decarbonizing energy systems, the

the Art of Clean Energy Solutions

helped NRCan develop a hydrogen

strategy for Canada and enabled

clients to access over \$120-million

in hydrogen-project funding

deployments.

while managing eight hydrogen

principal and co-founder of Zen and

CANADA'S CLEAN50

PART 2 OF 3: A JUST AND SUSTAINABLE FUTURE

The leader of Purpose Building has

ow-carbon buildings, including by

with a cumulative total value of

owned by the City of Toronto.

improving the performance of assets

\$10-billion as well as developing a zero-

carbon transition plan for 2,500 facilities

helped accelerate solutions for healthy,

DOUGLAS WEBBER

SABINA RUSSELL BRUCE TAYLOR Passionate about hydrogen's role in

The president of Enviro-Stewards is enabling Canada's food producers to reduce food loss by about 9.3 million kilogram per year, mapping out pathways to becoming carbon neutral through identifying practical, affordable measures for reducing emissions and water, energy and product losses.

and changing the campus culture.

fertile ground at York, which is

"And this means sustainability

is being embedded in teaching

and research as well as societal

locally and globally."

engagement with communities,

The ambition of driving positive

change for all community members

while improving sustainability is

reflected in the university's latest

academic plan, aiming to elevate

York's contributions to the 17 SDGs.

known for prioritizing inclusion,

equity and social justice, he says.

These endeavours have found

REORIENTING EDUCATION TOWARDS SUSTAINABLE DEVELOPMENT

100

T here is a powerful tool that can help to address the interconnected global challenges of our time, including climate change, loss of biodiversity, poverty and inequality – and this tool is education.

Yet how do we hone such a tool to enhance its application and impact? How do we ensure it can be effectively used in different circumstances and communities across the globe? Such questions are at the core of the career-long efforts of Charles Hopkins, York University's UNESCO Chair, who received the 2022 Clean50 Lifetime Achievement Award for his work in reorienting education systems towards sustainable development and fostering cross-sector collaboration

Climate challenges affect us all - and they cannot be resolved by anything less than a collaborative approach, says Mr. Hopkins. "We need to create linkages between governments, academia, business, industry, the arts and civil society. What is required is a sense of responsibility and engagement from everyone to advance a common goal: a better future for all, while 'all' is not limited to humans."

A CONCEPT WITH UNIVERSAL APPEAL

It started with the quest to find a concept that would enable the UN to engage the global community on the topic of environmental protection, explains Mr. Hopkins. "When you work with a broad range of countries – including those in need of development - you need goals that resonate widely. One vision got buy-in from world leaders sustainable development."

This concept, which became the UN's overarching paradigm future, ESD has four aspects, says through the Brundtland Report in Mr. Hopkins. "The first is to ensure



Charles Hopkins, York University's UNESCO Chair, received the 2022 Clean50 Lifetime Achievement Award for his work in reorienting education systems towards sustainable development and fostering cross-sector collaboration. SUPPLIED

1987 and is still valid today, describes | access to quality education and "development that meets the needs lifelong learning. The second task of the present without compromising is reorienting education towards the ability of future generations to advancing sustainability and creating meet their own needs." a sense of responsibility in every In 1992, Mr. Hopkins presented individual. The third aspect concerns public education, public awareness and training as crucial elements for awareness, he says. "When citizens sustainability. This idea became understand the impact of their known as Education for Sustainable everyday actions, they can make Development (ESD) and has been conscious choices. For instance, evident in all subsequent UN awareness about our ecological implementation plans, including footprint and understanding how Agenda 2030 with the Sustainable we can create a handprint in life that helps reduce our footprint can Development Goals (SDGs). "Today, the UNESCO Chair cobe an important tool to achieve sustainability." ordinates two global networks with Delivering training that enables members from over 70 countries," he says, "providing research-based people to improve sustainability at evidence and policy advice to their places of work is the fourth the UN, governments and other aspect education stakeholders." **CREATING POSITIVE CHANGE AT** ENABLING A SUSTAINABLE FUTURE UNIVERSITIES "Although the percentage of the As key enabler of a sustainable

world's population attending university is quite small, these

AS RENEWABLES GAIN

TRACTION, POWER PURCHASE AGREEMENTS OFFER A STRATEGIC ADVANTAGE

Research by Deloitte reveals that 65 per cent of consumers expect CEOs to make more progress on societal issues like reducing carbon emissions, and companies are responding to that pressure. In a more competitive renewable energy market, savvy buyers are turning to power purchase agreements (PPAs) to encourage renewable growth and obtain a cost-effective supply of green energy attributes. Through a PPA, buyers provide price certainty to developers – which nelps developers secure financing for new wind or solar projects. "PPAs

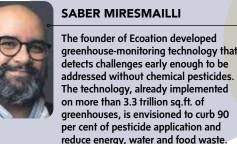
are a tangible way for organizaenergy certificates. tions to help bring a new renewable facility online and shrink their carbon footprint," says Suha Jethalal, president of Bullfrog Power. Bullfrog Power, Canada's leading areen energy provider recently partnered with RBC and Shopify to purchase energy from the upcoming Rattlesnake Ridge Wind Power

targets to reduce emissions by 70

per cent and to source 100 per cent of its electricity from renewable and non-emitting sources both by 2025. Shopify will use its environmental attributes to power 100 per cent of employee home offices across North America with wind energy. Bullfrog Power provided advisory services to Shopify to help the company navigate its first PPA. The environmental attributes that Bullfrog Power procures will go towards its green electricity, a turnkey solution that matches customers'

usage with high-guality renewable "Bullfrog aims to make the green energy transition accessible to everyone, no matter how big or small their power needs are," says Ms. Jethalal. "With our PPA expertise, we can advise large power users on choosing projects, mitigating financial risk and assembling buyers' groups. And by signing our own power pu

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reduce both food waste and direct GHG emissions by 50 per cent by 2030, and achieve net-zero emissions by 2050.

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It may seem a small thing: the little plastic clip holding together your bag of bread. Yet when you consider the number of clips used in households across the country, you can imagine their cumulative

impact. In the quest to leave no stone unturned in finding opportunities to reduce its environmental footprint, Bimbo Canada is switching to recyclable and municipally compostable bread bag clips, "the first national bakery company in North America to make this change," says Jeff Robertson, director, Environment & Sustainability, Bimbo Canada. "We're

It comes without sacrificing quality or performance and without any net price increase for consumers." Since conventional polystyrene clips are too small for automatic recycling, they end up in landfills, where they take up to 500 years to decompose. Compare that to

the new cardboard clips, which are made from 100 per cent recycled material and biodegrade in 84 days. Teresa Schoonings, senior director, Sustainability, Bimbo Canada, suggests visualizing the impact by laying bread clips used annually in Canada side by side, with the resulting line stretching across the country – from Vancouver to St. John's – and back. "That's how much plastic we'll remove from landfills: almost 200 metric tonnes," she says, adding that the cardboard clips are produced by Quebec-based KLR Systems, which

earned an innovation award. To reduce reliance on polystyrene in its supply chain, Bimbo Canada works with a consortium of companies as part of the Canada Plastics Pact. "It's the right thing to do, and that's why we made these investments, including the switch to new packaging equipment for the new clips," says Ms. Schoonings.

These efforts of Bimbo Canada are aligned with the strategic goals of its parent company Grupo Bimbo, the world's largest baking

require more time and investment, Ms. Schoonings notes. For this work, Bimbo Canada and Enviro-Stewards sions by 50 per cent by 2030 and netwon a Clean50 Top Project Award in 2021

During that year, Bimbo Canada implemented 40 projects that are saving the equivalent of two million meals of food, enough water to fill 31 Olympic-sized swimming pools, enough electricity to power 209 Canadian homes and \$700,000 per environmental consulting firm Enviroyear in operating costs. Stewards to assess all 16 plants and "We've done a tonne, but we four sales centres "to identify both continue to push to reduce our environmental impact," she adds. "And

we're excited about that."

Bimbo Canada is switching to recyclable and municipally compostable bread bag clips, one of many efforts to improve the environmental performance across all operations. SUPPLIED

EMPOWERING INDIGENOUS PARTICIPATION



tance of meeting net-zero targets, and since these goals resonate deeply with the values of Indigenous peoples, this presents a "tremendous opportunity for Indigenous communities, development companies and financial institutions to work together in new and interesting ways," says Mr. Jamieson.

understand what we're trying to

achieve and what their roles are."

The company also turned to

low-hanging fruit, which can be

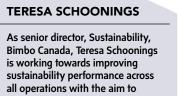
tackled right away, and projects that

The Six Nations of Grand River Development Corporation is an equal partner in the SNGRDC was launched in 2015 Niagara Region Wind Farm, a 230-megawatt operation that overlaps with the Six with the mandate to pursue economic self-sufficiency without sacrificing the cultural values and integrity of the Six Nations people, the largest First Nations in Canada

encourage Indigenous participation; and inadequate experience for executing these projects," he says. "With the right effort, public policy, partnerships and financing options we can provide communities with the tools and funding to advance heir interests. For example, SNGRDC is an equal Farm, a 230-megawatt operation

partner in the Niagara Region Wind that overlaps with the Six Nations' traditional territory. A recent partnership with Vancity Community nvestment Bank (VCIB) helped to secure refinancing that allows the nations to "unlock incremental value of \$400,000 per year over a 16-year period, which flows back into the community," says Mr. Jamieson, who believes such outcomes can serve as inspiration Over 600 Indigenous comnunities in Canada are currently pursuing projects related to the clean economy transition, and Mr. Jamieson regards efforts to support them as "advancing reconciliation." Healing and reconciliation have to

the nations' values of sustainability," | six solar, plus one hydroelectric



Clean 50



achieving a 50 per cent drop in food waste plus reducing direct GHG emiszero emissions by 2050. This requires an "all-hands-on-deck approach," he explains. "We've spent a lot of time establishing a organization-wide sustainability culture, where people

excited about this innovative change





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Clean50



with over 27,000 members - made up of the Mohawk, Oneida, Onondaga, Cayuga, Seneca and Tuscarora Nations – and spread over 46,500 acres of land It started with the intention to "jockey for a seat at the table in a sector that is strongly aligned with

notes Mr. Jamieson. "Over time, a paradigm shift happened, and now companies are coming to us." Today, the corporation manages a green energy portfolio capable of producing nearly 900 megawatts of renewable energy through direct or indirect involvement in seven wind,

happen in a way where Indigenous Through that evolution, SNGRDC became an active developer rather than a passive investor, and learned to overcome three main barriers that commonly affect Indigenous community engagement: "lack of access to capital; public policy that doesn't

Nations' traditional territory. SUPPLIED

nations gain economic might while retaining the autonomy "to control their destiny and be authentic to their values," he explains. "With economic participation, we can break the mould of dependency and go back to exploring our values and future as a people



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