

## **Electricity Resources Information Brief**

### **March 2010**

#### **Introduction**

As an energy-intensive business, we require a reliable supply of electricity that is used at the different parts of our operation – from our mine to the copper refinery. Currently, we produce most of the electricity we consume at our on-site 175 megawatt coal-fired power plant, located on the northern end of our property. However, we have and will continue to take measures to diversify our electricity resources and integrate new, alternative sources of electricity across our property.

#### **Kennecott's Power Plant – Facts**

If stack tested, the current air quality permit allows us to operate the power plant on:

- natural gas during the period from November 1 to the last day in February
- coal or natural gas during the period from March 1 to October 31

Currently rather than stack testing on natural gas, we voluntarily close the power plant each winter (between November 1 – the end of February) and therefore eliminate emissions during the winter months when inversions are a concern - even though our permit would allow us to burn natural gas during this time period. During this winter time period, we purchase power for KUC operations from the utility grid, which is primarily coal-based.

Operating our plant on natural gas presents some complex problems relating to natural gas supply, contracting, stack testing, required equipment re-configuration, and overall operating efficiency. We do not burn natural gas in the plant because of these complexities. In addition, it is not efficient (from a fuel perspective) and hence not economical (relative to purchasing power sourced from the grid) to operate the power plant on natural gas in the summer or winter months, and we have not operated the plant on natural gas as a primary fuel for many years. The last time we reliably burned natural gas in the plant was over 10 years ago.

#### **Kennecott's Future Evaluations for Electricity**

We are looking at a variety of long-term, strategic solutions to better manage energy supply and use, as well as GHG emissions, to supply our operation now and for decades to come. We have invested \$2.5 million and have 3 full-time employees devoted to

exploring new options to meet our current and future needs. We are evaluating additional base load power generation options to meet our existing and future electrical requirements. Current evaluations underway include natural gas retrofit opportunities at the existing power plant, and possible expansion of existing generation capacity using combined cycle natural gas turbines.

As we move towards a solution, we will integrate additional alternative and renewable resources such as those listed below.

Currently, we generate about 12% of our total electricity needs using alternative technologies. Specifically, a waste-heat power generation system at our smelter (one of the cleanest smelter's in the world) captures waste heat from the two furnaces (the flash-smelting and converting furnaces) at the smelter's acid plant (which captures 99.9% of sulfur dioxide emissions and converts it into sulfuric acid) and uses it to generate about two-thirds of the smelter's electrical power. We also have a 32.5-kilowatt solar photovoltaic system at our reverse osmosis water treatment plant.

In 2010, we invested over \$10 million dollars in a 6-megawatt combined heat and power (CHP) unit, which will be installed at our copper refinery. We are also awaiting approval for an additional CHP unit for a new facility. With the addition of these units, about 15% of our total electricity demand will be supplied by renewable and/or alternative resources and we will have invested more than \$40 million in alternative, clean energy.

A variety of other projects are underway to reduce our greenhouse gas emissions, such as reducing idling in our fleets and improved energy management and efficiency in existing operations.

For more information, see our energy and air quality briefs at.

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