



## ENERGY AND CLIMATE CHANGE



Our operations are energy intensive and use large amounts of diesel fuel and electric power. In addition to being among our largest expenditures, both of these energy sources emit greenhouse gases (GHG), which can trap heat in the atmosphere leading to a gradual increase in the earth's temperatures and changes in the global climate. B2Gold recognizes that society including business must take action against climate change and we are implementing a series of changes within the Company as a key aspect of our global Environmental Strategic Plan. Our strategy for contributing to global climate change action currently contains the following three key areas:

### **Assessing and reducing our carbon footprint:**

We have set targets for the completion of GHG emissions inventories for all of our sites, with the goal of setting long-term targets to reduce our impacts. We are increasing the amount of renewable energy we use to operate our mines.

### **Incorporating climate change risks into business planning/design:**

We will further incorporate climate change risks into our enterprise and site assessment and planning processes, to better adapt to the physical impacts of climate change and to increase the resilience of our operations and business.

**External reporting and accountability:** We will generate a comprehensive Energy and Climate Report, in line with international frameworks (such as the CDP<sup>12</sup> Climate Change Questionnaire or the FSB TFCD<sup>13</sup> climate disclosure recommendations), to report to our stakeholders on our contribution to climate change action and the management of climate change risk to our operations.

The key sources for direct GHG emissions at our operations are from the generation of electricity to operate our processing plants (from crushing and grinding, to leaching, electrowinning, and smelting) and the fuel for mobile equipment. Our Otjikoto and Fekola operations generate 100% of their electricity on site via HFO power plants with diesel-powered back-up. Our Masbate operation also generates 100% of their electricity on site via an HFO power plant. However, one production gen set, of the six in total that comprise the power plant (which corresponds to 5.5 MW of 35.9 MW total capacity), is operated on diesel fuel. Our La Libertad and El Limon operations (reported for Q1 to Q3 for 2019) purchase their electricity from the national grid with diesel-powered back-up. Because our total energy consumption and GHG emissions can vary due to factors such as new or expanded mines or divestiture of assets, we report on our electricity intensity and GHG emissions intensity.

B2Gold is proud to be an industry leader in the implementation of renewable energy solutions at our operations. In 2018 at Otjikoto, we commissioned a 7 MW solar power plant and converted our existing power plant into one of the first fully-autonomous hybrid (HFO and solar) power plants in the world. The electricity generated by this power plant has eliminated over approximately 16,000 tonnes of carbon dioxide equivalent (CO<sub>2</sub>e) emissions (through the end of 2019). In 2019, the Board of Directors approved the installation of a 30 MW solar plant with a 15.4 MWh battery storage component at our Fekola operation. Construction is under way and the plant is scheduled to be completed towards the end of 2020<sup>14</sup>. The resulting fully-autonomous hybrid power plant will be the largest off-grid facility of this type in the world and will reduce the operation's HFO fuel consumption by approximately 13.1 million litres and keep approximately 39,000 tonnes of CO<sub>2</sub>e from being released per year.

<sup>12</sup> CDP, formerly known as the Carbon Disclosure Project, is an organization based in the United Kingdom which supports companies and cities to disclose the environmental impact of major corporations.

<sup>13</sup> Financial Stability Board Task Force on Climate-Related Financial Disclosures aims to develop voluntary, consistent climate-related financial risk disclosures for use by companies in providing information to investors, lenders, insurers, and other stakeholders.

<sup>14</sup> Date based on current assumptions, subject to variation due to impacts of COVID-19 pandemic.

<sup>15</sup> <http://ghgprotocol.org/corporate-standard>

We piloted our first GHG emissions inventory in 2018 at our Otjikoto operation. In 2019, we expanded our programs and completed emissions inventories at our Masbate and Fekola operations. These three mines do not purchase electricity from external sources and therefore do not generate Scope 2 (indirect) GHG emissions; therefore, we estimated Scope 1 (direct) and limited Scope 3 (indirect) emissions (i.e. estimated Scope 3 emissions were limited to flights that we charter to transport workers and contractors to and from site and some contractor vehicles that operate off-site). We calculated our GHG emissions using the Intergovernmental Panel on Climate Change (IPCC) guidelines for GHG reporting and the GHG Protocol Corporate Accounting and Reporting Standard<sup>15</sup>:

**SCOPE 1 (DIRECT):** Direct emissions from owned or controlled sources. Our principal source of Scope 1 emissions is fuel consumption for site power generation and equipment/vehicle fleets.

**SCOPE 2 (INDIRECT):** Indirect emissions from the generation of purchased energy. Our Masbate, Otjikoto and Fekola mines (for which we completed inventories in 2019) do not purchase energy from an outside source and thus do not generate Scope 2 emissions. The La Libertad and El Limon mines do purchase energy from an outside source; however, emissions estimates were not completed for these operations in 2019.

**SCOPE 3 (OTHER INDIRECT):** Indirect emissions (not included in Scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions. Sources of estimated Scope 3 GHG emissions included some charter flights and bus services contracted to transport workers and contractors to and from sites.

We plan to expand our Scope 3 emissions inventory to include additional emissions sources in the future (e.g. commercial airline flights). As we complete and expand GHG emissions inventories for all of our operations, we continue to evaluate our energy and climate change programs, including risk assessment and management protocols and strategies for reducing energy and emissions intensities including investigating potential emissions reductions targets.

## 2019 PERFORMANCE

Our total energy consumption in 2019 was 8.6 million gigajoules (GJ). Our total electricity consumption increased by 10% in 2019, to 671 gigawatt hours (GWh) of electricity from 612 GWh in 2018. This consisted of 586 GWh of site-generated electricity and 86 GWh of grid-generated electricity. The increase in electricity consumption was due mostly to increased mill tonnage processed at both our Fekola and Masbate operations. We saw a decrease in the amount of grid-generated electricity we consumed due to the divestiture of the La Libertad and El Limon mines at the end of the third quarter of 2019. Our electricity intensity rose to 4.9 MWh/thousand tonnes of rock mined in 2019, from 4.5 in 2018. Much of this increase is due to the fact that our total mined tonnage increased only slightly in 2019, while our mill tonnage increased by approximately 9%.

In 2019, our electricity from renewable sources increased from 11 to 13 GWh, representing an increase from 1.7% to 2.0% of our total electricity consumption. This increase is due to a full year of operation of the solar power plant at our Otjikoto operation. The amount of renewable energy we generate will increase substantially after the commissioning of the Fekola solar power plant.

We continue to increase and improve our evaluation of our carbon footprint. In 2019, we completed the first GHG emissions estimates at our Masbate and Fekola operations, in addition to Otjikoto (first piloted in 2018). Our total GHG emissions (at the Masbate, Fekola and Otjikoto operations) were an estimated 581,000 tonnes CO<sub>2</sub>e. Our main sources of GHG emissions in 2019 were power generation (60% of emissions) and mine fleets (equipment and vehicles, 35% of emissions). Our consolidated GHG emissions intensity, estimated for Masbate, Fekola and Otjikoto operations for the first time, was 5.0 tonnes CO<sub>2</sub>e/thousand tonnes of rock mined. The Otjikoto solar power plant, which generated 13 GWh of electricity in 2019, eliminated approximately 9,000 tonnes of carbon emissions last year. It has kept an estimated 16,000 tonnes of carbon emissions from entering the atmosphere since its commissioning in 2018, through the end of 2019.

In 2019, we consumed 120.3 million litres of HFO, 97.5 million litres of diesel fuel, 19,250 litres of gasoline, and 1.9 million litres of greases and lubricants.