Environmental, Social, and Governance

Atomic Energy of Canada Limited
2022 ESG Report

AECL EACL 70 YEARS ANS

To achieve Canada's goal of net-zero emissions by 2050, the energy sector requires an accelerated transition to zero- or low-carbon energy sources.

Contents

Letter from the President and CEO Page 4

Who We Are Page 6

About This Report Page 8

Highlights Page 10

Our ESG Strategy Page 12

Strategic Differentiators Page 14

- Decarbonization
- Engagement and Reconciliation with Indigenous Peoples
- Nuclear Medicine
- Science and Technology
- Radioactive Waste Management and Decommissioning
- Community Engagement and Development

Baseline Expectations Page 30

- Health and Safety of Public and Workforce
- Enterprise Risk Management (ERM)
- Climate Resilience
- Environmental Management
- Cybersecurity
- Diversity, Equity, and Inclusion
- Employee Attraction

Governance Page 42

ESG Governance Page 43

Oversight of CNL Page 44

Reporting Framework Standards Alignment Page 46

Appendix Page 48

Letter from the President and CEO

We acknowledge with gratitude that our operations are on the traditional land and territories of Indigenous peoples. As we reflect on the past 70 years, we continue to learn and develop more thoughtful and deliberate practices for the future. We are committed to building meaningful relationships through mutual trust, and seek to empower and enable Indigenous communities by taking meaningful actions to promote healing and advance reconciliation.

We take pride in advancing the Government of Canada's environmental and social objectives through nuclear science and technology. As a non-greenhouse gas (GHG) emitting source of energy, nuclear energy has and will continue to play a significant role in reducing Canada's carbon footprint, and we believe it will be a critical component of Canada's net-zero strategy over the coming decades. We are working with our private-sector contractor, Canadian Nuclear Laboratories (CNL), to enable the innovation, demonstration, and deployment of capabilities and resources to meet Canadian and global decarbonization needs, and to continue the safe, ongoing, and resilient operations of our nuclear fleet in Canada. Our flagship site and Canada's largest science and technology centre, the Chalk River Laboratories, is a modern, world-class campus for research and innovation.

Our approach to nuclear is an integrated one, with radioactive waste management, decommissioning, and environmental-remediation efforts as central elements of our strategic focus. It is our responsibility to manage the radioactive waste and decommissioning liabilities on behalf of the Government of Canada, and we have demonstrated our commitment in doing so through safe and reliable practices spanning decades. We continue to innovate, leveraging new technologies,

methods, and practices from around the world to develop new solutions for nuclear waste for both remediation legacy wastes or decommissioning sites, and into all new nuclear developments from their inception.

We firmly believe in the value of nuclear energy in Canada and beyond, and we continue to support existing and upcoming nuclear technologies in the spirit of decarbonizing Canadian and international electricity grids. Canadian deuterium uranium (CANDU) has been a provider of clean electricity for decades in Canada and other countries, and going forward, it continues to be a safe, reliable, and ready-now option for new electricity generation needs. New nuclear technologies, such as small modular reactors (SMRs), can be used to complement large-scale nuclear by making nuclear technologies more accessible through shorter construction periods, providing high-temperature heat for industrial applications, and displacing the use of diesel generators in remote communities. We are working alongside CNL to advance nuclear technology by enabling research, demonstrations, and safety procedures for SMR development.

Beyond our environmentally-focused initiatives, our ESG strategy involves leveraging our resources in science and technology to develop nuclear medicine solutions and advanced cancer treatment therapies to improve the lives of Canadians and those around the world stricken with health challenges. Alongside CNL and our partners in academia and the private industry, we are leveraging our laboratories and vast expertise to pursue opportunities related to Actinium-225, a new and innovative treatment that targets cancer cells while minimizing damage to healthy tissue.

Further to our role as a Crown corporation in advancing the Government of Canada's sustainability goals, we have been working with reputable ESG subject matter advisors over the years to deepen our approach to ESG, which is thoughtful yet pragmatic. Our approach to ESG is inclusive of the opportunities available to us, and is aligned with the priorities of our stakeholders. We are pleased to share with you our ESG progress and ambitions in our inaugural ESG report.

We are proud of the achievements we have made to date, and recognize the journey we have ahead to build ESG into the foundation of everything we do.

Fred Dermarkar, *President and CEO*

Who We Are

Atomic Energy of Canada Limited ('AECL') is a Canadian federal Crown corporation with a mandate to enable nuclear science and technology, and to protect the environment by fulfilling the Government of Canada's radioactive waste and decommissioning responsibilities. In fulfilling our mandate, we will continue to combat climate change through clean-energy growth and decarbonization strategies, pioneer new treatments for cancer and other diseases, and accelerate Canada's environmental-remediation projects.

Founded in 1952, AECL has played an important role in Canada's nuclear sector. Our Chalk River, Ontario headquarters is the birthplace of the Canadian nuclear industry. Canada has set a goal to increase its share of zero-emitting energy sources to 90 percent by 2030, to which the nuclear sector is key. Canadian electricity, on average, is comprised of approximately 14 percent nuclear energy and only 6 percent of wind and solar combined[1]. We have an opportunity to support Canada's objectives to increase energy security, transition away from fossil fuels, and reduce emissions. As the owner of Canada's largest nuclear science and technology laboratory, our organization will continue to play a vital role in reaching these objectives.

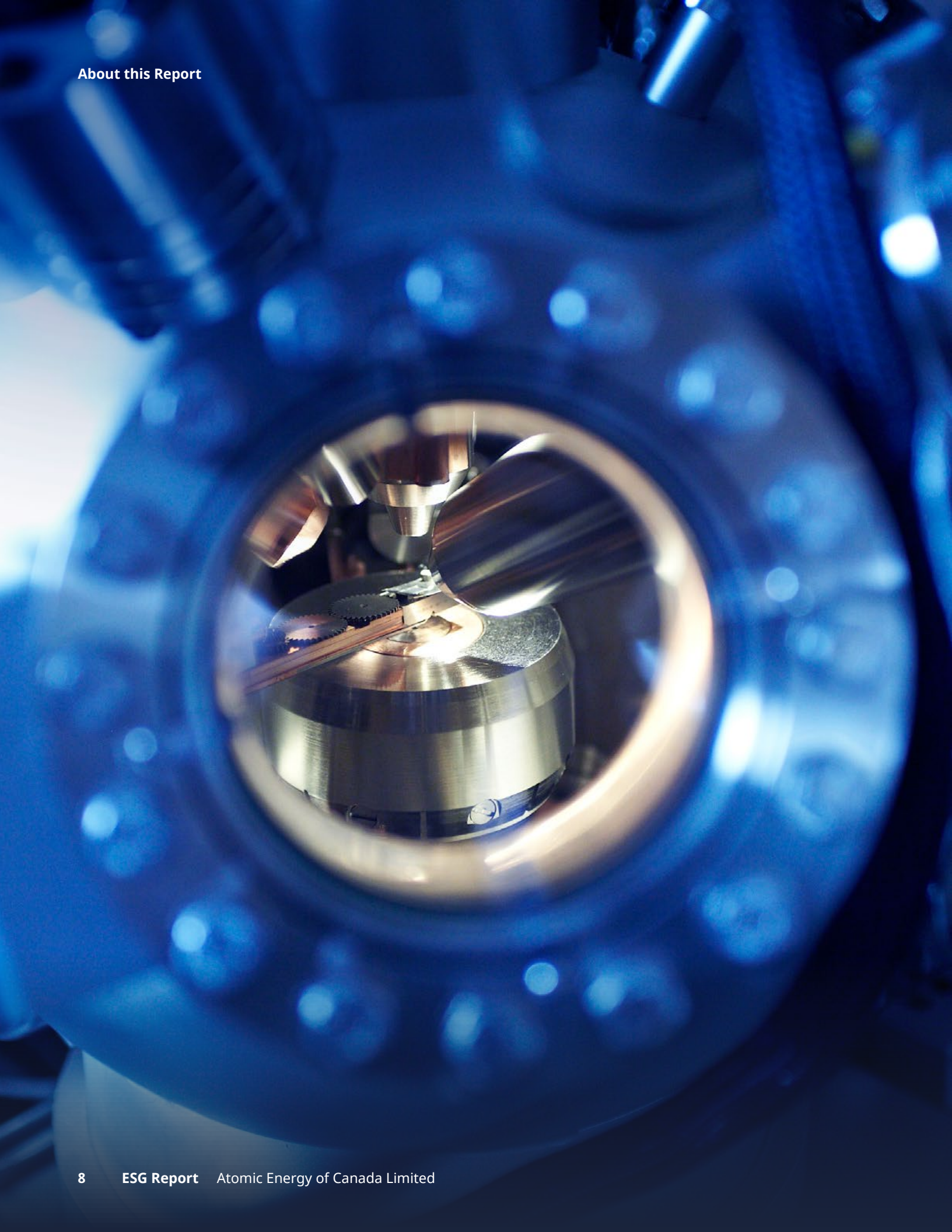
AECL delivers on its mandate through a Government-owned, Contractor-operated (GoCo) model, where a private-sector organization (CNL) is responsible for managing and operating AECL's sites. Under this GoCo model, we own the sites, facilities, assets, and intellectual property, while CNL is responsible for the day-to-day operations under our oversight as a contractual counterparty.

This model allows AECL to leverage international knowledge and skills to advance work and priorities while bringing private-sector experience and expertise to the operation of its sites. It also allows CNL to advance its priorities in the most effective and efficient manner, while maintaining safety, security, and environmental protection. The GoCo model is supported by AECL's team of experts, who have the necessary broad-based experience to oversee the contract with CNL, and play an oversight and challenge function to achieve value for Canada.

We achieve value for Canada through leading-edge science and technology, and advancing nuclear medicine. We are committed to working and building trusting relationships with our stakeholders, including local municipalities and Indigenous communities.

[1]Statistics Canada (2022) Electric power generation, monthly generation by type of electricity

We have an opportunity to support Canada's objectives to increase energy security, transition away from fossil fuels, and reduce emissions.



About this Report

As AECL's inaugural ESG report, this document provides an overview of our progress and ambitions toward driving sustainability and nuclear innovation in Canada. This report demonstrates our commitment toward transparency in sharing our ESG journey.

It highlights strategies and actions in our role to advance Canada's nuclear interests, including decarbonizing the energy sector, collaborating, building relationships based on trust with Indigenous peoples, and improving the lives of Canadians through the advancement of nuclear medicine.

The data in this ESG report covers our performance in Canada from April 1, 2021, to March 31, 2022. To align with government-reporting requirements, Global Reporting Initiative (GRI) data reflects the reporting period from January 1, 2021, to December 31, 2021. These data are marked with an asterisk (*). References to "AECL", "we", "our" or "Corporation" refer to Atomic Energy of Canada Limited. All dollar amounts are in Canadian dollars.

This ESG report has been reviewed and approved for publication by our executive leadership team and Board of Directors, including AECL's ESG Committee and executive ESG Champions, who are accountable for ESG within the organization and were integral in the development of this report. It is available in both English and French.

This ESG report has been prepared with reference to the GRI Standards and the Sustainability Accounting Standards Board (SASB) Industry Standard for Electric Utilities & Power Generators. As we continue along our ESG journey, AECL aims to move towards a more integrated reporting model, supporting our commitment to transparency and accountability. See the Appendix at the end of this report for details. In line with the Government of Canada's requirement for all Crown corporations to adopt the Task Force on Climate-related Financial Disclosures (TCFD) standards as part of corporate reporting, AECL is committed to full alignment with the TCFD recommendations, and we are developing our inaugural TCFD report to be published early 2023.

Highlights

Our ESG strategy builds off our ambitions to support the Government of Canada's decarbonization, environmental, and social objectives, and is deepened by our approach to embed ESG throughout our organization. We are committed to working alongside our stakeholders and Indigenous communities, and learning from the past to enhance our approach to ESG.

Data marked with an asterisk (*) reflects the reporting period from January 1, 2021, to December 31, 2021.

Reflecting on our ESG Progress

111 buildings have been decommissioned,

and we will decommission the remaining 77 obsolete buildings before 2055.

Achieved a 38% reduction in GHG emissions

from the 2005 baseline at Chalk River Laboratories with CNL.

Exploring clean energy projects

through the Clean Energy Demonstration, Innovation, and Research (CEDIR) initiative.

Actinium-225

We are advancing the research and development of this promising and innovative new treatment for many forms of cancer.

1.3 million tonnes

of low-level radioactive waste have been excavated from the Lake Ontario Shoreline.

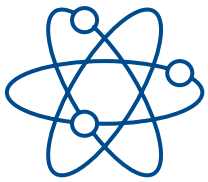
Supporting our Current ESG Ambitions

Indigenous Reconciliation Action Plan

is in development to better support how we engage and collaborate with Indigenous peoples.

Medical isotopes

produced by CNL scientists at the Chalk River Laboratories have been used in over one billion medical treatments.



2,700*

local people are currently employed by CNL at the Chalk River Laboratories.

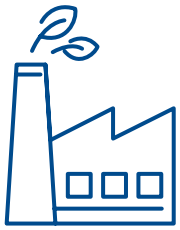
Accelerating the delivery of radio-pharmaceutical therapy

to clinical patients and practices by working with government, academia, and industry.

Reducing carbon

by using mass timber in the construction of three new buildings, and considering mass timber as a material in future builds.

Our Meaningful, Measurable Targets

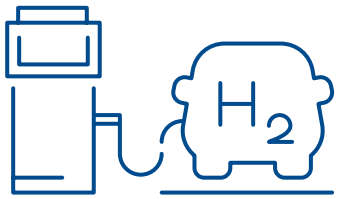


2040 Net-Zero Emissions

targets have been set by AECL and CNL, and we have a plan in place to achieve these targets.

Equal by 30

We are aligned to this commitment, which seeks to provide equal pay, leadership, and opportunities for women in clean energy by 2030.



Decarbonizing our light-duty vehicle fleet

by 2030, in alignment with the Government of Canada's objectives.

Our ESG Strategy

We are working to integrate ESG into everything we do, including our governance processes, decision making, and corporate strategy. Our ESG strategy considers both how we manage ESG internally as an organization, and how we can leverage our capabilities and resources to support national and global ESG efforts.

Our ESG strategy describes our pragmatic yet robust approach to managing the ESG opportunities and risks inherent within our business, and in our role as a federal Crown corporation.

Our ESG strategy builds off our existing vision of driving nuclear opportunity for Canada, and recognizes that under the GoCo model, we will oversee CNL's efforts, including within its own ESG strategy, in meeting strategic objectives and outcomes. It is an activator to our corporate strategy.

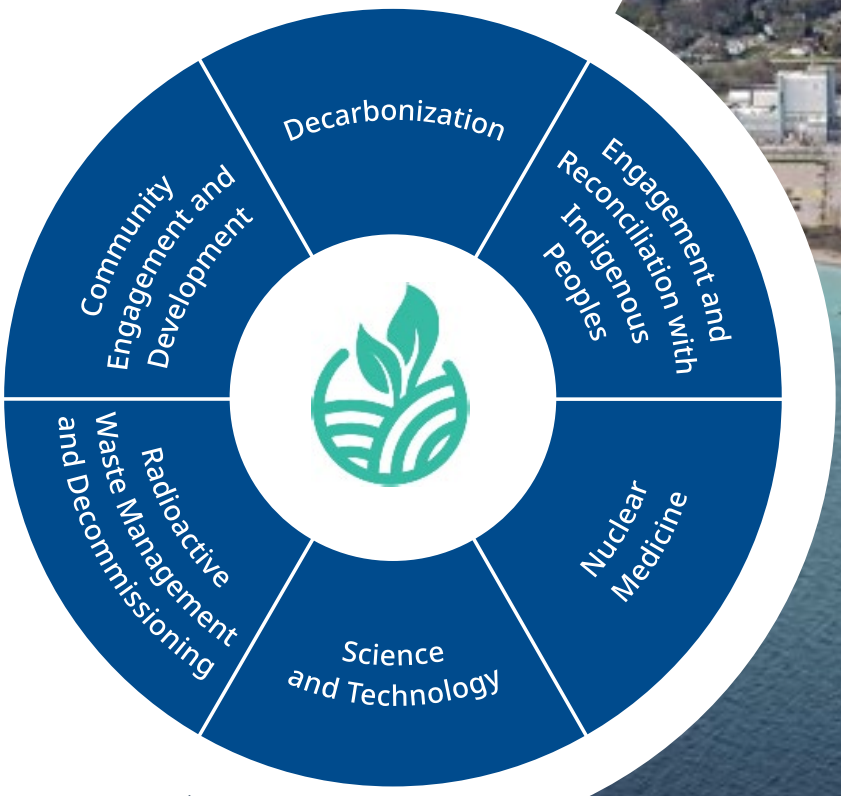
AECL's mission is to realize value for Canadians by driving nuclear innovation, creating a state-of-the-art nuclear campus, and cleaning up legacy waste. We are working to integrate ESG into everything we do, including our governance processes, decision making, and corporate strategy. Our ESG strategy considers both how we manage ESG internally as an organization, and how we can leverage our capabilities and resources to support national and global ESG efforts. In fulfilling our strategy, we recognize the unique opportunity that overseeing CNL provides us in turning an idea into reality. We are committed to overseeing and collaborating with CNL in its ESG efforts, and annually reviewing our strategy to incorporate leading practices.

Although this is our inaugural ESG report, AECL has long been committed to pursuing an ESG agenda. In recent years, we have worked with a reputable third party to facilitate an objective current-state ESG assessment. Last year, we reported on progress and strategic intentions internally. We continue to build on this progress, and are embarking on the next step of our ESG journey with our first public ESG report.

An integral first step in developing a meaningful ESG strategy is understanding the priorities of our stakeholders. In 2022, AECL worked with an objective third party to engage some of our key stakeholders in an ESG materiality assessment to understand their ESG priorities, risks, and opportunities. Through this work, we identified the ESG topics that matter most to our business and stakeholders, as well as opportunities to improve our performance in these areas. Ultimately, the results of the ESG materiality assessment yielded six ESG topics that are 'strategic differentiators' and seven that are our 'baseline expectations' in the context of our ESG strategy and our role in the transition to the low-carbon economy. 'Strategic differentiators' are used to inform the ESG strategy, and to articulate the ESG priorities of AECL to our stakeholders, whereas 'baseline expectations' are topics that are important to AECL and require consistent effort, but do not drive our ESG strategy.

Strategic Differentiators

Our ESG strategy is guided by our unique differentiators as a business, and is embedded within our corporate strategy. While all aspects of ESG matter to us and our stakeholders, our strategy is built around the topics that AECL is uniquely positioned to influence and lead, with the credibility behind us to do so. These 'strategic differentiators' will drive tangible outcomes to support AECL during our long-term ESG journey.



Decarbonization

Decarbonizing global economies is one of the most pressing challenges of our time, and decarbonizing the energy systems that underpin economic activities is a central tenet. To achieve Canada's goal of net-zero emissions by 2050, the energy sector requires an accelerated transition to zero- or low-carbon energy sources. Alongside other clean and renewable electricity sources, nuclear energy has a critical role to play in decarbonizing the electricity grid. At AECL, our science and technology innovation activities are focused on enabling such a transition, at both the national and global scale. We also recognize our responsibility for decarbonizing our own operations, including those of CNL.

Deploying Nuclear Technologies to Support Canadian and Global Decarbonization Efforts:

As we continue to develop nuclear opportunities for Canada, AECL has a key role to play in the Government of Canada's decarbonization and net-zero emissions targets. Nuclear energy presents an immense opportunity for emissions reductions on a national and global scale. Nuclear energy comprises 14 percent of total Canadian electricity production[2] and 59 percent of electricity produced in Ontario[3]. At AECL, nuclear innovation is central to our purpose. Nuclear technologies can provide low-carbon energy solutions to support Canadian and global net-zero emissions targets.

CANDU Technology

The Chalk River Laboratories, our flagship site and Canada's largest science and technology facility, has been home to many breakthroughs in nuclear, including the development of the CANDU reactor technology. CANDU, together with related pressurized heavy water reactor technology, is currently deployed at 19 reactors in Canada and 26 international reactors for a total of 45 reactors, contributing to the decarbonization and stability of electricity grids on a national and global scale.

It is now ready for deployment as its proven C6 design was updated to meet modern-day codes and standards. CANDU offers unique opportunities when compared with other reactor designs, notably with its use of natural uranium fuel and its ability to make medical isotopes concurrently with electricity production.

[2]Statistics Canada (2022) Electric power generation, monthly generation by type of electricity
[3]CER (2022) Provincial and Territorial Energy Profiles

Small Modular Reactor Technology

As part of its long-term vision, AECL is enabling CNL to advance SMR research and technology. SMR technology could provide new clean energy options that will help Canada achieve its climate-action objectives, including decarbonization and net-zero emissions. In line with the Government of Canada's SMR Action Plan, CNL is working to advance the development of SMR technology as a source of safe, clean, and affordable energy. SMRs are nuclear reactors that are smaller, less complex, and more affordable than current nuclear technologies. This developing technology could provide new clean-energy options for provincial electricity grids, remote communities, and hard-to-abate sectors that currently rely on non-renewable energy, as outlined in the SMR Action Plan.

The Government of Canada has demonstrated its commitment to SMR technology through investments and research to minimize waste generated by SMRs. As a nation, we are using the pursuit of SMR technology to strengthen international nuclear cooperation agreements and partnerships, and support SMR regulation, safety, and security. We are leveraging our expertise and facilities in an effort to position Canada as an industry leader, and CNL is aiming to site a demonstration reactor at one of AECL's sites before 2030. CNL has issued a request to SMR developers to participate in the evaluation process to construct and operate an SMR demonstration project. One of these companies, Global First Power, has signed a Project Host Agreement with CNL for the construction of its Micro Modular Reactor™ project. Global First Power is currently working with CNL to construct and operate an SMR at the Chalk River Laboratories, and hopes to build the first SMR in Canada in support of Natural Resources Canada's objectives.

CNL is continuing to explore the CEDIR initiative to demonstrate how SMRs can integrate with renewable sources of production, as well as various sources of consumption. More information on the CEDIR initiative can be found here.

Enabling the Advancement of Fusion Technologies

Fusion technologies are a growing opportunity for nuclear science globally, and have been garnering support from private-sector industry organizations and investors. In Canada, credible SMR vendors that rely on an underlying system of fusion are entering the market and becoming part of the fabric of our industry. Our laboratories have strong expertise in this area of research, and we are well-positioned to support Canada's federal fusion research and development approach. We are committed to engaging and collaborating with the Government of Canada to advance these technologies within the Canadian landscape.

Global First Power is currently working with CNL to construct and operate an SMR at the Chalk River Laboratories, and hopes to build the first SMR in Canada in support of Natural Resources Canada's objectives.

Advancing Hydrogen Research

Hydrogen technologies can enable carbon reductions for typically heavy-emitting sectors such as energy and transportation. The Government of Canada has incorporated hydrogen as a fundamental component of its plan to achieve net-zero carbon emissions. The Canadian government is also working internationally to form agreements centered on hydrogen supply, further bolstering the case for hydrogen demand in Canada. Studies suggest global hydrogen demand is expected to grow by 44 percent by 2030[4].

Hydrogen is a versatile, clean-energy solution that is a desirable alternative fuel due to its ability to produce electricity with limited by-products. However, manufacturing hydrogen requires a significant amount of energy. Traditional nuclear power plants generate excess energy during off-peak hours, and this energy can be leveraged to produce hydrogen. AECL and CNL are working to advance hydrogen technologies, which can complement nuclear power generation to further contribute to the decarbonization and stability of a clean electricity grid. To support the Government of Canada's Hydrogen Strategy, we are coordinating with industry partners to identify barriers and opportunities to advancing the science behind nuclear-based hydrogen production in Canada. The Canadian nuclear industry possesses decades of knowledge and expertise in hydrogen-isotope technologies, specifically at CNL. We are able to leverage the knowledge, expertise, and facilities that exist at CNL to enhance and expedite hydrogen production and infrastructure projects across the nuclear industry.

Improving the Energy Efficiency of Our Operations, and Reducing Our Respective GHG emissions

In addition to developing and deploying nuclear technologies that enable decarbonization on a global scale, we recognize the importance of reducing our own carbon footprint. AECL is committed to minimizing energy use and emissions across all operations, including the day-to-day operations of CNL.

We have targets in place to achieve carbon-neutral operations at all AECL sites by 2040. We are currently on track to meet the set target of a 40 percent reduction in GHG emissions by 2025 compared to the 2005 baseline.

After 2025, we are targeting an additional 20 percent reduction every five years to achieve at least a 90 percent reduction in Scope 1 and Scope 2 GHG emissions by 2040 (Scope 1 emissions are direct emissions that occur from sources owned or controlled by AECL, and Scope 2 emissions are indirect emissions from the generation of purchased electricity, steam, heating, or cooling consumed by AECL and CNL). The remaining emissions will be offset to achieve our net-zero targets. Under the oversight of AECL, CNL has achieved significant reductions in emissions and energy efficiency improvements. Relative to 2005 emissions, CNL has already reduced its GHG emissions by 38 percent*.

[4]IEA (2021) Hydrogen

AECL is also working with CNL to calculate Scope 3 emissions (Scope 3 emissions are downstream emissions that occur as a consequence of using AECL's products or services). CNL has developed a Carbon Neutral Strategy to outline the improvements and changes necessary to meet emission targets. This strategy incorporates energy-efficiency improvements such as upgrading existing facilities and infrastructure, process improvements, modernizing CNL's road fleet, and prioritizing low carbon when constructing new buildings. To date, three AECL buildings have been structurally built with mass timber, reducing and sequestering carbon emissions. Moving forward, we are prioritizing the use of mass timber in the construction of new buildings where possible.

This year*, several energy-efficiency improvements were implemented to reduce GHG emissions at the Chalk River Laboratories, including technology and infrastructure upgrades such as powerhouse repairs, the retrofitting of nearly 6,000 lightbulbs to LED lights, and the installation of Smart Building commissioning and analytics tools in seven buildings. These improvement projects have reduced electricity consumption by nearly 2,000 MWh*; and identified other opportunities for energy improvement at the site. Through the GoCo model, the decommissioning of five* buildings at the Chalk River site in 2021 resulted in further natural gas and electricity emissions reductions. These improvements are in pursuit of our target to achieve a 30 percent reduction in energy intensity at the Chalk River Laboratories site by 2035, guided by CNL's Energy Efficiency Strategic Improvement Plan (EESIP). As a result of energy-efficiency improvements, energy intensity at Chalk River Laboratories this year was reduced to 2,829 MJ/m^2*.

Engagement and Reconciliation with Indigenous Peoples

Our sites and operations are situated on the traditional land and territories of Indigenous peoples. We are committed to engaging with Indigenous peoples through open-ended conversations, and establishing meaningful relationships built on trust and transparency. Our approach to engaging with Indigenous peoples is centered around listening, understanding, learning, and taking meaningful actions to advance reconciliation with the Indigenous communities on the land on which we operate.

We Have Committed to the Following Four Priorities Related to Reconciliation:

1. Listening, understanding, improving, and taking meaningful actions to advance reconciliation with Indigenous nations and communities on whose lands we operate.
2. Continuous learning about Indigenous history, culture, traditions, and worldviews.
3. Integrating Indigenous knowledge and values into AECL's policies, procedures, practices, and projects so that they become embedded in all that we do.
4. Finding ways to empower and enable Indigenous nations and communities to participate in projects across AECL sites, contributing to the economic prosperity of these communities.

As a federal Crown corporation, AECL represents the Crown in our actions and interactions with Indigenous peoples. As a result, all AECL and CNL's engagement activities endeavour to be mutually beneficial and align with the Government of Canada's broader reconciliation objectives.

We have commenced our journey to strengthen our relationships with Indigenous peoples and communities, and are committed to continuing our efforts to establish new relationships with the Indigenous communities on the land on which we operate. This relationship is one rooted in efforts to understand perspectives of Indigenous peoples, and that contributes to healing and reconciliation between Indigenous peoples and all Canadians. We have been making measurable strides, but recognize that it takes time to develop meaningful and trusting relationships, and that we still have a long way to go in this regard.

We have created a plan to guide our engagement with Indigenous peoples, and are working to establish a process to help us build a Reconciliation Action Plan, developed in collaboration with Indigenous partners before 2025. This will guide how we engage with Indigenous communities and seek to embed their perspectives in the work we do. CNL, as a site operator, project proponent, and member of the local community, is also responsible for engaging with Indigenous peoples. This includes on environmental remediation projects, future land uses, as well as site development.

AECL and CNL are facilitating and participating in a growing number of engagements to help build foundations for trust, understanding, and mutually beneficial relationships with Indigenous peoples. These engagements allow us to consider the integration of Indigenous knowledge and values into our environmental remediation practices, as well as our future land use planning procedures.

AECL is continuing its journey of reconciliation with Indigenous peoples through two main priorities: employee and Board of Director training, and building strong long-term relationships.

We understand that it takes time, resources, and meaningful, tangible actions to build trust and demonstrate sincerity. It also requires regular communication with Indigenous communities, and ongoing learning and training for employees of all levels, including contractors and the Board of Directors.

Employee Training

In line with our second reconciliation priority, it is important for our employees to develop a deeper understanding of the history of the Indigenous peoples in Canada, as well as the history and culture of the Indigenous nations and communities on whose territories our operations reside. AECL provides training opportunities on Indigenous culture and awareness to all employees, and we intend to build on this training program to continue to develop strong relationships with Indigenous peoples and their communities.

These trainings currently include:

- Training on the Crown's duty to consult and related obligations provided to senior management and staff with direct responsibility in this area.
- Indigenous-cultural learning and training offered to all AECL and CNL employees.
- Training to employees and executives on engaging and involving Indigenous communities in procurement opportunities, as well as the meaning of reconciliation.

Building Strong Long-Term Relationships

Earlier this year, we demonstrated our commitment to engaging with Indigenous peoples in a meaningful and collaborative way by updating our strategy on engagement with Indigenous peoples. Under AECL's guidance, CNL has worked to develop strong relationships with First Nations, Métis, and Inuit communities and organizations. We aim to provide meaningful opportunities for project dialogue and participation that has been oriented towards the needs of each community, and to continue to foster and work towards establishing longer-term relationship agreements.

In recent years we have focused our efforts on building partnerships with communities. Our relationships are at various stages of maturity, supported by several agreements and memoranda of understanding. Both AECL and CNL are also providing capacity funding to enable communities to engage meaningfully, including to enable community-led monitoring and stewardship programs. AECL will continue to pursue these activities, including identifying work and activities that demonstrate its commitments beyond agreements.

In December 2021, AECL and CNL were both honoured by the Algonquins of Ontario with the gifting of the Minwamon Building name upon our new site entrance building at the Chalk River Laboratories. This name means 'clear path' in the Algonquin language, and the facility was officially inaugurated during a ceremony held at the Chalk River campus.

There is an increasingly clear overlap between climate action and engagement with Indigenous peoples. The Local Communities and Indigenous Peoples Platform (established in 2015) and the Government of Canada (in its 2030 Emissions Reduction Plan) recognize the importance of incorporating perspectives and traditional knowledge from Indigenous peoples in enhancing climate policy and action plans. In addition, the Government of Canada understands that tackling climate change requires strong partnerships across the country, which is why the Low Carbon Economy Fund that was created to support Canada's clean growth and climate-action plans will include a new Indigenous Leadership Fund for projects specifically led by First Nations, Inuit, and Métis communities and organizations. We understand the value of engaging with Indigenous peoples in the spirit of climate action and strategy development, and look forward to expanding our collaboration with Indigenous peoples in the context of climate and decarbonization through CNL.

Nuclear Medicine

As a leading organization in science and technology, we are well positioned to leverage our capabilities and resources in applied research to produce lifesaving treatments and technologies. This includes leveraging CNL's world-class laboratories and expertise to improve the lives of Canadians and those around the world. Scientists at Chalk River Laboratories have long been leaders in medical isotope research, with isotopes produced at the site used in over one billion medical treatments. The science behind medical isotopes such as radiodiagnostics and cutting-edge radiotherapies has advanced significantly over recent years.

The technology in this field evolves quickly, and it is important to continue innovating. It is our objective to stay at the forefront of the industry and continue to develop our technical expertise. Our research and development pipeline involves working with government, academia, and industry to accelerate the translation of new radiopharmaceutical therapy to clinical practice, explore new options, optimize safety and efficacy, and build a stronger workforce in health science and medicine. CNL's Health Sciences Directorate helps bridge the gap between radiopharmaceutical therapy research and practice, better supporting the livelihoods of Canadians. This involves radiopharmaceutical development and testing, Actinium-225 research, and low-dose radiation research.

Radiopharmaceutical Solutions and Services

CNL leverages its world-class radiobiological research laboratories to develop radiopharmaceutical solutions and services, such as pre-clinical services, and radiobiology services. This research involves developing isotopes, optimizing radiopharmaceutical solutions, and evaluating the efficacy of these solutions. CNL's research capabilities are augmented by the capabilities and resources of our industry and academic partners.

Actinium-225

CNL is now advancing the research and development of Actinium-225, a rare medical isotope with a short half-life used in targeted alpha-therapy. Targeted alpha-therapies use medical isotopes that target cancer cells directly, delivering radiation to disease cells while minimizing damage to healthy cells and tissues. Actinium-225 could provide promising treatment for many forms of cancers in Canada, including prostate, breast, and colon cancer. CNL is pursuing strategic academic and commercial partnerships to enhance research and development with medical isotopes at the Chalk River Laboratories. Moving forward, CNL strives to be an international hub in the development of this new generation of medical isotopes, including being at the forefront of research, production, and supply.

Low-Dose Radiation Therapy

Exposure to a high degree of radiation can be damaging to surrounding cells, and the research in this field seeks to optimize the dose of radiation to enable effective treatment, while reducing harm to the patient. Low-dose radiation treatment has been shown to be an effective treatment option to help protect people from disease by activating repair mechanisms. CNL's research in low-dose radiation therapy is the first to demonstrate efficacy of immune checkpoint therapy. These studies demonstrate that low-dose radiation boosts the immune system, improving the body's ability to heal itself. This treatment is also used in stem-cell research, to extend the life of stem cells.

Science and Technology

Enabling nuclear science and technology is an essential part of our dual-purpose mandate, and we recognize the vital role it plays in contributing to a clean, healthy, and prosperous future for Canada. Achieving this mandate can improve operational safety and reliability, reduce costs, and minimize environmental and social impact, all of which improve the lives of Canadians nationwide. We have introduced several key initiatives, such as:

Federal Nuclear Science and Technology Work Plan

This program supports the federal government's nuclear science and technology needs. AECL is responsible for the management and oversight of this program, and manages it through engagement with 14 different federal departments and agencies. The Federal Nuclear Science and Technology Work Plan, a $76 million investment, supports core federal roles, responsibilities, and priorities, and maintains the capabilities and expertise at CNL. It is centered around four priorities: (1) supporting the development of biological applications, and understanding how radiation impacts living things, (2) supporting radioactive waste management and other environmental stewardship efforts, (3) enhancing nuclear security, preparedness, and emergency response, and (4) supporting the safe, secure, and responsible use and development of nuclear technologies.

CEDIR Initiative

CNL is exploring the CEDIR initiative, a clean energy park at Chalk River Laboratories, which is Canada's largest science and technology site. This initiative will be a technology-demonstration platform to support all clean-energy technologies for academia and government to help Canada achieve its decarbonization objectives. It will build upon the critical clean-energy research and development CNL has been advancing, and study how these clean-energy technologies can work together alongside other renewable energy sources to create a hybrid-energy system. It will enable CNL to have a research focus on nuclear hydrogen, nuclear-fusion technologies, research-reactor opportunities, and the deployment of SMRs and other new nuclear innovations. The research and innovation conducted through the CEDIR initiative will be important in helping Canada achieve its target of net-zero emissions by 2050.

SMR Technology and Hydrogen Research

Collaborative nuclear technology advancement is incorporated in our strategic plan, and we will continue to refine our role in leading the Government of Canada's ambitious goals through the GoCo model. We will continue to look for new opportunities to establish partnerships to support future research and development needs. More information on SMR technology and hydrogen research at AECL and CNL can be found here.

Radioactive Waste Management and Decommissioning

Radioactive waste management and decommissioning are at the core of AECL's mandate and mission. To deliver on our mandate, we have a responsibility to clean up legacy sites and advance environmental remediation and radioactive waste management projects in areas where the federal government has assumed responsibility. We are committed to protecting the environment by advancing key decommissioning, remediation, and radioactive waste management projects in collaboration with Indigenous groups and local communities.

AECL continues to accelerate radioactive waste management and decommissioning activities in a safe manner, consistent with leading international practices to reduce risks and decrease costs for Canada. With AECL's direction, CNL is proposing long-term radioactive waste disposal solutions and advancing decommissioning activities.

Chalk River Laboratories

At the Chalk River Laboratories, hazardous waste resulting from nuclear science and technology activities are carefully managed at dedicated waste-management areas. Due to previous management standards, some areas of the site contain buried waste, soil contamination, and groundwater contamination. Responsible decommissioning and radioactive waste management is necessary to clean up these areas at the Chalk River site, protect the environment, and make land available for new buildings that will support the ongoing nuclear science and technology mission at the Chalk River Laboratories. In 2021, five* buildings at the Chalk River site were decommissioned to advance environmental remediation and reduce our footprint. To date, 111 buildings have been decommissioned at the Chalk River Laboratories.

Existing radioactive waste continues to be safely stored in the dedicated waste-management areas at the Chalk River Laboratories. To advance radioactive waste management, we are striving to transition from temporary storage methods to long-term management solutions. A key project that could enable us to accelerate environmental remediation at the Chalk River Laboratories is the proposal by CNL to build a near surface disposal facility for AECL's low-level radioactive waste. Near surface disposal facilities are safe and effective low-level radioactive waste management solutions that enable the containment and isolation of waste to protect the environment. The project proposed by CNL would provide safe disposal for AECL's low-level waste currently in storage, as well as additional waste generated from building decommissioning, land and soil remediation, and ongoing research at Chalk River.

We have also supported CNL in developing and implementing new techniques for sorting and segregating low-level radioactive waste currently in storage. This includes the notable Sort and Segregation Pilot Project at the Chalk River Laboratories, which processes and characterizes waste stored within the waste management areas. In 2021*, 107,311 kg of waste was processed by the Sort and Segregation Pilot Project. 18* percent of the sorted waste met release criteria to go to either public landfills or recycle facilities, depending on waste type, and additional waste was certified as safe for storage in the near surface disposal facility.

Whiteshell Laboratories

At Whiteshell Laboratories, AECL is overseeing CNL in the acceleration of the decommissioning and closure of the site. Since 2015, over 21,612 m^2 of the site has been decommissioned. This year, the removal of two buildings from the electricity grid contributed significantly to a reduction in energy consumption at the site. Through the safe acceleration of decommissioning activities, CNL is targeting a final site closure by 2027, reducing risks and costs for Canadians far ahead of schedule.

Port Hope Area

Another key radioactive waste management project is the Port Hope Area Initiative, which is a community-driven action to clean up and safely manage historic low-level radioactive waste in Port Hope and Clarington, Ontario. Two long-term waste management facilities have been constructed, which have safely received 2.4 million tonnes of waste and contaminated soils from existing facilities and other locations within the communities. This year, we joined CNL in celebrating the 2021 closing of the Port Granby Project. The project completed environmental remediation in 2020 and was capped and closed in 2021. As part of the Port Hope Area Initiative, this project was responsible for the excavation of 1.3 million tonnes of low-level radioactive waste from an unstable site along the Lake Ontario Shoreline. The waste, once a risk to the health of Lake Ontario and the surrounding communities, is now safely stored.

Nuclear Power Demonstration Reactor Site

Operations at the Nuclear Power Demonstration Reactor Site in Rolphton, Ontario ended in 1987, and the site has been in a state of shutdown for the last 30 years. As part of our efforts to accelerate decommissioning, we have asked CNL to safely decommission and close this site. CNL has begun the process to engage stakeholders and Indigenous communities, and perform environmental and technical assessments. Through this process, CNL submitted a draft Environmental Impact Statement to the Canadian Nuclear Safety Commission in 2020, and has since integrated points from Traditional Knowledge studies and feedback received from engaged Indigenous communities and technical representatives. Further revisions to this Statement are expected, with the intent to incorporate feedback received from engagement with stakeholders and Indigenous communities, and submit a final Environmental Impact Statement in 2022.

We are committed to protecting the environment by advancing key decommissioning, remediation, and radioactive waste management projects in collaboration with Indigenous groups and local communities.

Community Engagement and Development

Our focus of building trust, respect, and strong relationships with Indigenous communities goes hand-in-hand with how we aim to work with the stakeholders in the local communities where we operate. We recognize that communications and community-engagement activities are integral to advancing our mandate to enable nuclear science and technology, and fulfill the Government of Canada's radioactive waste and decommissioning responsibilities.

AECL and CNL are working to develop and maintain strong, long-term relationships with residents in local communities, the companies we do business with, and the public at large.

Our Communications and Stakeholder Engagement Strategy outlines our commitment to understanding different perspectives, sharing information, discussing questions and concerns, and creating opportunities for partnership. In accordance with our GoCo model, CNL takes the lead in communicating and engaging with local communities on behalf of AECL, while AECL oversees the communication and engagement activities of CNL for broader alignment.

To deliver on our mandate, we depend on the support and relationships of key stakeholders, and are constantly looking for new and innovative ways to engage. Understanding and identifying those who may be impacted by our activities and business decisions, and obtaining their perspectives, is critical to earning and maintaining our social license to operate. We take pride in using a range of personalized tools and methods to engage our local communities and stakeholders, including one-on-one meetings, public meetings, (social) media, information briefings, and participation in CNL outreach activities. We have recently increased our focus on sharing the knowledge, benefits, and results from nuclear research, and have been providing more technical and scientific information on our website to reach the greater public.

Through our social purpose, we strive to do even more to create thriving communities and a better world at large. With our operations in remote locations and smaller communities, we understand that we have a significant opportunity to positively impact and provide substantial value in our surrounding communities. The nuclear industry in Canada employs approximately 76,000 people and contributes $17 billion per year to Canada's gross domestic product[5]. Together with CNL, we are working with stakeholders and communities to achieve shared goals, such as future land-use planning, and supporting economic development. To gather feedback and input from our local communities, CNL, on behalf of AECL, has invited members of the public to participate in different groups and committees at a number of our sites. CNL also hosts a Public Liaison Committee at the Whiteshell Laboratories, and a Port Hope Project Citizens Liaison Group for the Port Hope Area Initiatives.

[5]Canadian Nuclear Association (2022) New Study Finds Nuclear Industry Accounts for 76,000 Jobs Across Canada

Community Impact from Chalk River Laboratories

AECL's operations impact residents, businesses, and municipalities across the country, however our major areas of influence are in the County of Renfrew, Pontiac County, and Eastern Ontario. The County of Renfrew is where our Chalk River Laboratories is located, which is Canada's largest science and technology complex. For more than 60 years we have established ourselves as a pillar in the community, with CNL currently employing approximately 2,700* local people in both professional- and trades-related occupations on our site. The Chalk River Laboratories campus drives an additional $115 million* in spending on goods and services through operating expenses in Eastern Ontario, $43 million* of that which is specifically sourced from suppliers in Renfrew County. These figures highlight the important role AECL plays in supporting business activity within the Ontario region.

In the coming years, we plan to implement additional processes to track the sustainability-related economic benefits of AECL's and CNL's operations. CNL is developing a framework to measure and report the economic, environmental, and social benefits and risks of its capital and operating expenditures and design decisions.

Community Update Public Webinar:

In 2022, we provided a community update through a live broadcast on our progress to date, and what the future holds for the sustainable future of the Chalk River Laboratories. The webinar was hosted through CNL's website and streamed on social-media platforms. With discussion topics revolving around the revitalization of the Chalk River site, as well as new and exciting projects underway in clean energy, public health, and environmental-stewardship initiatives. This was an opportunity for the public to better interact and engage with both AECL and CNL, and to learn more about the exciting projects that are underway.

We will continue to work alongside the small communities that rely on AECL for employment opportunities, in addition to remaining supportive of the ideas and opportunities present within the local communities in which we operate, to work together to chart a better path forward.

Baseline Expectations

'Baseline expectation' topics are important to our operations at AECL. Managing these topics well is integral to our ability to manage risk, meet stakeholder expectations, and drive meaningful change.

Health and Safety of Public and Workforce

At AECL, the health and safety of the people and workers on our sites and the communities in which we operate is essential. Nuclear safety is a shared responsibility, which is why we hold all our employees and contractors to the highest health and safety standards and expectations. Being safety focused is one of AECL's values, and at AECL we all share the same positive attitudes, beliefs, perceptions, and values in relation to safety in the workplace, recognizing that everyone is part of a strong safety culture.

Public Health and Safety

When leveraging nuclear to achieve net-zero emissions, public safety is a top priority for the Government of Canada and AECL alike. We recognize the risks of our work, and in line with federal priorities, are committed to managing our nuclear sites with public safety and security taking precedence. AECL is responsible for managing the Federal Nuclear Science and Technology Work Plan on behalf of the federal government. Through this program, AECL supports the safe, secure, and responsible use and development of nuclear technologies, and enhances the national and global security of nuclear, nuclear preparedness, and emergency response.

AECL sites, and our operating contractor, are under rigorous regulatory oversight by the national regulator, the Canadian Nuclear Safety Commission. To further mitigate risks to the communities in which we operate, there are extensive Emergency Preparedness resources that undergo regular, frequent training and certification to respond if an event should occur. In this reporting period, there have been zero events that created a material impact.

Employee Health and Safety

At AECL, our employees are our greatest asset. We value the health and safety of our workforce, and our Employee Health and Safety Policy outlines our commitment to protecting the health and safety of all our employees. We proactively strive for continuous improvement to our health and safety environment, and integrate health and safety into all our business activities. This includes eliminating workplace hazards, complying with applicable health and safety laws, enabling a culture that supports health and safety, and continually striving to meet and exceed the Canada Labour Code. We also recognize the risks that come with the nature of working in nuclear, and incorporate nuclear safety requirements into our Health and Safety Policy to protect our employees when we are present in nuclear facilities. We all have a responsibility to maintain a safe and healthy environment for the public in our communities, our fellow employees, and ourselves.

Our dedication to sustainability includes maintaining and improving a work environment that promotes the positive physical and mental health of our employees.

We strive to cultivate an open and transparent environment at all levels of the organization, with initiatives including:

- **Mental Health Action Plan:** We recently created a Mental Health Action Plan, bolstering mental health as an ongoing focus at AECL. The intention of this Mental Health Action Plan is to align with the activities that support the strategic goals of the Federal Public Service Workplace Mental Health Strategy, and to better support the mental health needs of our workforce.
- **Mental Health Awareness:** AECL aims to educate its employees on internal and external mental health supports and initiatives. This includes sharing various municipal, provincial, federal, and international health-awareness campaigns, providing access to various learning sessions and guest speakers, as well as deploying employee pulse surveys to gain perspective on employee sentiment at all levels of the organization. We have also offered Mental Health First Aid training to our employees, and 24 percent of our organization is certified in providing Mental Health First Aid.

We remain committed to the safety of our employees by holding true to a zero-tolerance policy for workplace harassment and violence.

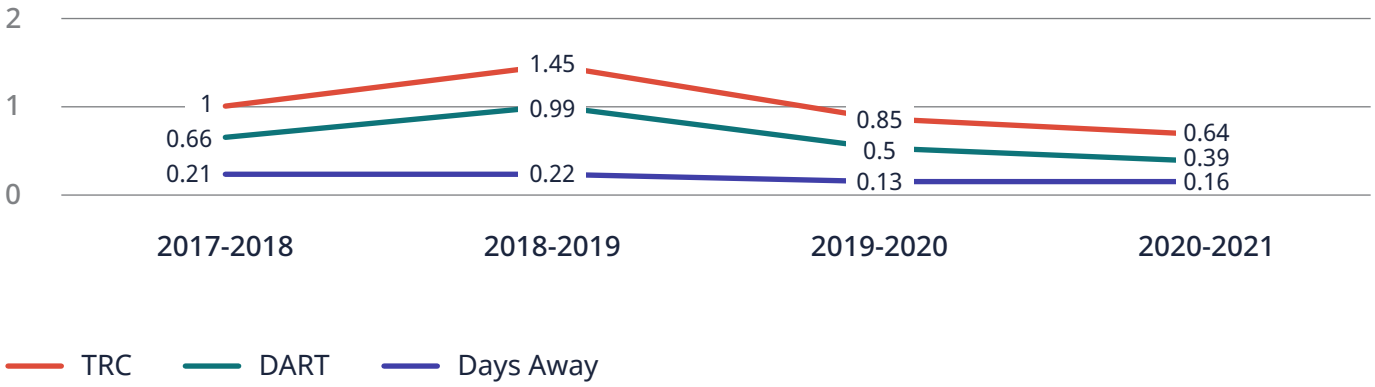
Maintaining a safe, healthy environment free of workplace harassment and violence is a top priority for our organization. Alongside the AECL Code of Conduct, AECL Occupational Safety and Health (OSH) Procedure, and site-specific emergency procedures, our zero-tolerance policy sets the procedures for reporting and resolving any incidents of harassment and violence in our workplace. All AECL employees are made aware of our policy and must partake in harassment and violence prevention in the workplace training. In addition, we conduct workplace assessments to identify risk factors, internal and external to the workplace, that contribute to harassment and violence in the workplace.

Contractor Health and Safety

Health and safety is prioritized in everything we do. Under the GoCo model, CNL is the contractor responsible for putting AECL's objectives into action. Our role is to assess CNL's performance based on targets including health and safety metrics, such as total recordable incident rate (TRIR), near miss frequency rate (NMFR), and injury rates. Our contract with CNL articulates a requirement for CNL to have a Health, Safety, Security and Environmental management system in place, and to take all necessary actions to prevent injuries or fatalities.

CNL has established a Safety Excellence team and a four-year strategy, which demonstrates clear accountabilities, roles, and responsibilities, as well as escalation protocol. CNL has set health and safety targets for occupational injuries or illnesses resulting in days away from work or temporary job restrictions or transfers (DART), days away from work (DA), and total recordable cases (TRC), and exceeded all targets in 2021.

Annual* Recordable Injury Rates (Excludes Absences Related to COVID-19)



Enterprise Risk Management (ERM)

Due to the nature of our business, ERM is foundational to our organization. We currently have a strong risk system in place, and are continuously looking for ways to improve. As an organization that is accountable for significant government spend, transparency around risk management procedures is important to us, which is why it is a topic that is reported directly to the Board.

Our risk management processes are currently updated every quarter, with significant involvement from each of the risk owners to discuss strategies to mitigate the risk. AECL manages risk through a robust ERM process that enables us to proactively identify potential risks, mitigate adverse impacts of risks, and provide pertinent risk information. Our risk management is comprehensive and integrated across the organization.

The highest risks are identified and reported up to our Board through the Audit Committee. Health and safety is a key focus on our ERM process. In addition, ESG and risk management intersect in a number of areas, and we are working towards incorporating ESG and climate-related risks into our ERM Register. A strong risk-management framework enables us to make informed decisions, and manage risks alongside our strategic and business objectives.

Climate Resilience

At AECL, we strive to be leaders in how we respond to climate change and manage climate-related impacts and risks, as well as how we can contribute to the broader response in Canada and abroad. We recognize the importance of integrating climate-resilient solutions into our infrastructure and operations. It is essential that we are able to prepare for, recover from, and adapt to climate-related impacts such as severe weather events and extreme temperatures.

We worked with CNL to develop our approach to climate resiliency, which is adapted from guidance by National Research Council Canada. AECL has opportunities to appropriately manage the economic, social, and operational risks associated with climate change. Together, we are developing climate-resilience plans for all our major projects and operations, and aim to have implementation plans completed by the end of 2022.

Through CNL, we have already begun to integrate climate-resilience into operations, including forest-management planning to reduce forest-fire risk, improving our existing infrastructure, and choosing more resilient structural materials for new projects. Specifically, CNL's near surface disposal facility has been designed with climate resilience at the forefront. The structure and supporting infrastructure, like the storm water management system, have been designed to withstand extreme weather events, including forest fires, earthquakes, tornados, and floods.

We recognize the importance of integrating climate-resilient solutions into our infrastructure and operations. It is essential that we are able to prepare for, recover from, and adapt to climate-related impacts.

Environmental Management

We work to develop robust environmental management practices, spanning waste management, water and wastewater management, biodiversity, and sustainable procurement. We are proud to continue to build upon the following topics and cement our commitment to ESG initiatives throughout our operations.

Sustainable Procurement

AECL recognizes the environmental and social impacts that our procurement activities can have, and the importance of addressing these impacts throughout our entire supply chain. It is important for us to work with CNL on this topic. While CNL has a greater opportunity to support the environmental aspects of sustainable procurement, we have a significant opportunity to focus on social responsibility within our procurement activities. AECL incentivizes CNL's sustainable procurement practices, and under our oversight, CNL has developed a Supply Chain Policy which serves as the foundation for working with our suppliers. We aim to implement appropriate environmental and social criteria for procurement processes, exclusively pursue suppliers that are adopting science-based targets, and disclose their GHG emissions and environmental performance information.

Water and Wastewater Management

Water is an essential component to establishing healthy, thriving communities. We recognize that the withdrawal, consumption, and release of water can have a profound impact on the surrounding ecosystems and communities in which we operate. As a result, through the oversight of CNL, we are working to optimize the use of water and wastewater management practices. In 2020-2021, CNL gathered baseline water consumption data at the Chalk River Laboratories site, which we will continue to use to establish a future reduction target. Our goal is to track and disclose our potable water consumption by 2024 from all major buildings that have been deemed part of the revitalized CNL campus.

The vast majority of the water CNL withdraws for its operations is used by the Chalk River Laboratories and the Whiteshell locations. In 2021, approximately 45 percent of the water withdrawn from the Ottawa River for the Chalk River Laboratories site was treated and returned to the Ottawa River, with the remaining 55 percent used for non-domestic purposes and discharged to the Ottawa River. At Whiteshell, water is used for various fire-suppression systems, and is used for misting to suppress dust during decommissioning. The water used at this site is returned to the Winnipeg River.

Biodiversity

Most of our site locations are in remote locations, and are surrounded by a rich variety of flora and fauna. AECL recognizes that we have an active responsibility to work to protect and reduce our impact on the wildlife and habitats that inhabit these surrounding areas wherever possible. With support from AECL, CNL has developed an Environment Policy to use as a guide throughout all of our business-planning decision phases. Moving forward, our plan is to maximize the use of natural infrastructure and other nature-based solutions to protect physical assets on our sites, and implement climate-resilient groundskeeping using native species where possible.

Non-Radioactive Waste Management

AECL is working on the reduction of non-radioactive and conventional waste from our business activities, and aims to minimize the production of conventional waste and prioritize reusing and recycling waste when it is generated. CNL works on our behalf to safely implement and manage activities to minimize waste. Under AECL's guidance, CNL has developed an Integrated Waste Management Strategy for all waste types across each of our sites, which has a focus on lifecycle planning and optimization of waste.

We have set aggressive targets including:

- Diverting at least 75 percent by weight of non-hazardous operational waste from landfills by 2030.
- Diverting at least 75 percent by weight of plastic waste from landfills by 2030.
- Diverting at least 90 percent by weight of all construction and demolition waste from landfills for other uses, and striving to achieve 100 percent by 2030.

Cybersecurity

AECL is responsible for the management and oversight of the Federal Nuclear Science and Technology Work Plan, which serves the collective interests of 14 federal departments and agencies in the areas of health, nuclear safety and security, energy, and the environment. AECL engages with the various federal departments and agencies to develop a program of work that meets their needs and priorities and to oversee the delivery of the work.

The Federal Nuclear Science and Technology Work Plan theme area 'enhancing nuclear security, preparedness, and emergency response' includes a scope of work to address the dynamic nature of cybersecurity risk. AECL plays a unique role in its oversight and management in the cybersecurity space enabling opportunities to protect both our assets and those of nuclear operators. AECL is committed to improving cybersecurity and protecting Canada's nuclear critical infrastructure from cyber threats. We are looking to proactively embed cybersecurity into our programs, as the importance of cybersecurity will continue to grow in importance as technological systems become increasingly fundamental to our operations. CNL is investigating technologies to detect and manage cyber threats to protect the future of our business.

As CNL continues to advance research, implementation, and applications of the Canadian Standards Association (CSA) N290.7 standard for cybersecurity of nuclear power plants and small reactor facilities, we can begin to provide cybersecurity services to other nuclear operators. Cybersecurity in the nuclear landscape presents challenges that are not addressed by most commercial systems. CNL is working to develop nuclear industrial control systems capable of protecting Canada's nuclear and critical infrastructure. A new state-of-the-art cybersecurity research facility is being leveraged by CNL's cybersecurity team to research, develop, and deploy cutting-edge cybersecurity technologies in line with the Government of Canada's nuclear and security priorities.

Diversity, Equity, and Inclusion

AECL's workforce is made up of individuals with different backgrounds, experiences, and skills, and this diversity makes us stronger by facilitating a broader exchange of perspectives and ideas. Achieving diversity and inclusion allows us to bring a more comprehensive set of views to our business decisions, improve employee engagement, and build capacity for stronger relationships with our customers and partners. Our objective is to create a workplace where all employees feel involved, valued, and appreciated.

To accomplish this, AECL has established a Diversity & Inclusion Strategy with three overarching goals:

1. **Workplace inclusion:** Promote a culture that encourages collaboration, flexibility, and fairness to enable individuals to contribute to their highest potential.
2. **Workplace diversity:** Attract, retain, and develop a talented and diverse workforce.
3. **Employee capability:** Enable employees' knowledge and understanding of what is meant by diversity and inclusion.

Diversity, equity, and inclusion is a cornerstone for our ability to innovate, and it is shown that it leads to greater levels of innovation. AECL is committed to supporting diversity and inclusion, from identifying discrimination, harassment, or lack of opportunities, to recognizing the different perspectives that employees bring to the workplace. 50 percent of our total workforce is made up of women, and nine percent of the total workforce is comprised of visible minorities.

AECL is committed to building a more diverse and inclusive workplace with key initiatives in place:

- **Equal by 30:** Equal by 30 is a public commitment by public- and private-sector organizations to work towards equal pay, equal leadership, and equal opportunities for women in the clean-energy sector by 2030. We are proud to be part of the campaign, which is conducted through the Equality in Energy Transition Initiative. Through this initiative, we intend to lead by example in promoting gender equity in the clean-energy sector, and join several public and private sector organizations to work towards this important target.
- **Women in Nuclear (WiN):** AECL is committed to supporting WiN, a global association of women and men supporting and encouraging women working in the nuclear industry. WiN Canada focuses on three main goals: (1) to develop a dialogue with the public to promote factual awareness about the contribution of nuclear and radiation technologies to people and society; (2) to contribute to knowledge and experience exchange among members and chapters, both in Canada and internationally; and (3) to promote career interest in nuclear engineering, science, technology, the trades, and other nuclear-related professions, especially among women and young people. For multiple years, several AECL employees have retained membership in WiN, participate as attendees and speakers at conferences, and have engaged on WiN panels and discussions.
- **Leadership diversity:** Diversity of background, experience, skills, education, gender, age, ethnicity, and other attributes on the Board and the executive team is important in bringing different perspectives, decision making, and driving a culture of innovation. Our Board of Directors is composed of members with skills and expertise in a wide range of topics, from risk management and internal audit to aerospace, and is made up of 50 percent women. At the executive level, our leadership is made up of 20 percent women. Where reasonably possible, we will continue to promote opportunities to improve diversity at the leadership level.
- **Cultural-competency assessment:** AECL will be conducting an organization-wide cultural-competency assessment to obtain a better understanding of the organization's current state of diversity, equity, inclusion, and intercultural competence. This process will help provide AECL with a clear picture in developing a more informed short-term and long-term Diversity, Equity, and Inclusion Strategy to ensure it is cultivating a workplace culture of respect, diversity, equity, and inclusion.

Employee Attraction

At AECL, we attribute our success to our employees and contractors. With operations in remote locations, attracting and retaining highly qualified personnel who are committed to our values and goals is critical to our success. Therefore, we are committed to building a diverse work environment with meaningful career opportunities in a wide variety of roles. The global demand for nuclear energy is rising rapidly and with that comes a need for more diverse and younger perspectives in our industry. Our approach to attracting talent is also changing with this shift.

To attract and retain the best talent, AECL regularly reviews its total compensation package to remain competitive amongst similar employers nationally and internationally. We also offer a comprehensive benefits package, which includes health and wellness benefits and a defined benefit pension plan, through the Public Service Pension Plan. In managing our workforce, AECL currently offers a broad range of programs that are designed to ensure the physical, mental, and psychological wellbeing of our employees.

These include:

- **Employee Wellness and Family Assistance Program:** AECL provides a Family and Employee Assistance Program through a third party that offers professional counselling, coaching, and support services to employees and dependents.
- **Virtual health care provider:** AECL employees have access to a virtual health care platform where they can reach over 700 Canadian licensed physicians, instantly connect with doctors, receive digital prescriptions, and hold virtual appointments through text, audio, or video. This platform also has a mindfulness application so employees can experience the benefits of guided meditation anytime, anywhere.

We aim to create a culture that protects psychological health, safety, and wellbeing in all aspects of the workplace through collaboration, inclusivity, and respect. Our mental health initiatives can be found here.

Governance

AECL’s commitments to protecting people and the environment, and building long-term relationships in the communities where we work are embedded in our overall business strategy.

Our Board of Directors is the highest body responsible for the oversight of our organization's strategy and direction.

As a Schedule III Crown corporation, meaning wholly owned directly by the government, AECL is subject to the Financial Administration Act ("FAA") which has governance-related provisions, including those pertaining to the appointment of Board members and the Chief Executive Officer. As AECL's sole shareholder, the Government of Canada appoints AECL's Board of Directors by an Order in Council. The Board of Directors is composed of 50 percent female representation. The Board operates pursuant to a Charter and annual work plan which establishes standing items of business for scheduled meetings during the fiscal year. The Board also meets several times during the fiscal year to address matters within its purview that are outside the annual work plan. Typically, in the aggregate, the Board meets in excess of 12 times during a fiscal year.

AECL's mandate is set by the Government of Canada and implemented by AECL under the oversight of the Board. The Board consists of two established committees: the Audit Committee and the Human Resources & Governance Committee (HRGC), which operate pursuant to Charters which are reviewed, updated as appropriate, and approved annually by the Board. We are working towards integrating ESG matters into the Board governance structure. ESG matters are reported to the Board through the ESG Committee, which is managed at the executive team level. Some aspects of ESG performance are linked to executive compensation. All members of the Board are members of the Audit Committee and the HRGC, except for the President & CEO. All Board members are independent members, except for the President & CEO.

ESG Governance

AECL is working to integrate ESG into the governance structure of the organization through amendments to the Board governance structure, an implemented ESG Committee, and a clear articulation of roles and responsibilities to support strategic actions.

To demonstrate this commitment, we have amended the Charter to include: "the Board is responsible for overseeing the Corporation's ESG activities, including (i) the Corporation's ESG strategy and the implementation of such strategy and (ii) the Corporation's required ESG disclosures." We continue to embed ESG initiatives into our overall corporate governance structure. This includes periodic reporting on AECL's ESG Strategy to AECL's Executive Committee and its Board of Directors, and incorporating ESG into AECL's ERM Register, which is monitored by AECL's Audit Committee of the Board of Directors. Remuneration of the executive team is, in part, contingent on performance relative to ESG matters.

The ERM Register is updated on a quarterly basis through consultation with enterprise-risk owners and the highest priority risks are reported to the Audit Committee. AECL has identified and integrated ESG matters such as climate change, decarbonization, and governance matters into our ERM process, and we aim to fully incorporate sustainability risks and opportunities in the ERM Register.

The Board oversees, reviews, and approves or accepts the Risk Management Framework, the Risk Based Audit Plan of Internal Audit, the Annual Plan of Work and Budget for CNL, the Performance Evaluation Measurement Plan for CNL, and the Annual Incentive Plan of AECL employees, all of which have ESG implications to our business. To remain informed on ESG topics, the Board is updated on progress with respect to our engagement with Indigenous peoples as well as training through internal and external providers.

AECL is currently working towards a more established ESG governance structure by confirming executive and Board ESG roles and responsibilities, defining roles and responsibilities to support the governance structure, and establishing working groups to support each strategic differentiator.

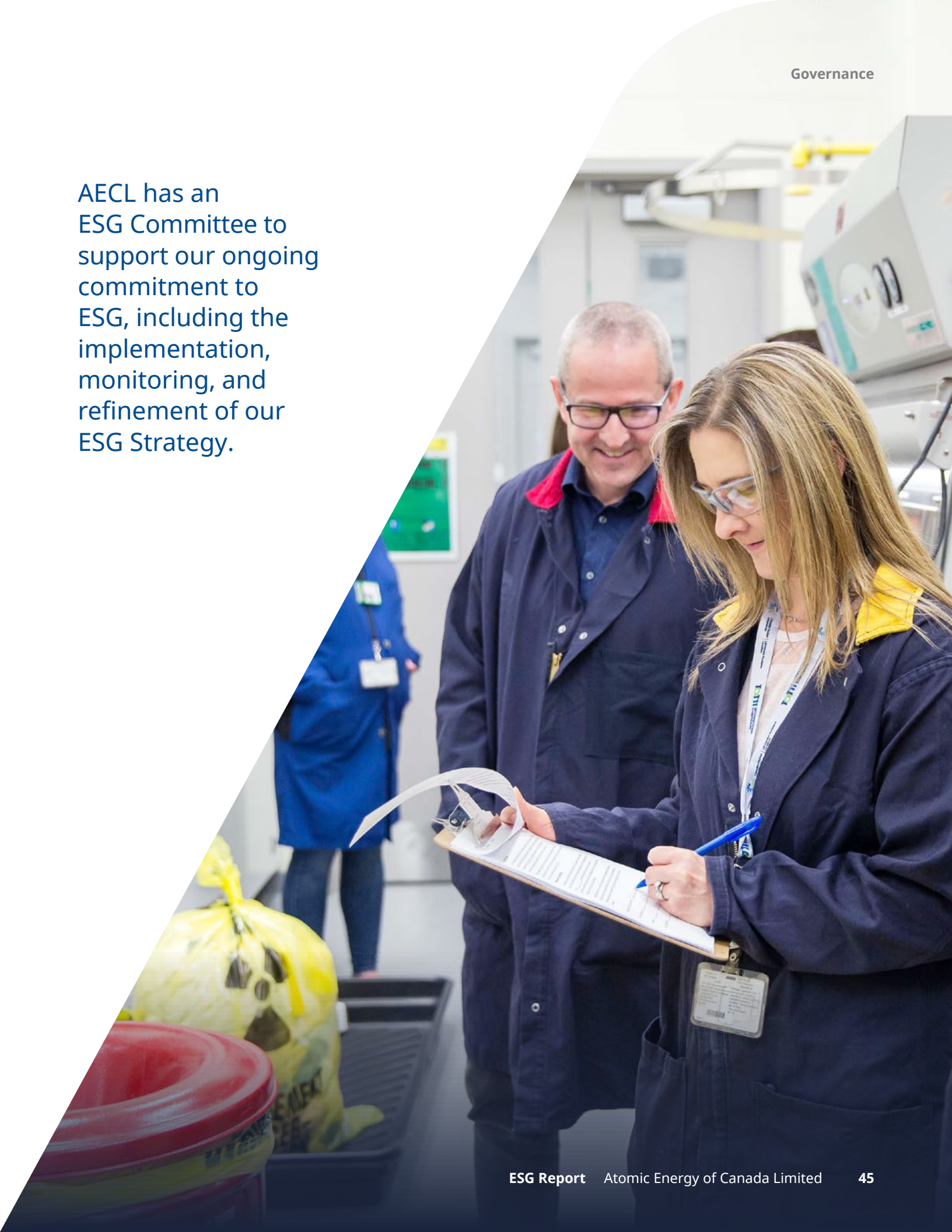
At an organization level, AECL has an ESG Committee to support AECL's ongoing commitment to ESG, including the implementation, monitoring, and refinement of our ESG Strategy. This ESG Committee is led by two Co-Chairs who are appointed by the President & CEO and have overall accountability for the ESG activities, including the implementation and promotion of the ESG Strategy. The Committee members are comprised of at least three other employees who are approved by the Co-Chairs. These members represent different functions within AECL and have different experiences and areas of expertise.

Oversight of CNL

Through the GoCo model, AECL oversees all of CNL's activities. We provide strategic guidance for CNL, and approve or accept CNL's long-term plans.

CNL's performance is measured on the activities set out in these plans, including specific ESG-related project milestones and deliverables. AECL oversees the decommissioning and closure of nuclear sites, which include the Nuclear Power Demonstration reactor in Ontario, the Whiteshell Laboratories in Manitoba, Gentilly-1 in Quebec, and the Port Hope Area Initiative, where CNL is cleaning up historic low-level radioactive waste in the municipalities of Port Hope and Clarington. A number of major environmental-remediation projects in various stages of planning, design, and development, are also overseen by AECL, such as the near surface disposal facility project, the Nuclear Power Demonstration Closure Project, and the WR-1 In Situ Decommissioning.

AECL has an ESG Committee to support our ongoing commitment to ESG, including the implementation, monitoring, and refinement of our ESG Strategy.



Reporting Framework Standards Alignment

As part of our commitment to continuous improvement of our ESG performance and disclosure, AECL seeks to better align its reporting with reference to evolving ESG reporting standards.

We are beginning with Global Reporting Initiative (GRI) and Sustainability Accounting Standards Board (SASB) principles and recommendations, and aligning with the Task Force on Climate-related Financial Disclosures (TCFD) in early 2023. Achieving these objectives and adopting the standards are critical to increasing AECL's ability to adapt and respond to the increased pressures from stakeholders, and the changing physical and market environment.

GRI

Our ESG disclosure is adapted from GRI metrics that we deem to be most relevant to our business. Our report is framed around select GRI metrics that best align with our ESG strategy and our management approach for each 'strategic differentiator' and 'baseline expectation'. As we continue our ESG journey, we aim to review and refine these metrics.

SASB

AECL has chosen to report with reference to the voluntary SASB framework for this ESG reporting period. This is an important step in continuing our ESG journey, enabling us to communicate our progress in a transparent and standardized manner for stakeholders. This report discloses metrics from the SASB industry standard "Electric Utilities & Power Generators", as this is the SASB industry standard most closely aligned with our industry sector. Where possible, we have included SASB metric data, prioritized based on relevance to our business model. We are committed to improving our data collection and coordination across the organization.

TCFD

In line with AECL's dual purpose of enabling nuclear science and technology and managing the Government of Canada's radioactive waste and decommissioning responsibilities, our work is inextricably linked to climate change and supporting Canada's net-zero emissions by 2050 commitment.

In 2021, the Government of Canada committed to requiring all Crown corporations to adopt TCFD standards as part of corporate reporting, with Crown corporations holding more than $1 billion in assets required to start reporting on their climate-related financial risks by March 2023. As such, AECL is committed to full alignment with the TCFD recommendations, and we are developing our inaugural TCFD report to be published early 2023. TCFD standards are structured around four key themes: governance, strategy, risk management, and metrics and targets.

Appendix

Data Performance Tables Page 50

Global Reporting Initiative Index Page 50

SASB Industry Standard "Electric Utilities & Power Generators" Page 61

ESG Policies and Plans Page 63

Abbreviations Page 64

Data Performance Tables

Global Reporting Initiative Index

GRI Disclosure	Description	Disclosure
GRI Standard: GRI 2 – General Disclosures		
2-1 Organizational details	**a.** Report its legal name **b.** Report its nature of ownership and legal form **c.** Report the location of its headquarters **d.** Report its countries of operation	**a.** Atomic Energy of Canada Limited **b.** AECL is a federal Crown corporation that has a mandate to enable nuclear science and technology and to protect the environment by fulfilling the Government of Canada's radioactive waste and decommissioning responsibilities **c.** Chalk River, Ontario, Canada **d.** Canada
2-3 Reporting period, frequency and contact point	**a.** Specify the reporting period for, and the frequency of, its sustainability reporting **b.** Specify the reporting period for its financial reporting and, if it does not align with the period for its sustainability reporting, explain the reason for this **c.** Report the publication date of the report or reported information **d.** Specify the contact point for questions about the report or reported information	**a.** 1st April 2021 to 31st March 2022, annually **b.** 1st April 2021 to 31st March 2022, annually **c.** December 2022 **d.** Bretton Christensen, Engagement and Communications Manager
2-7 Employees	**a.** Report the total number of employees, and a breakdown of this total by gender and by region	**a.** Total number of employees: 46 **Gender:** Female – 23 Male – 23 **Region:** Ottawa, ON (National Capital Region) – 15 Ontario (excluding National Capital Region) – 28 Pinawa, MB (Whiteshell Laboratories) – 3

GRI Disclosure	Description	Disclosure
GRI Standard: GRI 2 – General Disclosures		
2-9 Governance structure and composition	**a.** Describe its governance structure, including committees of the highest governance body **b.** List the committees of the highest governance body that are responsible for decision-making on and overseeing the management of the organization's impacts on the economy, environment, and people **c.** Describes the composition of the highest governance body and its committees	**a.** AECL has a Board of Directors each of whom is appointed by the Government **b.** The Board has established two committees: the Audit Committee and the Human Resources & Governance Committee (HRGC), which operate pursuant to separate Charters **c.** All members of the Board are members of the Audit Committee and HRGC — except the President & CEO. Other than the CEO, there are no members of the executive team on the Board. All Board members other than the CEO are considered independent (i.e., not part of management)
2-10 Nomination and selection of the highest governance body	**a.** Describe the nomination and selection processes for the highest governance body and its committees **b.** Describe the criteria used for nominating and selecting highest governance body members, including whether and how the following are taken into consideration: **i.** views of stakeholders (including shareholders) **ii.** diversity **iii.** independence **iv.** competencies relevant to the impacts of the organization	**a.** As a Schedule III Crown corporation, AECL is subject to the Financial Administration Act (Canada) (FAA) which has governance related provisions, including with respect to the appointment of Board members and the Chief Executive Officer who are appointed by the Government under the FAA **b.** AECL and its Board maintains a skills/experience matrix which identifies (**i**, **iii**) the skills and experiences of the Board members, in addition to gaps. The matrix also takes into account (**ii**) language capabilities, diversity and (**iv**) competencies. This information is provided to Government as part of its formulation of the criteria for selecting the CEO and Chair of the Board, as well as Board members

GRI Disclosure	Description	Disclosure
GRI Standard: GRI 2 – General Disclosures		
2-11 Chair of the highest governance body	**a.** Report whether the chair of the highest governance body is also a senior executive in the organization **b.** If the chair is also a senior executive, explain their function within the organization's management, the reasons for this arrangement, and how conflicts of interest are prevented and mitigated	**a.** Not a senior executive **b.** Not applicable
2-12 Role of the highest governance body in overseeing the management of impacts	**a.** Describe the role of the highest governance body and of senior executives in developing, approving, and updating the organization's purpose, value or mission statements, strategies, policies, and goals related to sustainable development **b.** Describe the role of the highest governance body in overseeing the organization's due diligence and other processes to identify and manage the organization's impacts on the economy, environment, and people, including: **i.** whether and how the highest governance body engages with stakeholders to support these processes **ii.** how the highest governance body considers the outcomes of these processes	**a.** AECL's mission is set by the Government of Canada and is implemented by Management under the oversight of the Board. This oversight includes overseeing the development and implementation of the Corporate Strategy, the ESG Strategy, as well as key policies **b.** The Board has oversight of AECL's Risk Management Framework, the Risk Based Audit Plan of Internal Audit, and multiple other documents, all of which have sustainability implications **i.** The Board engages with the executive team to support these processes **ii.** The Board meets several times throughout the fiscal year to consider and influence these processes
2-13 Delegation of responsibility for managing impacts	**a.** Describe how the highest governance body delegates responsibility for managing the organization's impacts on the economy, environment, and people, including: **i.** whether it has appointed any senior executives with responsibility for the management of impacts **ii.** whether it has delegated responsibility for the management of impacts to other employees **b.** Describe the process and frequency for senior executives or other employees to report back to the highest governance body on the management of the organization's impacts on the economy, environment, and people	**a. i.** At the management level, AECL has a Sustainability Committee which is led by two executive Co-Champions **ii.** Management is responsible for managing the impacts of the organization on the economy, environment and people with the oversight of the Board **b.** The Sustainability Committee reports to the Board as needed and no less than annually

GRI Disclosure	Description	Disclosure
GRI Standard: GRI 2 – General Disclosures		
2-15 Conflicts of interest	**a.** Describe the processes for the highest governance body to ensure that conflicts of interest are prevented and mitigated **b.** Report whether conflicts of interest are disclosed to stakeholders	**a.** Critical concerns are overseen by the Board through Board meetings which occur quarterly. AECL's disclosure officer reports quarterly to the Board on matters relating to compliance with the company's Code of Conduct, including conflicts of interest, and the Public Servants Disclosures Protection Act **b.** All Board members are covered by the Conflict of Interest Act (Canada) which is extensive and contains obligations relating to the disclosure and avoidance of conflicts of interest. In addition, Board members are subject to AECL's Code of Conduct which also addresses the topic
2-16 Communication of critical concerns	**a.** Describe whether and how critical concerns are communicated to the highest governance body	**a.** Critical concerns are typically communicated via Board meetings which occur quarterly. In addition, there are set recurring annual Board meetings to address items on an off-quarter cycle basis as needed
2-17 Collective knowledge of the highest governance body	**a.** Report measures taken to advance the collective knowledge, skills, and experience of the highest governance body on sustainable development	**a.** The Board receives education and training periodically as a member of AECL and on its own. The Board has received significant reports on the progress of engagement with Indigenous peoples, as well as training provided internally and from external providers
2-18 Evaluation of the performance of the highest governance body	**a.** Describe the processes for evaluating the performance of the highest governance body in overseeing the management of the organization's impacts on the economy, environment, and people	**a.** The Government of Canada does not undertake any formal or prescribed evaluation of the Board and its appointed members. However, consistent with good governance practices, the Board and its Committees undertake an annual self assessment of their respective performance with opportunities for open feedback. This assessment is for the benefit of the Board and its functioning

GRI Disclosure	Description	Disclosure
GRI Standard: GRI 3 – Material Topics 2021		
3-1 Process to determine material topics	**a.** Describe the process it has followed to determine its material topics, including: **i.** how it has identified actual and potential, negative and positive impacts on the economy, environment, and people, including impacts on their human rights, across its activities and business relationships **ii.** how it has prioritized the impacts for reporting based on their significance **b.** Specify the stakeholders and experts whose views have informed the process of determining its material topics	**a. i.** AECL's materiality assessment involved extensive engagement with AECL's key stakeholders, both internal and external to the organization. This supported the identification of actual and potential, negative and positive impacts on the economy, environment, and people, including impacts on their human rights, across its activities and business relationships **ii.** The materiality assessment supported AECL in prioritizing the impacts for reporting based on their significance. To conduct the materiality assessment in an objective manner in alignment to leading practice, AECL worked with a reputable third party, Ernst & Young LLP, to engage stakeholders and report the findings anonymously **b.** AECL executives, AECL management, AECL employees, CNL executives, regulatory stakeholders, municipality stakeholders, and private-sector stakeholders were engaged
3-2 List of material topics	**a.** List its material topics	**a.** Decarbonization, engagement and reconciliation with Indigenous peoples, nuclear medicine, science and technology, radioactive waste management and decommissioning, community engagement and development, health, and safety of public and workforce, enterprise risk management, climate resilience, environmental management, cybersecurity, diversity, equity and inclusion, and employee attraction, engagement and retention

GRI Disclosure	Description	Disclosure
GRI Standard: GRI 302 – Energy 2016		
302-1 Energy consumption within the organization	**a.** Total fuel consumption within the organization from non-renewable sources, in joules or multiples, and including fuel types used **c.** In joules, watt-hours or multiples, the total: **i.** electricity consumption	***Chalk River Laboratories:** **a.** Non-renewable- 3.71E+08 **c. i.** Electricity consumption- 1.73E+08 **Whiteshell Laboratories:** **a.** Non-renewable- 8.58E+06 **c. i.** Electricity consumption- 5.80E+07 **Port Hope Area Offices:** **a.** Non-renewable- 4.17E+05 **c. i.** Electricity consumption- 2.08E+05 **Port Hope Waste Management Facility:** **a.** Non-renewable- 1.80E+07 **c. i.** Electricity consumption- 1.04E+07 **Port Granby Waste Management Facility:** **a.** Non-renewable- 2.33E+07 **c. i.** Electricity consumption- 5.40E+05 **Nuclear Power Demonstration:** **a.** Non-renewable- 1.16E+05 **c. i.** Electricity consumption- 9.37E+05 **La Prade:** **a.** Non-renewable- 2.83E+06 **c. i.** Electricity consumption- 3.74E+06 **G1:** **a.** Non-renewable- 1.80E+03 **c. i.** Electricity consumption- 1.52E+06 **DP Energy:** **a.** Non-renewable- 3.71E+06 **c. i.** Electricity consumption- 6.07E+06
302-3 Energy intensity	**a.** Energy intensity ratio for the organization	**a.** Energy intensity ratio is calculated for all CNL sites and is based on energy consumption within the organization only (not outside of it). A ratio of MJ/m^2 was determined by dividing total energy consumption by floor space, with the energy consumption focused on that used within the buildings for heating, cooling, lighting, and processes

GRI Disclosure	Description	Disclosure
GRI Standard: GRI 303 – Water and Effluents 2018		
303-1 Interactions with water as a shared resource	**a.** A description of how the organization interacts with water, including how and where water is withdrawn, consumed, and discharged, and the water-related impacts the organization has caused or contributed to, or that are directly linked to its operations, products, or services by its business relationships (e.g., impacts caused by runoff) **b.** A description of the approach used to identify water-related impacts, including the scope of assessments, their timeframe, and any tools or methodologies used	**a.** The use of water is spread out through numerous buildings and facilities at AECL locations, but can largely be grouped into Service Water (includes domestic use), Process Water, and Fire Water use. Through water use in various nuclear facilities, and radioisotope, chemical and biological laboratories, some level of radiological or non-radiological contamination may occur **b.** Stakeholders are brought on as needed. For example, at Whiteshell Laboratories, stakeholders are actively involved in the sampling and monitoring process for Whiteshell Laboratories
303-2 Management of water discharge-related impacts	**a.** A description of any minimum standards set for the quality of effluent discharge, and how these minimum standards were determined, including: **i.** how standards for facilities operating in locations with no local discharge requirements were determined **ii.** any internally developed water quality standards or guidelines **iii.** any sector-specific standards considered **iv.** whether the profile of the receiving waterbody was considered	**a.** Minimum standards (**i**, **ii**, **iii**, **iv**) for the operating facilities were established by implementing the requirements of CSA N288.8. Administrative and Action Levels were developed for each site. In addition, non-radiological effluent levels are compared to the Wastewater Systems Effluent Regulations and the CNSC Regulatory Document – 2.9.1. The Guideline targets are also developed from multiple guidelines
GRI Standard: GRI 305 – Emissions 2016		
305-1 Direct (Scope 1) GHG emissions	**a.** Gross direct (Scope 1) GHG emissions in metric tons of CO_2 equivalent **b.** Gases included in the calculation; whether CO_2, CH4, N_2O, HFCs, PFCs, SF6, NF3, or all **c.** Biogenic CO_2 emissions in metric tons of CO_2 equivalent **d.** Base year for the calculation, if applicable, including: **i.** the rationale for choosing it	**a.** *Total of 28,336.12 CO_2e tonnes across all sites **b.** CO_2, CH4, N_2O and SF6 are included in the calculation **c.** 424.8 Biogenic CO_2 Emissions **d. i.** 2005 was chosen as the base year as Canada has set a carbon emission reduction target of 30 percent by 2030, relative to 2005 emissions and AECL is aiming to support this Canadian-wide target and has a more aggressive goal of carbon-neutral operations by 2040

GRI Disclosure	Description	Disclosure
GRI Standard: GRI 305 – Emissions 2016		
305-2 Energy indirect (Scope 2) GHG emissions	**a.** Gross location-based energy indirect (Scope 2) GHG emissions in metric tons of CO_2 equivalent	**a.** *Total of 1558.2 CO_2e tonnes across all sites
305-4 GHG emissions intensity	**a.** GHG emissions intensity ratio for the organization **b.** Organization-specific metric (the denominator) chosen to calculate the ratio **c.** Types of GHG emissions included in the intensity ratio; whether direct (Scope 1), energy indirect (Scope 2), and/or other indirect (Scope 3)	**a.** *AECL's site GHG intensity ratio is calculated by CO_2e tonnes/m^2. The total for all sites is 0.11 **b.** The denominator for AECL's intensity ratio is Buildings Square Footage (m^2) **c.** Scope 1 emissions are included in the ratio, which includes stationary fuel combustion, industrial product use, fugitive emissions, transportation, and waste
305-5 Reduction of GHG emissions	**a.** GHG emissions reduced as a direct result of reduction initiatives, in metric tons of CO_2 equivalent **b.** Gases included in the calculation; whether CO_2, CH4, N_2O, HFCs, PFCs, SF6, NF3, or all	**a.** *469.67 CO_2e tonnes **b.** CO_2, CH4, N_2O
305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	**a.** Significant air emissions, in kilograms or multiples, for each of the following: **i.** NOx **vi.** particulate matter (PM)	**a. i.** *NOx: 54,626 kgs **vi.** PM2.5: 8,590 kgs; PM10: 11,395 kgs
GRI Standard: GRI 306 – Waste 2020		
306-1 Waste generation and significant waste-related impacts	**a.** For the organization's significant actual and potential waste-related impacts, a description of: **i.** the inputs, activities, and outputs that lead or could lead to these impacts **ii.** whether these impacts relate to waste generated in the organization's own activities or to waste generated upstream or downstream in its value chain	**a.** Waste-related impacts (**i**, **ii**) are realized in AECL's and CNL's operations, such as those generated at office, buildings, and laboratories. As AECL's work in Science and Technology increases, new waste management enabling capabilities and facilities are being realized as waste management continues to grow and evolve

GRI Disclosure	Description	Disclosure
GRI Standard: GRI 306 – Waste 2020		
306-2 Management of significant waste-related impacts	**a.** Actions, including circularity measures, taken to prevent waste generation in the organization's own activities and upstream and downstream in its value chain, and to manage significant impacts from waste generated	**a.** CNL's Integrated Waste Strategy (IWS) provides the framework for the lifecycle management of all waste types across AECL sites, with a focus on lifecycle planning and optimization. The IWS also ensures that strategies, and associated underpinning for all waste, are maintained to manage waste-related impacts
306-3 Waste generated	**a.** Total weight of waste generated in metric tons, and a breakdown of this total by composition of the waste **b.** Contextual information necessary to understand the data and how the data has been compiled	**a.** The total weight of waste generated is 11,707.01 metric tons and includes radioactive, clean, and hazardous/ mixed waste **b.** The waste data for the sites were obtained through direct measurement reports from external service providers, as well as internal waste data forms and logs from site subject matter experts, which are tracked by a waste data tracking system
306-4 Waste diverted from disposal	**a.** Total weight of waste diverted from disposal in metric tons, and a breakdown of this total by composition of the waste **b.** Total weight of hazardous waste diverted from disposal in metric tons, and a breakdown of this total by the following recovery operations: **ii.** recycling **iii.** other recovery operations	**a.** Total weight of waste diverted: 3,516.35 Preparation of reuse: 1,945.22 Recycling: 1,571.13 **b.** Total weight of hazardous waste **ii.** Recycling: 0.18 **iii.** Diverted: 0.18
GRI Standard: GRI 401 – Employment 2016		
401-1 New employee hires and employee turnover	**a.** Total number and rate of new employee hires during the reporting period, by age group, gender, and region	**a.** Four aged 30-50 Two aged >50 Four female Two male Three Ottawa, ON (National Capital Region) Three Ontario (excluding National Capital Region)

GRI Disclosure	Description	Disclosure
GRI Standard: GRI 401 – Employment 2016		
401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	**a.** Benefits which are standard for full-time employees of the organization but are not provided to temporary or part-time employees, by significant locations of operation	**a.** AECL employees are covered under Treasury Board benefits through the Public Service Health Care Plan (PSHCP). These benefits are not controlled by AECL
401-3 Parental leave	**a.** Total number of employees that were entitled to parental leave, by gender **b.** Total number of employees that took parental leave, by gender	**a.** All regular full-time and part-time employees are eligible for maternity and/or parental leave. Term employees are also eligible for maternity and/or parental leave. Therefore, all employees are eligible **b.** Two employees took paternal leave, both female
GRI Standard: GRI 403 – Occupational Health and Safety 2018		
403-1 Occupational health and safety management system	**a.** A statement of whether an occupational health and safety management system has been implemented **b.** A description of the scope of workers, activities, and workplaces covered by the occupational health and safety management system, and an explanation of whether and, if so, why any workers, activities, or workplaces are not covered	**a.** The OSH Program is a legal requirement which AECL complies with (its requirements are set out in Canada Labour Code). It includes our OSH Procedure, Preventing Injuries and Illness, Hazard Prevention, Workers' Health and Safety Centre, Mental Health Action Plan **b.** AECL's OSH Program covers all locations and employees. Activities include training, Workers' Health and Safety Centre meetings and inspections, creating and updating procedures. Reporting requirements include Employer's Annual Hazardous Occurrence Report (injury reporting, and in future will include occurrences of harassment and violence in workplace), and Safety & Health Committee Report (commentary on meetings, issues raised, inspections)
GRI Standard: GRI 403 – Occupational Health and Safety 2018		
403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	**a.** A description of the organization's approach to preventing or mitigating significant negative occupational health and safety impacts that are directly linked to its operations, products, or services by its business relationships, and the related hazards and risks	**a.** Our approach is covered in the AECL Employee Health & Safety Policy, OSH Procedure, Workplace Harassment & Violence Prevention Policy

GRI Disclosure	Description	Disclosure
GRI Standard: GRI 404 – Training and Education 2016		
404-2 Programs for upgrading employee skills and transition assistance programs	**b.** Transition assistance programs provided to facilitate continued employability and the management of career endings resulting from retirement or termination of employment	**b.** AECL does not currently have a transition assistance program. AECL provides transition assistance through third-party support on an as required basis
GRI Standard: GRI 405 – Diversity and Equal Opportunity 2016		
405-1 Diversity of governance bodies and employees	**a.** Percentage of individuals within the organization's governance bodies in each of the following diversity categories: **i.** gender **ii.** age group: under 30 years old, 30-50 years old, over 50 years old **b.** Percentage of employees per employee category in each of the following diversity categories: **i.** gender **ii.** age group: under 30 years old, 30-50 years old, over 50 years old **iii.** other indicators of diversity where relevant (such as minority or vulnerable groups)	**a. i.** Female - 50 percent Male - 50 percent **ii.** Over 50 - 100 percent **b. i.** Female - 50 percent Male - 50 percent **ii.** Under 30 - two percent 30-50 - 54 percent Over 50 - 44 percent **iii.** Other indicators of diversity - nine percent
GRI Standard: GRI 418 – Customer Privacy 2016		
418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	**a.** Total number of substantiated complaints received concerning breaches of customer privacy, categorized by: **i.** complaints received from outside parties and substantiated by the organization **ii.** complaints from regulatory bodies **b.** Total number of identified leaks, thefts, or losses of customer data **c.** If the organization has not identified any substantiated complaints, a brief statement of this fact is sufficient	**a. i.** Zero **ii.** Zero **b.** Zero **c.** Zero

SASB Industry Standard "Electric Utilities & Power Generators"

Accounting Metric	Category	Unit of Measure	Code	Disclosure
SASB Topic: Greenhouse Gas Emissions & Energy Resource Planning				
(1) Gross global Scope 1 emissions, percentage covered under (2) emissions-limiting regulations, and (3) emissions-reporting regulations	Quantitative	Metric tons (t) CO_2-e, Percentage (%)	IF-EU-110a.1	**(1)** *Total of 28,336.12 CO_2e tonnes across all sites
Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Discussion and Analysis	n/a	IF-EU-110a.3	Nuclear energy presents an immense opportunity for emissions reductions on a national and global scale. At AECL, nuclear innovation is central to our purpose. Nuclear technologies can provide low-carbon energy solutions to support Canadian and global net-zero emissions targets
SASB Topic: Air Quality				
Air emissions of the following pollutants: (1) NOx (excluding N2O), (2) SOx, (3) particulate matter (PM10) (4) lead (Pb), and (5) mercury (Hg); percentage of each in or near areas of dense population	Quantitative	Metric tons (t), Percentage (%)	IF-EU-120a.1	**(1)** *NOx: 54,626 kgs **(3)** PM2.5: 8,590 kgs PM10: 11,395 kgs **(4)** Lead: 0.082 kgs **(5)** Mercury: 0.0001 kgs
SASB Topic: Water Management				
(1) Total water withdrawn (2) Total water consumed, percentage of each in regions with high or extremely high baseline water stress	Quantitative	Thousand cubic meters (m^3), Percentage (%)	IF-EU-140a.1	**(1)** Water withdrawn: 7,686.14 m^3 **(2)** Water consumed: 79.89 m^3

Accounting Metric	Category	Unit of Measure	Code	Disclosure
SASB Topic: Water Management				
Description of water management risks and discussion of strategies and practices to mitigate those risks	Discussion and Analysis	n/a	IF-EU-140a.3	Through the oversight of CNL, we are working to optimize the use of water and wastewater management practices. Based on 2020-2021 water consumption data at the Chalk River Laboratories site, we have set future reduction targets. Our goal is to track and disclose our potable water consumption by 2024 from all major buildings that have been deemed part of the revitalized CNL campus
SASB Topic: Workforce Health & Safety				
(1) Total recordable incident rate (TRIR), **(2) fatality rate, and** **(3) near miss frequency rate (NMFR)**	Quantitative	Rate	IF-EU-320a.1	**(1)** Total recordable cases: 0.64 Days away from work or temporary job restrictions or transfers: 0.39 Days Away: 0.16 **(2)** Fatalities: Zero
SASB Topic: Nuclear Safety & Emergency Management				
Description of efforts to manage nuclear safety and emergency preparedness	Discussion and analysis	n/a	IF-EU-540a.2	We recognize the risks of our work, and in line with federal priorities, are committed to managing our nuclear sites with public safety and security taking precedence. AECL is responsible for managing the Federal Nuclear Science and Technology Work Plan on behalf of the federal government, and CNL has also developed two nuclear detection and forensics projects, leveraging work from this program with the Defence Research and Development Canada
SASB Topic: Grid Resiliency				
Number of incidents of non-compliance with physical and/or cybersecurity standards or regulations	Quantitative	Number	IF-EU-550a.1	Zero

ESG Policies and Plans

Policy	Description
AECL Code of Conduct	Describes the expectations regarding employee and organizational behaviour and values.
AECL Indigenous Engagement Strategy	Details specific roles and responsibilities for AECL and CNL with respect to engaging with Indigenous peoples.
AECL Occupational Safety and Health (OSH) Procedure	Provides an overview and defines requirements for the occupational safety and health program (OSH Program) at AECL.
CNL's Carbon Neutral Strategy	Details the improvements and changes necessary to meet emissions targets, and incorporates energy efficiency improvements such as upgrading existing facilities and infrastructure, process improvements, modernizing CNL's road fleet, and prioritizing low carbon when constructing new buildings.
CNL's Energy Efficiency Strategic Improvement Plan (EESIP)	Enables Chalk River Laboratories to optimize energy expenditures, and reduce carbon emissions by efficiently and sustainably guiding strategic operations, maintenance, and capital energy initiatives.
Communications and Stakeholder Engagement Strategy	Outlines our commitment to understanding different perspectives, sharing information, discussing questions and concerns, and creating opportunities for partnership.
Employee Health and Safety Policy	Outlines our commitment to protecting the health and safety of all our employees.
Environment Policy	Used as a guide throughout all our business-planning decision phases to understand the environmental impact of our decisions.
Integrated Waste Management Strategy	Includes all waste types across each of our sites, which has a focus on lifecycle planning and optimization of waste.
Life Cycle Assessment (LCA) framework	Used to quantify the environmental impact of a product or service across all stages of its life cycle, and supports our transition to net-zero emissions by identifying additional improvement opportunities.
Mental Health Action Plan	Details how we are working to better support the mental health needs of our workforce, and aligns with the activities that support the strategic goals of the Federal Public Service Workplace Mental Health Strategy.
Reconciliation Action Plan	To be developed in collaboration with our Indigenous partners before 2025. This will guide how we engage with Indigenous communities and embed their perspectives in the work we do.
Supply Chain Policy	Serves as the foundation for working with our suppliers and reaching our sustainable procurement goals.

Abbreviations

Abbreviation	Meaning
AECL	Atomic Energy of Canada Limited
CANDU	Canadian deuterium uranium
CEDIR	Clean Energy Demonstration, Innovation and Research
CEO	Chief Executive Officer
CNL	Canadian Nuclear Laboratories
CSA	Canadian Standards Association
DA	Days away from work
DART	Days away from work or temporary job restrictions or transfers
EESIP	Energy Efficiency Strategic Improvement Plan
ERM	Enterprise risk management
ESG	Environmental, social, and governance
FAA	Financial Administration Act
GHG	Greenhouse gas
GoCo	Government-owned, contractor-operated
GRI	Global Reporting Initiative
HRGC	Human Resources & Governance Committee
LCA	Life Cycle Assessment
LED	Light-emitting diode
m^2	Metres squared
MWh	Megawatt-hour
NMFR	Near miss frequency rate
OSH	Occupational Safety and Health
SASB	Sustainability Accounting Standards Board

Abbreviation	Meaning
SMR	Small modular reactor
TCFD	Task Force on Climate-related Financial Disclosures
TRC	Total recordable cases
TRIR	Total recordable incident rate
WiN	Women in Nuclear
ZEV	Zero-emission vehicle

AECL Offices

Head Office

Chalk River Laboratories
286 Plant Road, Stn 508A
Chalk River, Ontario
Canada K0J 1J0

Ottawa Office

270 Albert Street, Suite 1500
Ottawa, Ontario
Canada K1P 5G8

Whiteshell Laboratories

1 Ara Mooradian Way
Pinawa, Manitoba
Canada R0E 1J0

AECL EACL 70 YEARS ANS

www.aecl.ca