

### 3.19 Energy Requirements and Greenhouse Gas Emissions

Energy requirements of the proposed project, in terms of fuel (primarily diesel) and electrical power, are shown in **Table 3.19-1**, along with the contribution of this energy consumption to production of GHG, which may contribute to climate change.

**Table 3.19-1 Energy Consumption and Greenhouse Gas Emissions**

Alternative	Annual Fuel Consumption (gal)	Annual Power Consumption (megawatts per hour [MW/hr])	Fuel GHG Emissions (tpy) <sup>1</sup>	Power GHG Emissions (tpy) <sup>2</sup>	Total GHG Emissions (tpy)
Proposed Action	1,560,918	47,612	14,757	21,473	36,230
Reona Copper HLF Elimination Alternative	1,560,918	47,612	14,757	21,473	36,230
No Action Alternative	6,591,082	310,000	62,313	139,810	202,123
Total Project	8,152,000	357,612	77,070	161,283	238,353

<sup>1</sup> Factors used to estimate GHGs from fuel emissions is 18.908 lbs/gal.

<sup>2</sup> Factors used to estimate GHGs from power emissions is 902 lbs/MW-hr.

Source: USEPA 2011e; Newmont 2011a.

The GHG CO<sub>2</sub> enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal); solid wastes; trees and wood products; and as a result of other chemical reactions (e.g., manufacturing of cement). CO<sub>2</sub> is removed from the atmosphere (or “sequestered”) when it is absorbed by plants as part of the biological carbon cycle. In 2004, the total U.S. emissions of GHGs were equivalent to approximately 7 billion metric tons of CO<sub>2</sub> (U.S. Department of State 2008).

Potential emissions of CO<sub>2</sub> equivalents from the Proposed Action and alternatives were calculated based on estimated fuel and power usage at the Phoenix Mine. **Table 3.19-1** shows the fuel and power usage for the Proposed Action and each alternative, and the GHG emissions for fuel, power, and the total emissions for the mine. The Proposed Action and action alternative would have similar increases of GHG emissions by approximately 36,000 tpy over the currently authorized operations (No Action Alternative).

Recent scientific evidence suggests there is a direct correlation between global warming and emissions of GHGs. GHGs include CO<sub>2</sub>, methane, NO<sub>x</sub>, and O<sub>3</sub>. Although many of these gases occur naturally in the atmosphere, man-made sources have substantially increased the emissions of GHGs over the past several decades. Of the man-made GHGs, the greatest contribution currently comes from CO<sub>2</sub> emissions.

GHG emissions associated with the proposed project primarily would be associated with the consumption of energy for ore leaching and processing over the project life. Operational activities that would contribute to GHG emissions would include:

- Fuel consumption (light vehicles, haul trucks, and road maintenance equipment); and
- Electricity consumption (leach solution pumps, EW process, lighting, and machinery).

In 2008, the national annual emissions of GHGs were approximately 7.7 billion tons, which is a decrease of about 2.9 percent from 2007 (USEPA 2010b). Under the Proposed Action, the project would emit approximately 36,000 tpy of GHGs, or approximately 0.0005 percent of the national annual emissions. According to the USEPA Greenhouse Gas Equivalences Calculator, the Proposed Action would produce approximately the same CO<sub>2</sub> emissions from the energy use as 3,088 households in 1 year (USEPA 2010c).