2021 Climate Report – A TCFD-Aligned Disclosure

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2021 Performance Highlights

- Introduced a new internal information system that will enable more streamlined climate reporting and alignment with the Task Force on Climate-related Disclosures (TCFD) and Carbon Disclosure Project (CDP) disclosure recommendations
- Completed an internal Recommendations Summary Report based on the results of Sherritt's 2020 Nickel Institute Life Cycle Analysis and established a Task Force for executing these Recommendations
- Finalized plans to complete baseline energy/greenhouse gas assessments of our Power division and a life-cycle analysis for the Cobalt business in 2022
- Finalized plans to complete a TCFD-aligned climate risk and opportunity assessment for Sherritt's joint venture COREFCO refinery
- Updated the climate plan to include site-specific climate risk and opportunity assessments
- Investigated potential partnerships and joint industry initiatives and funding opportunities for decarbonization projects

About This Report

This is the second year Sherritt has released a Task Force on Climate-related Financial Disclosures (TCFD) aligned Climate Report. As we initiate implementation of our transition plan to become a net zero organization, preparation of this report in alignment provides an opportunity for Sherritt to reflect on its areas of success and to transparently identify areas for improvement. The scope of this report represents our current climate-related strategy, risks and opportunities, and targets, which we will refine annually as part of our five-year Sustainability strategy. Table 1 below provides a concordance of this report relative to the 2021 TCFD Guidance document "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures".[1]

[1] Task Force on Climate-related Financial Disclosures. "Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures". October 2021. Available at: Publications | Task Force on Climate-Related Financial Disclosures (fsb-tcfd.org)

Table 1: Conformity to TCFD Recommendations

Core Element	Recommendation	Report Reference
Governance	Describe the Board's oversight of climate-related risks and opportunities.	Section 2.1
	Describe management's role in assessing and managing climate-related risks and opportunities.	Section 2.2
Strategy	Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	Section 3.1
	Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	Section 3.2
	Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	Section 3.3
Risk Management	Describe the organization's processes for identifying and assessing climate-related risks.	Section 4.1
	Describe the organization's processes for managing climate-related risks.	Section 4.2
	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	Section 4.2
Metrics and Targets	Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	Section 5
	Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	Section 5.3
	Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	Section 5.1

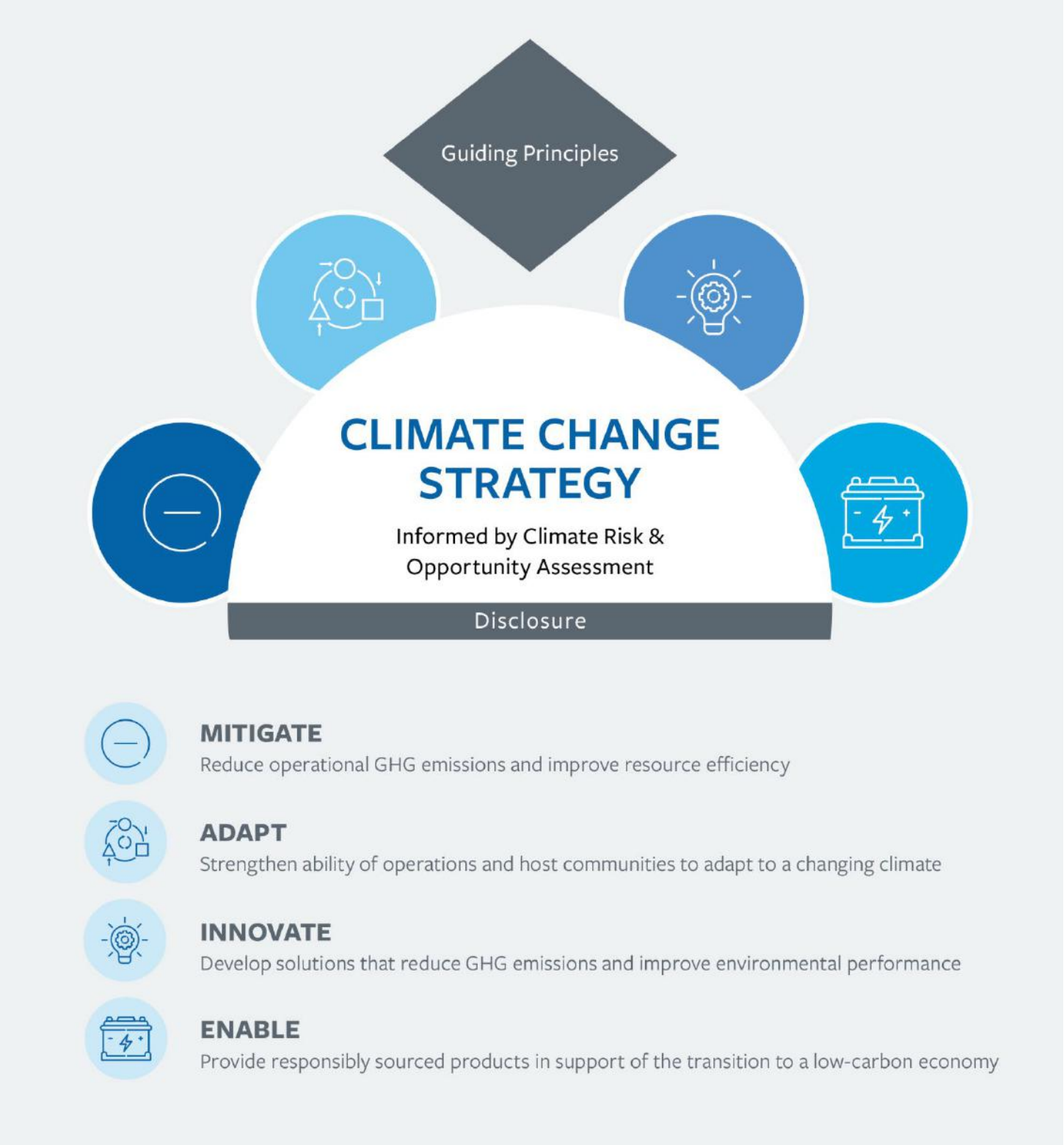
1.0 Our Approach and Commitments

Sherritt recognizes the critical role businesses must play in addressing global climate-related challenges and acknowledge that both Nickel and Cobalt have been listed on Canada and United State's 'Critical Minerals' lists[1]. We support the international climate change goals outlined in the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement and recognize the important role we can play in the shift to a low-carbon economy. For Sherritt, this means both actively implementing measurable steps towards a net zero future and bringing to market the materials and technologies needed for a decarbonized future and circular economy. Accordingly, Sherritt has established a climate action plan with targets for reducing our carbon footprint with the ultimate goal of achieving net zero greenhouse gas emissions (GHG) by 2050.

Although Sherritt has been engaged in efforts to address our own climate-related risks and opportunities, and has been supplying our customers with products to support them in addressing their climate change considerations, we have only recently formalized these activities under the umbrella of our overarching climate change strategy and targets. Our strategy is designed to align with both the Mining Association of Canada (MAC) Towards Sustainable Mining initiative and the recommendations of TCFD.

[1] Government of Canada: Critical minerals (nrcan.gc.ca); U.S. Geological Survey Releases 2022 List of Critical Minerals | U.S. Geological Survey (usgs.gov)

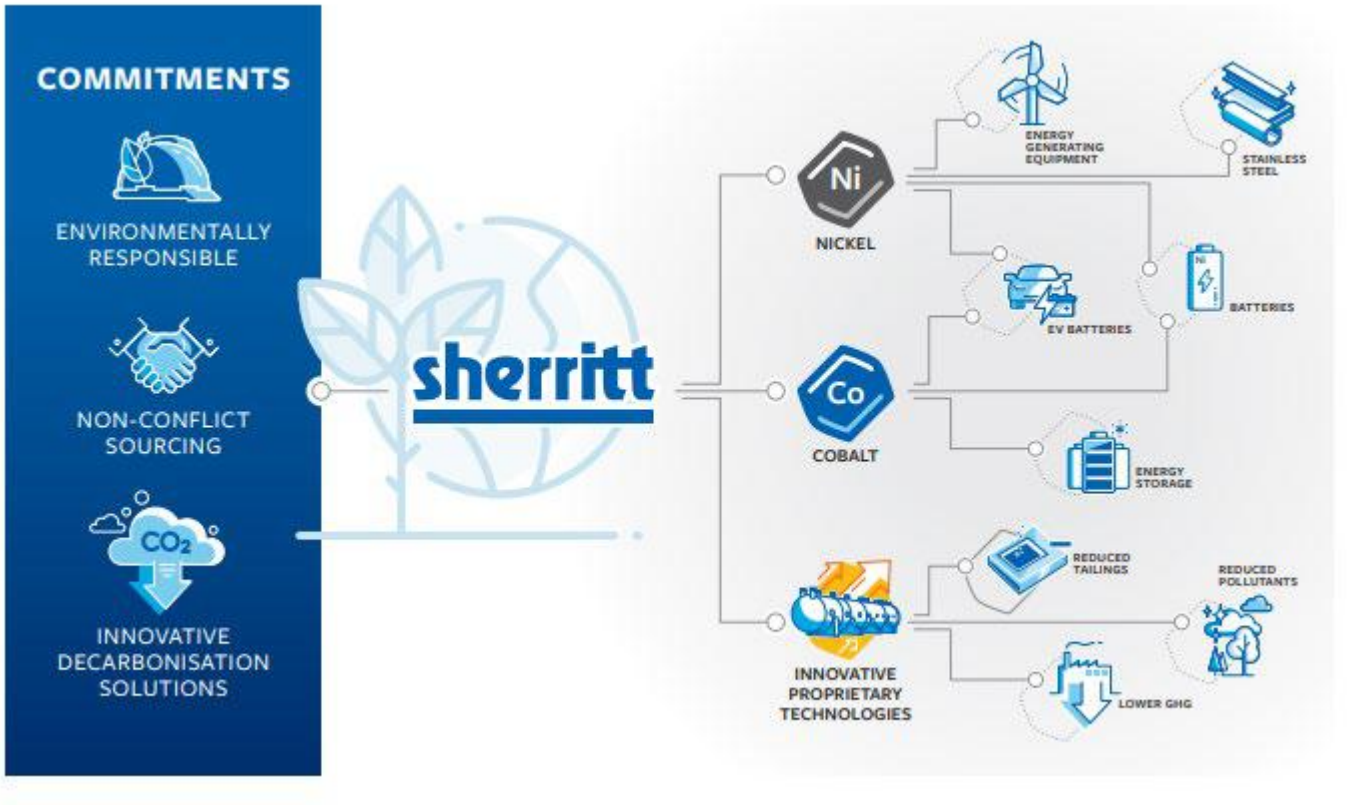
Our approach is informed by four guiding principles:



1.1 How Our Products and Technologies Contribute to Global Decarbonization

Canada's latest climate plan indicates that the Canadian mining sector will play a critical role in the clean growth economy. Canada and companies like Sherritt are key producers of many minerals such as Nickel and Cobalt that will be required for the global deployment of clean technologies.

Transitioning to a low-carbon future implies a significant increase in demand for metals such as Nickel and Cobalt. These minerals are used in low-carbon and carbon-neutral technologies such as electric vehicle batteries and energy storage solutions for renewable power sources. Additionally, through our joint ventures, we produce electricity for the Cuban power grid using combined cycle technology that represents a cleaner alternative to electricity produced from the combustion of crude oil. In this way, we are also supporting Cuba's national climate ambitions. We are also developing technologies that offer process optimization solutions and carbon reduction opportunities.



2.0 Governance (TCFD)

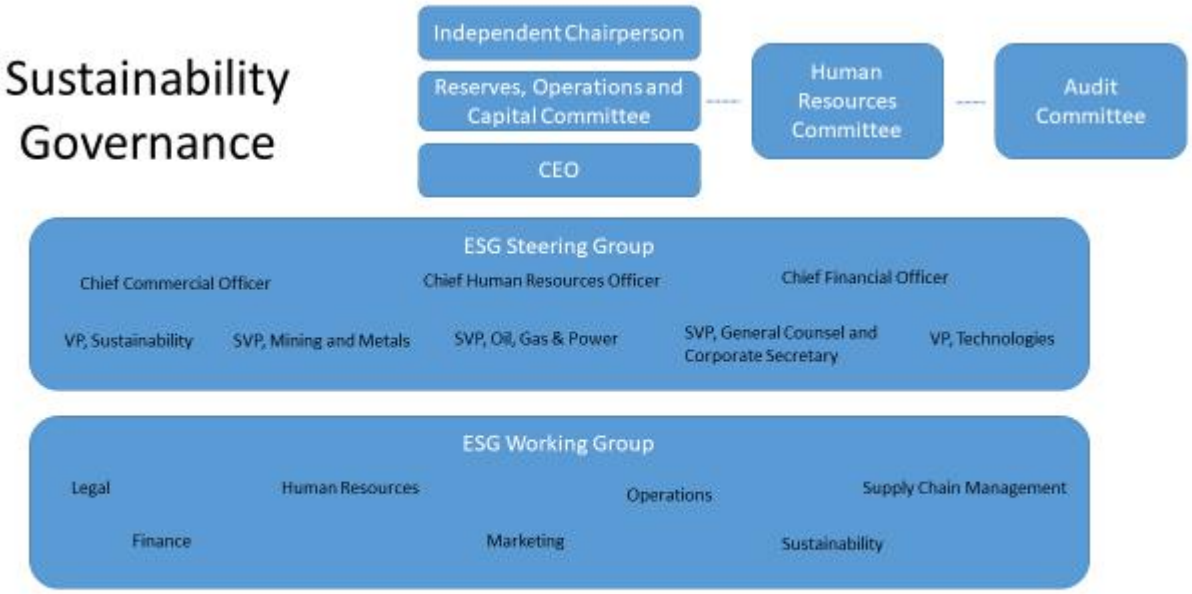
In line with the global attention on climate-related issues, Sherritt's Board of Directors and executive team have advocated the need for all levels of the Corporation to begin considering climate-change risks and opportunities into our strategic planning process as a whole.

2.1 Role of the Board

Sherritt's Board of Directors (the Board), which is led by an non-executive Chairperson, provides oversight on all strategic matters, including risks and opportunities related to climate change. The Sherritt Board of Directors, through its Reserves, Operations and Capital (ROC) Committee, oversees the management of all ESG related matters, which includes reviews of climate-related issues, targets and performance. In early 2022, Sherritt announced the appointment of Chih-Ting Lo to the Board and the ROC. She was nominated partly due to her substantive expertise in decarbonization and climate-change management. A link to her biography can be found here. Risk management and assurance activities associated with climate change can also be conducted through the Audit Committee of the Board. Sherritt's climate-related disclosures are reviewed using internal governance processes and disclosure procedures that are similar to those used for financial disclosures. The mandate of each of the Board, ROC and Audit Committees can be found on Sherritt's website.

2.2 Role of Senior Management

In addition to direction and priorities set out by the Board, the Vice President of Sustainability and Chief Commercial Officer, who report directly to the President and Chief Executive Officer, are accountable for ensuring the successful delivery of climate-related initiatives across the organization.



2.3 Assurance and Oversight

Table 2 below indicates the various forms of internal and external assurance conducted on Sherritt's climate change disclosures. Following assurance, our Board and management teams review the results to inform future actions and strategic plans.

Table 2: Assurance Measures Related to Climate Change

Assurance Type	Organization	Items Reviewed
External	Mining Association of Canada: Towards Sustainable Mining assurance	• Energy use and GHG emissions management systems • Energy use and GHG emissions reporting systems • Energy use and GHG emissions performance targets
External	GHG Regulation Assurance (Alberta, Canada)	• Validation of GHG data reported and quantification of methodologies
Internal	Corporate Reserves, Operations, and Capital Committee	• Sustainability reporting systems, including climate change • Sustainability and climate change performance

3.0 Strategy (TCFD)

Sherritt is currently in a baseline phase of its climate strategy. Over the next five years, we are planning to collect independent information on the carbon intensity of our operations, complete independent climate risk assessments, assess and refine our targets and plans accordingly, and improve the alignment with TCFD guidelines.

Assessing climate change–related risks and opportunities is an integral part of our overall risk management and strategy development processes. Effective management of climate change–related risks and opportunities across all aspects of our business is vital to our continued ability to operate. Several key activities aimed at providing us with critical data for our Climate Strategy were advanced or commenced in 2021, including:

- Completion of an internal Recommendations Summary Report based on the results of Sherritt's 2020 Nickel Institute Life Cycle Analysis;
- Establishment of a Task Force for executing these recommendations;
- Initiation of a life-cycle assessment for our Cobalt products; and
- Initial planning for a GHG emissions baseline assessment in our Power business and a climate risk and opportunity assessment at the JV COREFCO refinery in Canada.

These efforts will serve to assist us in refining and identifying short-term (1–5 years), medium-term (5–10 years) and long-term (10+ years) climate-related risks and opportunities and meaningful and effective mitigation, resilience and adaptation management strategies to reduce risk and enhance our ability to seize opportunities.

3.1 Climate-related Risks and Opportunities

Table 3 below summarizes the currently identified risks and opportunities across the business, as well as associated potential mitigating or enhancing actions. As the Corporation completes independently facilitated climate risk and opportunity assessments we anticipate that some of our currently identifies risks, opportunities and management approach will evolve.

Table 3: Summary of Climate Change–related Risks and Opportunities and Mitigation Measures

Risk and Opportunities	Time Frame	Mitigation
Potential Risks		
Regulatory developments Government regulatory developments in support of emissions reductions and proposed border adjustments for carbon intensive products has the potential to affect operations and sales due to restrictions in operating permits, energy regulations, emissions caps, or access to markets.	Medium term (5–10 years)	We play an active and constructive role in public policy development on carbon and regulatory issues, both directly and through industry organizations such as the Mining Association of Canada, the Fertilizer Institute, Nickel Institute and the Cobalt Institute.
Changing climate patterns Extreme weather events, such as floods, wildfires, hurricanes and droughts, as well as changes in precipitation patterns, temperature, sea levels, and storm frequency, can affect our sites' operations, related critical infrastructure and supply routes, and the local communities.	Medium term (5–10 years)	We monitor changing weather conditions and modify our operating processes and emergency preparedness as appropriate. The integrity of our assets is externally reviewed regularly, including operating facilities and tailings storage facilities, against the potential impact of extreme weather events. We engage with our logistics and supply chain partners to understand and support their efforts to mitigate and adapt to changed climate patterns We plan to complete an independently facilitated climate risk and opportunity assessment for our refinery in 2022. We plan to incorporate scenario-specific climate risk and adaptation measures into our business plans.

Risk and Opportunities	Time Frame	Mitigation
Potential Opportunities		
Carbon pricing Pricing carbon through direct taxes may create additional costs through the value chain, as well as providing opportunities to promote lower-carbon products. In addition, increasing demand for our mineral commodities is likely to drive higher prices, in turn offsetting increases to processing costs arising from the implementation of carbon pricing instruments.	Medium term (5–10 years)	We believe that, overall, our business remains resilient in the face of increasing carbon prices in Canada. We consider local regulations as part of our ongoing business planning for existing assets. We incorporate carbon price sensitivities into our operating and business plans and plan to incorporate carbon price sensitivities into capital investments, potential growth, and innovation decision-making processes. We are working with relevant industry organizations to complete life-cycle analyses or baseline assessment to calculate our commodities' carbon footprint and assess opportunities for reductions.
Performance Driven Risks or Opportunities		
Access to capital Inadequate performance against climate objectives may impact our access to capital or insurance, increase the cost of financing or lead to divestment of our shares as investors migrate away from companies with lower ESG performance.	Short to long term (2+ years)	We launched a climate plan to enable us to meet our climate-related objectives and have also launched an ESG improvement task force to ensure that our disclosures and systems align with industry expectations. We maintain strong relationships with our lenders and insurers and continue to actively engage on ESG-related issues. We have a number of initiatives with specific targets underway to improve our ESG performance and remain relevant and attractive for investors and other stakeholders. Furthermore, we are developing technologies to help the metals industry improve its ESG performance. Not only are our metals going to get greener, we are developing technologies to help others produce greener metals too.
Product demand Variations in commodity use from emerging technologies, the move towards renewable energy generation, a circular economy, and policy changes may affect demand for our products, both positively and negatively.	Medium to long term (5+ years)	We track and respond to downstream regulatory and technology developments. We believe that there are opportunities to continue to positively position our products and technologies to enable global decarbonization. We work with customers to understand our current and planned ESG performance to remain relevant and participate in ever-improving ESG value chains.

3.2 Impacts on Business Strategy and Financial Planning

Sherritt has started to integrate identified climate-related risks and opportunities into our Business Strategy and Financial Planning processes, however we are continually evaluating new ways to further embed these considerations into all aspects of the business. Current considerations include:

Capital Allocation: When relevant, meetings chaired by the President and Chief Executive Officer include discussions on operational approaches to decarbonization, including capital investments to improve energy efficiency and reduce GHG emissions, and strategies to incorporate more renewables into our energy mix. Our capital allocation processes prioritize the production of commodities essential to the transition to a low-carbon economy.

Operational Strategy and Mine Planning: We work with industry associations and partners to support predictable policy mechanisms aimed at achieving cost-efficient emissions reductions. We continue to strengthen our processes to incorporate changes in local regulations and carbon pricing sensitivities into our business planning for existing assets, innovation pipelines, new investments and as part of our marketing activities. Our ongoing work plan and the increasing requirements we place on our operations give substance to our corporate approach and commitments on climate change. For example, an initiative was launched to increase the use of electric vehicles and renewables by 20% within five years at the joint venture sites.

In 2021, planning commenced for a 20 MW solar farm at our Moa Nickel Site in Cuba and work continued on plans for solar panels on the administration building. Solar panels were installed in remote camps to supply electrical power and lighting needs. The Moa Nickel Site has also purchased two electric scissor lift units, two small 18 kW pick-up trucks, four Nissan E200 minivans, and one electric forklift. Throughout 2021 we also began investigating opportunities for carbon capture utilization and storage at our Fort Saskatchewan refinery.

We are working to better understand the Scope 3 emissions of our products and suppliers through collaboration with our value chains. Additionally, all Sherritt operations are implementing the new Towards Sustainable Mining Climate Change Protocol. Plans are in place to complete gap analyses and develop implementation plans in 2022.

Further to meeting TSM requirements, the Fort Saskatchewan Site operates under a provincial GHG regulatory system. In 2021, the Fort Site continued to action its Energy and Greenhouse Gas Improvement Plan. This plan involves several energy-reduction projects to assess feasibility and value-add potential to the company.

Expansion Strategy and Investment: Management is also exploring several shorter-term projects that have the potential to lower the carbon footprint of our products, such as the Moa Nickel economic cut-off grade project. Through improved resource modelling and mine planning at Moa Nickel, this project has the potential to maximize resource utilization and minimize the treatment of material with high acid consumption, thus managing our carbon footprint. Several efficiency improvements have been included in plans for the expansion project at Moa Nickel. For example, the new Slurry Preparation Plant will reduce haul distances and the consumption of diesel.

Innovation: Meetings chaired by the Chief Commercial Officer include reviews of Sherritt's innovation pipeline and discussions on how our technologies can contribute to industrial decarbonization efforts. Our Technologies Division is pursuing several promising innovations with a relatively low global warming potential for the mining and oil and gas industries, as described below.

1. **Next Generation Laterite**

Nickel is a key component of future technologies that demand high-strength alloys and a pivot from hydrocarbons to electrical energy systems. The availability of such large quantities of nickel in the future can only be assured by the processing of laterite ores. We are currently invested in a focused process development program that seeks to make laterite processing both more economically attractive and environmentally sustainable, through increased by-product value generation and greater extraction selectivity.

2. Treatment of High-Arsenic Copper

Sherritt Technologies has developed a suite of proprietary processes in response to the current copper concentrate market. In these processes, complex copper concentrate is leached for base and precious metals extraction with high recoveries, while simultaneously locking up contaminants such as arsenic, antimony and bismuth in a chemically stable form. As a result, pressure leach process residues are generated that are significantly more environmentally stable than current industrial practice could achieve.

Current processing methods on the market are not only more expensive, rendering many copper deposits infeasible, they also produce significant tailings and carbon emissions. With demand for copper slated to grow by almost 30% over the next 10 years as the electrification trend intensifies, the opportunity for Sherritt's solution is significant. This technology is also applicable to other arsenic bearing materials, such as gold or cobalt concentrates.

3. Metallurgical Reactor Technology – Dense Slurry Hydroprocessing (DSH)

Sherritt Technologies has leveraged its mature and successful metallurgical reactor technology and applied it to the processing of bio-oils into second-generation renewable fuels and upgrading of refinery vacuum residue to create value-add products and upgrading of heavy oils and bitumen. The technology makes use of high concentrations of a cost-effective, engineered catalyst that is recovered for re-use. The DSH flow sheet is simpler and is estimated to have a lower capital intensity than other hydroconversion processes currently used. The simplicity of the flow sheet can be attributed to the ability to treat the entire stream in a single vessel, thus lowering overall capital costs by eliminating requirements for additional front-end and back-end treatment.

Benefits of Sherritt's full upgrading process:

- Reduces carbon emissions and slag waste;
- Uses more efficient and smaller reactors;
- Increases pipeline capacity and eliminates diluent cost; and
- Increases value of oil in pipeline.

Using this process, oil producers can transport bio-oils and bitumen to downstream markets more economically and without any use of diluent. Just as important, our process reduces carbon emissions and reduces slag or coking waste.

3.3 Climate Resilience

Further work is needed to be done to fully identify all the potential climate-related physical and transition risks to Sherritt under varying climate scenarios. Sherritt expects to be able to disclose the outcomes of an independently facilitated TCFD-aligned climate scenario analysis for the JV COREFCO refinery in 2022. Similar scenario analyses for the Moa Nickel Site and the Power operations in Cuba are planned for 2023. We expect the outcome of this activities to meaningfully inform the development of refined science-based targets and corresponding mitigation and adaptation plans.

4.0 Risk Management (TCFD)

4.1 Climate-related Risk Identification

Sherritt's senior management team is responsible for identifying climate-related risks and opportunities to the business. This is done through consultation with key personnel at each of the operations, who have been directed to consider mechanisms for reducing emissions, and raising awareness of potential short-, medium- and long-term risks to site infrastructure and the health and safety of employees and local communities based on an active review of climate-related monitoring activities and data.

In addition, senior management representatives participate actively in third-party organizations, such as MAC, and regular conferences to continue to enhance the organization's understanding of evolving standards, regulations and financial or operational carbon offset opportunities.

Sherritt plans to more formally evaluate climate-related risks and opportunities through a series of independently facilitated TCFD-aligned workshops with relevant members of management to ensure these are well understood and that implementation of mitigating or enhancing actions are being undertaken across and at all levels of the organization.

4.2 Approach to Business Risk and Climate-related Risk Management

Both the Board of Directors and dedicated senior management representatives have direct responsibilities and oversight of climate-related risk management. Additionally, the Chief Financial Officer is responsible for the Corporation's enterprise risk management process and incorporating climate-related risks into the identification, prioritization, mitigation, and reporting process. The enterprise risk management process relies on regular risk assessments from key functions and all the operations.

5.0 Metrics and Targets

Sherritt has established the following targets that are informing the priorities of the company as we move towards the establishment of science-based targets based on Representative Concentration Pathway (RCP) modelling.

5.1 Current Targets

Sherritt has established interim aspirational targets aligned with the Paris Agreement. Following completion of baseline GHG assessments at each of the sites, and completion of a RCP scenario analysis, Sherritt will refine its targets and provide updates on actions/progress against them in future years reports. Our interim targets are as follows:

- Achieve net zero greenhouse gas (GHG) emissions by 2050;
- Reduce overall GHG emissions intensity from 2019 levels by 10% by 2030;
- Obtain 15% of total energy from renewable sources by 2030; and
- All operations independently verified to have achieved level A in the Towards Sustainable Mining (TSM) Climate Change Protocol by 2024.

5.2 Performance Metrics

Sherritt is in the process of developing climate and energy management systems that will improve how we evaluate and manage climate change–related risks and opportunities. We are also considering how our climate change commitments can be further reflected in our governance and assurance structures, disclosure plans, and potentially relevant remuneration schemes for executive management. We currently report on performance relative to our existing current climate change objectives by providing our Scope 1 and 2 emissions data in our Sustainability Reports. Details on our historical performance can be found in our 2021 Sustainability Scorecard and in Tables 4 and 5 below.

5.3 2021 Performance Summary

Table 4: GHG Emissions

2021	Year	Fort Site	Moa Nickel Site	OGP	Total[1]
Scope 1 GHG emissions ($kt\ CO_2e$)[2]	2021	344	598	2,077*	3,019
	2020	334	602	1,062	1,998
	2019	335	556	1,402	2,293
Scope 2 GHG emissions ($kt\ CO_2e$)	2021	56	67	14	140
	2020	57	61	7	125
	2019	59	60	0	119

*Oil, Gas and Power (OGP) division applied a new methodology for accounting for Scope 1 emissions, which resulted in an increase in emissions reported despite no material changes in the operation occurring. No other sites have a new methodology to report.

Data provided in Table 4 should be interpreted with caution as the values shown are inclusive of both Sherritt and our joint venture partner's Scope 1 and 2 emissions. In opting to facilitate this disclosure on our partner's behalf, the total emissions attributed to Sherritt are overrepresented. The total of Scope 1 and 2 emissions that can be attributed to Sherritt are 50% for the Moa and Fort sites combined, and 33% for the OGP due to the level of equity ownership by Sherritt in each joint venture.

[1] Data provided in this table and Table 4 below are based on best available information recorded and reported by the operations. No external assurance of this data has occurred for the years reported here.

Furthermore, any analysis conducted to assess the emissions intensities of Sherritt's businesses or product should consider that Sherritt's metals business is comprised of the Fort and Moa Nickel sites and the OGP business is comprised of various other sites. Production totals for each separate business should be used to evaluate emissions intensities.

Table 5: Energy Consumption Within the Organization

Disclosure Components	Year	Fort Site	Moa Nickel Site	OGP
Total electricity consumption (TJ)	2019	573	239	815
	2020	557	240	752
	2021	544	267	592
Total energy usage (TJ)	2019	5,131	6,112	29,529
	2020	5,033	6,491	29,783
	2021	5,222	6,418	581
Other sources of energy consumption				
Total coal consumption (TJ)	2019	0	0	0
	2020	0	0	0
	2021	0	0	0
Total fuel consumption from renewable fuel sources (solar, wind, etc.)	2019	0	0	0
	2020	0	0	0
	2021	0	0	0
Heating consumption	2019	0	0	0
	2020	0	0	0
	2021	0	0	0
Cooling consumption	2019	0	0	0
	2020	0	0	0
	2021	0	0	0
Steam consumption (tonnes)[3]	2019	0	4,383,666	0
	2020	0	4,602,000	0
	2021	0	4,530,000	0
Energy sold				
Electricity sold (TJ)	2019	0	0	8,166
	2020	0	0	6,759
	2021	0	0	4,992
Heating sold (TJ)	2019	0	0	0
	2020	0	0	0
	2021	0	0	0
Cooling sold (TJ)	2019	0	0	0
	2020	0	0	0
	2021	0	0	0
Steam sold (TJ)[3]	2019	76	0	0
	2020	60	0	0
	2021	78	0	0

[3] The steam at the Moa Nickel Site is generated by burning fossil fuels and sulphur on site. The steam is consumed internally on site in the process and used to generate electricity.

6.0 Future Initiatives

The following actions are already underway in 2022:

- Completion of an independently facilitated TCFD-aligned climate scenario analysis at the Fort Saskatchewan refinery;
- Development of a GHG Baseline for the Power Division;
- Planning for a solar project at Moa Nickel;
- Assess opportunities for carbon capture utilization and storage for the Fort Site; and
- Complete a life-cycle analysis on our Cobalt products.