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Musselwhite Mine
Electrical Power Supply

Challenges

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The following brief address is intended to provide an overview of the past, present and future challenges associated with our access to a secure and adequate electrical energy supply necessary to support safe, productive and sustainable mining initiatives at Musselwhite.

Agenda

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- Site power demand vs. current available supply
- Supply technical deficiencies – adequacy and security of present supply
- Present internal generation – technical aspects
- Anticipated future internal generation requirements
- Increased requirements necessary for planned expansion – demand/security
- Goldcorp's strategy to achieve required supply – transmission line initiative
- Possible benefits to potential First Nations and private sector consumers
- Economic impact of Musselwhite Mine on the northwest region
- Anticipated economic impact of planned expansion
- Expected life cycle of Musselwhite Mine
- Comparative energy costs for similar operations in other jurisdictions
- Conclusions
- Anticipated action plan

Site power demand vs. current available supply

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- Present constant demand is averaging 14MW with a peak demand of 18 MW
- The available supply is limited by the capacity of the E1C circuit that supplies the Crow River DS via a 115kV Hydro One transmission line from Ear Falls
- The present maximum allotment to Musselwhite mine is 19 MW

Adequacies (capacity) and security (reliability) of existing supply

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- Present capacity allocation to Musselwhite by Hydro One is 19MW via the E1C circuit from the Ear Falls G.S. to the Crow River DS at Pickle Lake.
- This will be inadequate to meet our anticipated demand in 2009.
- The radial transmission line is highly susceptible to weather related, unplanned outages (lightning).
- During 2006 there 27 interruptions due to outages in the E1C line resulting in a total duration of 31.9 hours.
- An outage of even short duration will cause a minimum production loss of 2 hours due to the time required to reset and rework the mill processes, therefore, 27 interruptions would equate to a minimum of 54 hours of lost production that is non recoverable.
- Unplanned outages also place additional stress on electro-mechanical systems and equipment resulting in reduced serviceable life expectancies and premature failure.
- A one hour loss to production equates to \$22,000.00 at a gold price of \$800.00 Cdn. A fixed labour cost of \$8,000.00 per hour adds to the impact.

Present internal generation – technical aspects

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- Present on site generation capacities include one 2.0 MW and two 1.0 MW generators driven by diesel engines.
- The fuel consumption rate at optimal efficiency is approximately 550 litres per hour.
- These units are designed to provide for life safety functions on surface, fresh air delivery to the mine and underground dewatering functions. They do not provide adequate capacity to allow for production activities.
- There is no current provision for synchronizing to the utility nor for isolating specific loads to be supplied by internal generation while others are supplied by the utility.

Anticipated future internal generation requirements.

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- Existing generation is capable of providing 3.6MW of continuous emergency back up power.
- Preliminary plans are in place to add another 5.4MW of diesel generation to supplement utility supply until a strategy can be developed to increase said supply capacity and reliability.

Increased requirements needed to facilitate planned expansion

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- Proposed short term expansion plans (1 – 3 years) will increase our peak demand to an anticipated 26MW.
- At increased production rates, the cost of lost production will also increase to an estimated \$30,000.00 per hour.

Goldcorp's strategy to meet the demand – transmission initiative

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- An engineering proposal to build a transmission line connecting to the Hydro One grid at the Valora Junction to the existing Crow River D.S. at Pickle Lake is currently in the final stages of review. (SNC Lavalin)
- The transmission line will be 180 km. in length with a proposed capacity of 36MW
- This will satisfy the long term needs of Musselwhite Mine and also provide an opportunity for the northern communities to access the grid should they choose to do so.
- The project implementation period, including field investigations, environmental studies, transmission/application process, engineering, bid process, mobilization and construction is expected to estimated at 3.5 years.

Subsequent benefits to others from the Goldcorp plan

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- First Nations communities having claim to 'traditional' land use in the affected area have been consulted with regards to forming a transmission company and assuming ownership of the line once construction is complete.
- Communities in the far north would have a greater opportunity to access the grid through various initiatives currently under discussion.
- Musselwhite Mine representatives are presently engaged in continuing discussions with all stakeholders. The intent is to seek input and eventual consensus with regard to project implementation, ownership and continuing service provision upon completion.
- Private mining interests in the Pickle Lake region may also benefit as the power delivery system to the area is upgraded.

Economic Impact of Musselwhite Mine on the Northwest region

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- Musselwhite Mine is among the largest employers in Northwestern Ontario with 420 full time staff and an annual payroll of 50 million.
- In addition we employ 150 contracted service providers.
- 30% of Musselwhite employees are First Nations members.
- Goods and services purchased annually are in excess of 150 million, much of which is spent in Northwestern Ontario.

Anticipated economic impact of planned expansion

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- The planned expansion is expected to increase production levels significantly as the ore grade continues to improve.
- Staffing levels will increase as ore throughput increases.
- Budgeted projections for 2009 show an increase of 40 to 460 full time positions.
- Capital expenditure associated with the planned expansion will also provide a financial boost to the goods and service providers successful in the tendering process.

Expected life cycle of Musselwhite Mine

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- The optimistic projected Musselwhite load demand curve reaches a maximum of 36 MW by 2020.
- This projection is based on known reserves and the methodology currently being considered for recovery.
- Beyond 2020 the life cycle and mining strategy will be determined by the results of an aggressive and effective ongoing exploration program.

Energy cost comparisons – mines in other jurisdictions

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- Ontario's electricity rates for industrial consumers are among the highest in North America.
- On average we pay two to three times as much per kilowatt hour as similar consumers in Manitoba and Quebec.
- Our recent electrical utility energy costs have been averaging about \$800,000./month.

Conclusions

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- In order to continue with a viable and environmentally friendly mining process Musselwhite mine requires access to additional electrical power capacity and increased service reliability from the Hydro One grid.
- Economic benefits to Northwestern Ontario as well as the far North are significant and will increase throughout the life cycle of the mine providing our power concerns can be resolved.
- Upon the eventual reduction of mining operations at Musselwhite, the Northern Communities and private interests will have continuing access to a secure and well maintained power delivery system to facilitate future development and provide long term power supply reliability.

Anticipated action plan

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- We are currently requesting a review of the power allotment offered by Hydro One via the E1C Circuit from Ear Fall GS.
- Failure to achieve a sufficient increase will necessitate the installation of adequate diesel driven generation to sustain our operations over the short term. (3 years).
- Plans to proceed with the new transmission line are well underway. Once complete the diesel generation will serve only as back up power to support limited production during power outage situations.
- We are also currently investigating methods of improving transmission reliability, particularly weather related.