and meeting biodiversity and sustainable development goals. Failure to act will lead to a "turbulent, insolvent planet."

A key argument is that the impacts of climate change are consistently underestimated. A realistic risk assessment involves setting appropriate limits, acknowledging high uncertainty, and identifying what outcomes must be avoided. This prudent approach encourages early action, even when scientific exactitude is elusive. For example, if the Greenland ice sheet could collapse between 0.8 and 3 degrees of warming, a risk management approach would prudently assume the lower end (0.8 degrees) due to the catastrophic impact.

The approach also emphasizes using "leading indicators" like planetary boundaries rather than "lagging indicators" like GDP, which only reflect problems after they've occurred. Systemic thinking is crucial, as risks interact (e.g., climate change and biodiversity loss driving pandemic risk). The concept of "derailment risk" is introduced: governments becoming so overwhelmed by climate change consequences that they cannot address the root causes or transition to a green economy.

Tail risks – low probability but high-impact events – must be specifically considered. Society must explicitly decide which risk outcomes are "totally unacceptable" and must be avoided. The presentation highlights that "just planetary boundaries," which include considerations of fairness and societal impact, often imply lower warming thresholds (e.g., 1 degree Celsius for climate change) than those based solely on Earth system stability.

A "planetary solvency risk appetite" is proposed as a way to formally state the desired level of risk. An example statement includes minimizing societal impacts, avoiding tipping points, habitat loss, species extinctions, warming above 1.5 degrees, forced displacement, conflict, mass mortality, and derailment risk. Such a statement, ideally developed with broad stakeholder input, makes explicit the types and levels of risk society deems acceptable.

A visual "risk appetite dashboard" shows current positioning (often in the "red" region, indicating being well outside tolerance levels) versus desired green regions. A "risk and likelihood impact matrix" qualitatively plots various risks (climate change, nature loss, societal impacts, economy, mortality) based on their probability and impact. The current trajectory for climate change, for instance, shows a progression from limited impacts to catastrophic and extreme outcomes.

The rationale for these assessments includes continued upward trends in emissions and atmospheric carbon dioxide. The discussion touches on the complex role of aerosols, which have a cooling effect that offsets warming. If climate sensitivity (warming in response to increased greenhouse gases) is higher than currently estimated but masked by a larger cooling effect from aerosols, removing aerosols (a positive from a pollution perspective) could lead to a sudden jump in warming.

The overall "dashboard" for planetary solvency would include the risk appetite statement, risk matrix, risk rating, trend, position, trajectory, explanation, and recommended policy actions to bring the planet back within risk tolerance. Lucy concludes with an overwhelmingly positive message: avoiding planetary insolvency is beneficial, and despite the massive, interacting risks, there are offsetting positive social actions that can accelerate progress.

Audience Q&A

The question and answer session following the panel presentations addressed how public procurement can effectively balance security, circularity, total cost of ownership, and autonomy within tender processes. The speakers share insights and real-world examples of integrating sustainability into procurement, highlighting its positive impact on cost, efficiency, and social responsibility.

QUESTION 1 - A participant asked about the **estimated GDP decrease for Greece** in the event of not course-correcting climate change, recalling a figure from a report not explicitly detailed in the presentation. Lucy confirmed an estimated **50% impact on GDP by 2050**. They clarified that assessing such impacts is complex, noting that models focusing solely on the reduction in GDP growth can produce misleading results, and it's crucial to consider the absolute amount of GDP.

Regarding the **response to the report** from actuaries and policymakers, Lucy indicated that while not all actuaries may be fully "on board" in the same way, the report frames the issue as a **risk management problem**, which resonates with most actuaries. The prevailing sentiment among actuaries is that the current approach to climate change does not adequately treat it as a risk management problem, which is concerning given the scale of societal risk.

From **policymakers**, the response has been **mixed but overwhelmingly positive**. Regulators have shown interest, engaging in discussions and demonstrating awareness of the issues. The team behind the report has been actively presenting their findings in various forums. They have also contributed as expert witnesses in parliamentary committees on related reports, highlighting that the **risk management perspective** they bring offers a unique and valuable contribution to discussions that often focus solely on scientific aspects.

QUESTION 2 - The question proposes that the work on planetary solvency, which uses risk-based assessments to prepare operations and infrastructure for future climate events, may also stem from an understanding of human behavior and cognitive dissonance. Specifically, it asks how human behaviors, such as politicians seeking re-election, CEOs wanting to maintain their jobs, or homeowners in flood zones expecting insurance or bailouts, impact the ability to address these complex risks.

The response emphasizes the **inherent complexity** of the climate crisis, which struggles to be reduced to the "sound bites" often favored in politics. This complexity makes it difficult to raise public awareness about the true meaning of risk for individuals, corporations, communities, and countries.

Alec highlights a disconnect in corporate decision-making, where traditional investment thinking focuses on linear "return on investment" (ROI) for individual assets rather than a holistic, systemic view. While individual climate-friendly measures might not show a high immediate ROI, a **"black box" approach** that considers the entire enterprise reveals that such measures, implemented as routine preventative maintenance, can increase profitability by reducing running expenses and improving long-term equity. This systems thinking fundamentally alters the financial perspective for businesses, satisfying not only immediate shareholders but also other stakeholders.

However, this systemic approach is challenging to apply in politics. The example of a homeowner in a floodplain illustrates this: if the government and insurance companies repeatedly bail out those who

rebuild in known flood zones, it reverses the normal risk response cycle. Alec contrasts this with historical flooding in areas like the Somerset Meadows in the UK, where repeated flooding is expected, and individuals are held more accountable for their choices. The current societal reluctance to tell individuals they must live with the consequences of their choices in high-risk areas creates a **political trade-off** that hinders consistent risk management.

The core challenge lies in translating complex actuarial understandings into a shared public knowledge that can drive effective policy and individual choices. The discussion concludes by acknowledging that humans, despite their intelligence, created this problem, and the question remains whether the same humans can evolve sufficiently to solve it, given their current behaviors and cognitive biases towards the very Earth systems that sustain life.

QUESTION 3 - Dan addresses the "renaissance to decline" spectrum, believing a "renaissance" is possible but requires fundamental shifts. Drawing on experience across diverse industries, he identifies three core challenges in transforming complex systems:

Systemic Complexity

The first challenge lies in the **system's inherent complexity and interconnections**. A "bad system will beat a good person every time," meaning even with good intentions, a poorly designed or malfunctioning system will prevail. This complexity overwhelms decision-making. He introduces the concept of an **emergent property**: a system's characteristic not controlled by any single entity, but rather a consequence of collective individual actions. This makes political decisions challenging as no single minister or entity can control outcomes; it's a "team sport." Furthermore, systems have a **temporal dimension**, yet many governments lack foresight capabilities to anticipate future scenarios. He commends tools like causal loop diagrams for understanding interdependencies and identifying "leverage points" for effective change.

Resistance to Change

The second challenge is **resistance to change**. Anecdotally, when change is proposed, approximately 20% of people are ready, 20% will resist fiercely, and 60% will wait to see who wins. This highlights a psychological dimension. Dan distills the drivers of change (or resistance) into three elements:

1. **Need to change:** Is the data and information compelling enough to recognize the necessity?
2. **How to change:** Beyond recognizing the need, do people understand the practical steps for change?
3. **Want to change:** This is the most crucial element – the fundamental desire to change. Knowledge is necessary but not sufficient; the intrinsic "want" to change, or the aversion to it, is a significant barrier.

The Importance of Diversity

The third challenge emphasizes that **diversity is not a "four-letter word"** and is crucial for addressing complex problems. There is rarely a single solution; multiple perspectives are needed. In environmental issues, this means bringing together viewpoints from land use, water, energy, materials, and packaging. These diverse perspectives must collaborate, moving beyond silos and echo chambers. Achieving this requires acknowledging the system's complexity and recognizing that transformation benefits everyone.

He likens it to holistic human health, where nutrition, exercise, sleep, and mental health all contribute—it's an "and" proposition, not an "or." He notes that a forthcoming manuscript, "Renaissance Rising," explores how diversity is essential for systemic change.

Finally, he stresses the importance of **generational diversity**, pointing out that many foundational conversations are driven by older generations. He concludes by quoting Einstein: "We can't solve our problems with the same thinking we used to get into them." He further argues that it's not just about thinking, but also the **emotional and interpersonal dimensions** that are vital for tackling such complex challenges.

QUESTION 4 - The discussion explores the human element in addressing complex climate risks, focusing on the need for **diversity** and the challenge of translating complex information into public action.

The initial questioner emphasizes that bringing diverse perspectives enriches conversations, citing how the speaker's use of quotes from only male figures sparked a personal "trigger." The speaker agrees, advocating for bringing in people one fundamentally disagrees with to foster more interesting dialogue, as current conversations often occur within "echo chambers."

A key point raised is that the people who can truly effect change are often not those already convinced, but rather those who are aware but do not yet subscribe to the need for change. Instead of focusing on what's wrong, the speaker suggests a more forward-looking approach: **focus on the desired future** and what capabilities are needed to get there. This involves introducing new systems and products that facilitate a shared transformation towards a better future, promoting **shared knowledge, insights, and solutions** rather than attempting to force change.

The speaker references Katharine Hayhoe's work on finding **common ground**, arguing that universal concerns like **human health and the well-being of children** are powerful motivators. Building dialogue around creating a world where children can thrive is a more effective approach than constantly highlighting "cataclysm."

The conversation then turns to the role of reports like Lucy's, which meticulously detail the interconnectedness of planetary, human, and economic health. While acknowledging the report's quality and its insights into interconnections, the speaker expresses concern that it **doesn't translate effectively into the public realm** because the target audience—those who need to be convinced to act—will likely not read it. The knowledge and logic are present, but it's not a "shared awareness."

The discussion concludes by highlighting the concept of the **"cost of inaction."** If the perceived cost of maintaining the status quo is low, there's little motivation for action. However, when the costs—not just financial, but also personal ones like a child's health or mental well-being—become tangible and high, people are more likely to act. The speaker warns that the overwhelming complexity presented in such comprehensive reports can lead to psychological shutdown for most people, who prefer "silver bullet solutions" and simplified narratives over interdependent issues. Therefore, while the report accurately identifies the challenge, the key lies in effectively communicating the "cost of inaction" to a broader audience in an accessible way.

QUESTION 5 - Lucy acknowledges agreement with the previous points, particularly the challenge of reaching a broader audience. She highlights the team's focus on developing a **dashboard** to make the report's insights more accessible and undeniable.

She emphasizes the value of **interdisciplinary collaboration**, noting that combining actuarial expertise with climate science has significantly amplified their message. While the actuarial profession in the UK is relatively small, its traditional role in financial system stability lends credibility. Because people often prioritize the financial system over planetary systems, having financial experts like actuaries declare the situation "really bad" prompts greater attention and encourages earlier, more substantial action. This collaborative approach, especially with respected climate scientists like Tim Lenton, has enabled them to reach a different, more receptive audience.

QUESTION 6 - The discussion touches on Canada's reaction to economic shifts, particularly concerning its relationship with the US. It's suggested that Canada's response is largely **emotional**, rooted in a historical risk perception where shifts in the much larger US economy could significantly impact Canada. The speaker notes that slow, incredibly traumatic events, like the "extremely slow, incredibly traumatic train wreck" of climate change, are difficult for humans to respond to effectively, contrasting this with immediate crises that prompt rapid reaction. This psychological aspect of risk perception, as highlighted by Dan Gardner who has written a lot about risk, is crucial because policies that ignore it are likely to fail.

The conversation then pivots to the **circular economy** and the impact of tariffs. While some see tariffs as an opportunity to promote "short circuits" and encourage domestic resource utilization, the current response indicates that this understanding is not instinctive for most. This suggests that people's existing **"lens" or "posture"** heavily influences how they interpret new evidence, and even significant events like tariffs or risk reports may not unilaterally change perspectives or actions.

A speaker then responds to the point about tariffs revealing a **weakness in the Canadian economy**. Canada's long-standing philosophy as a resource economy has led to **outsourcing much of its processing to the US**. This dependency on the US for processing exposes a "spotty capacity" within Canada to fully capitalize on circular economy opportunities, as the necessary infrastructure for processing domestic resources is often lacking.

The speaker also mentions Canada's significant holding of US debt, emphasizing that this financial interconnectedness could pose risks if the US economy faces difficulties. Despite these challenges, Canada possesses inherent strengths in energy, food, and water security. The concluding thought is that Canada has opportunities for self-reliance in critical areas, but only if it fosters a more robust internal dialogue and collaboration among its own stakeholders.

QUESTION 7 - A participant raises a critical question: must humanity "hit bottom" — like an addict in recovery — before truly addressing climate change? They express concern that rational arguments alone may be insufficient, prompting the need for **emotive responses and new narratives** to motivate change agents.

In response, the speaker suggests a "pre-mortem" exercise, a concept borrowed from military planning. In a **pre-mortem**, participants envision a future where their current plans have completely failed. For example, a company might imagine its reputation and finances destroyed due to a failed contract. This exercise is designed to evoke an **emotional reaction** that highlights potential pitfalls and motivates proactive measures. By mentally experiencing failure, individuals identify actions they could take to prevent that outcome. The speaker has observed this approach successfully generating an emotional commitment to problem-solving in various business contexts.

The discussion emphasizes the importance of **emotions** in driving change, acknowledging the common thread between addiction theory and military strategy in their focus on emotional triggers. The panel

concludes by stating that while they may not have presented all solutions, their goal was to **plant seeds for future thought and discussion**, recognizing that understanding and approaches to these complex issues will continue to evolve over time.