

Is the mining industry ready to go green?

The mining industry is facing new risks from peak commodities, the energy and economic crisis and stock market pressures. The Green Mining Industry Initiative is a risk management strategy for the future of the mining industry.

Defining the Risks

The bad news is peak commodities, energy and economic crisis and stock markets collapsing are the issues that are already hitting everyone's bottom line and draining the treasuries of every mining company around the world. Higher energy costs are affecting the bottom line more than ever before, which is creating more risk for companies. Mining companies have major land positions around the world and they have major energy needs. Uncontrollable increases in energy costs, increased regulations for diesel fuel emissions and energy intermittencies are costing mining companies more time, money, and man-power, which are cutting into profits and hitting the balance sheet.

The good news is, there are practical energy solutions which are off the grid, tried and true methods which can be implemented in a cost-effective manner and will increase profitability and save shareholder values as well as energy security for these companies and their projects. To date, most of the mining resource industry has not yet considered or used other forms of power like clean, sustainable, or alternative energy for their own energy needs. The reasons have primarily been pushback from the mining industry due to beliefs of older technologies in alternative energy, a lack of understanding of the cost advantages long term, and perceptions of environmental relativity.

The increased demand for energy worldwide is growing at a staggering pace. As China and India continue to develop into 21st century cultures, more citizens are demanding modern appliances, cars, cell phones and computers. This means more resources need to be developed to meet the growing demands.

The increase in demand has also put a strain on commodities. Easy, cheap supplies have dried up, forcing prices of almost every commodity to reach record

In Colorado, Excel Energy buys some of its power from wind farms.



prices. As demand increases and remains at sustainable levels, suppliers, miners and farmers are working hard to continue to meet those demands. Some experts agree that we have hit the peak in all commodities world wide. "Peak everything" is the latest terminology being used by commodity analysts.

Increased demand has been good for the commodity business and, as investors in these markets have experienced from 2000 to 2007, there have been record increases in the development, investment and speculation of the resource and commodity markets.

Even until a year ago, there was a frenzy among investment bankers of deal flow. Every mining deal worth its weight in good management, or good real estate, seemed more than bankable. As with all cycles, there was a flood of new companies emerging into the marketplace to take advantage of the boom in commodity prices and investment demand. That all changed in the late fall of 2007 and the markets for mining equities turned around and headed south.

Concurrently, costs to produce or extract commodities were rising, while stock prices were getting hammered and capital dried up. New record prices of commodities, albeit gold, corn or iron ore, now have been offset by new record cost rises, leaving profit margins narrow and disappointing.

Before mining company management teams caught their breath, the U.S. economy began to crack and now the world economy is in a major financial crisis. There seems to be little in the way of boundaries when it comes to the long-reaching investment affects of the U.S. dollar and economy.

Energy shortages

No surprise here – there is a growing risk on the horizon — energy supply. In January 2008, South Africa suffered ongoing blackouts. The government confessed to an "electrical emergency" and began a program of rationing for industrial users. The South African mining industry shut down its mines for four days while negotiating with the power suppliers, Eskom, for restarting production. The South African government has admitted there will be ongoing electrical shortages for at least the next five years. So the mining projects in and around South Africa no longer can rely on power from the grid.

Michele Ashby

Michele Ashby, member SME, is chief executive officer of MiNE LLC, 300 S. Jackson St., Suite 220, Denver, CO 80209, e-mail Michele@minellc.com.

Solar power panels.



Now, other energy sources are most likely being considered.

Change is imminent and the changes can be made by choice in a proactive manner or by force through a reactive manner. The miners in South Africa are in a reactive mode now. They have built mines with thousands of employees going deep beneath the surface of the earth to extract these precious resources. Their dependence on reliable power is inherent. They need an alternative energy source — solar, wind, hydro, geothermal — whatever is the best choice for that area. And they need it yesterday — they will most likely see record losses at a time when gold prices are at record highs.

What price, reliability?

Here lies a major risk — reliable energy is no longer guaranteed. With nations growing faster than their power capacity, everyone suffers. This thing that we have taken for granted — cheap, reliable base-load power is a thing of the past.

So, if the mining industry chooses to live in the past, the consequences could be devastating. Mines can expect loss of production, loss of sales revenues, loss of profits and potentially loss of lives in the future if power outages become the new status quo.

Are there any solutions?

Yes there are, and among them may be the growing role for alternative energy sources.

New energy future — did you hear the one about ...

MSPL Ltd., one of India's largest iron ore mining companies, has the largest installed wind power generation capacity in India. MSPL developed and owns seven wind farms country-wide. They generate 127.8 MW of power and provides all of the company's energy needs. Additionally, the excess power produced, is used to provide electricity for 200,000 homes in nearby communities. MSPL recognized that the manufacture of the wind turbines used iron ore, the commodity, it was producing. So MSPL also started using its own iron ore to produce the turbines. MSPL Ltd., has won multiple awards for its innovative program and is enjoying healthy profit margins for its stakeholders.

This is one model other mining companies can follow. Large land package, major energy needs — good solutions.

Incentives

Current governments have helped communities achieve their goals of clean energy generation by instituting solid,

long-term programs with tax incentives or subsidies to develop these types of projects. There are many such programs in place that have proven to be successful and can be copied by others.

There is a belief that the comparative costs of alternative energy solutions to fossil fuels have historically been too expensive to consider. Even if communities and companies wanted to use clean energy, they were prevented from doing so due to costs, in most cases. Additionally, the technologies had not been fully developed to their maximum effectiveness or efficiencies.

This all began to change when certain governments began major incentive programs and subsidies to defray the costs of developing alternative energy sources. The primary focus for these incentive programs has been with solar, wind and ethanol (corn). Germany had one of the most aggressive subsidy programs in solar development. It resulted in its citizens using solar energy for a major portion of their power (even though Germany is considered to be a cloudy place to live).

Other European countries have followed suit. In the U.S., incentives vary by state, but more than half have some sort of incentive program to aid further development of alternative energy use on an individual level as well as industrial. Government plays a key role in providing tax incentives and benefits to individuals, companies or communities that want to develop alternative energy. So their participation is paramount to the success of future power generation from clean technology methods.

A solar plant will work in a sunny climate, wind turbines in a windy region, hydro in a river district and so on. Sometimes, combinations of these will work together or may be used to subsidize a pre-existing utility. For instance, in Colorado, Xcel Energy buys power from wind farms in the plains area of the state and transmits it on its own power lines to its customers. There are also tax credits offered for installation of solar units for homes and businesses in Colorado. These are programs that are common to many states in the US.

The clean energy solution for any given project will depend on the location of the project and the resources that are available. Water, sun, wind, geothermal heat, bio-fuels from algae and biomass from waste are all potential sources for energy and there are now proven technologies in all of these arenas.

Self-generation of power can oftentimes be created with one or more of the alternative sources listed above. As a first step, there needs to be a proper assessment or feasibility study carried out for each situation. This feasibility study will determine the power needs in measure and then can be used to qualify an appropriate energy source.

Many governments are in a challenging position. They are trying to catch up to the growing demands for reliable power for their citizens and industries and figuring out what is the best move for them from an environmental standpoint as well as the cost of building more power plants. How can they meet these demands in a time-effective and cost-effective manner? If governments were willing to consider that they could encourage new development and job creation by offering incentives to companies that are building new, clean energy sources for power, then more could get done in a quicker time frame. Partnerships like this have proven successful in many countries of the world. Currently, there are many examples of incentive

programs at local, state and national levels. If these incentive programs were implemented more often, in more locations, then development of clean energy projects would be more economic, in shorter time frames, and more competitive.

Additionally, there is a proposal of a proven incentive investment product that could attract substantial funds for new alternative energy products in the U.S. and other countries. It is referred to as the Power Incentive Program for Energy Restoration (PIPER). PIPER allows individual investors to get a tax write off for investing in alternative, renewable and sustainable energy power projects. The author can provide more information about this proposal.

The social side of green – it's good public relations and it is attracting investment

Sometime in 2007, there was a major shift in sentiment. Whether it was because of climate change according to Al Gore's film *An Inconvenient Truth*, rising oil prices, or just a collective consciousness, it seemed that everyone woke up one morning and wanted to turn "green" and look at their energy consumption to make changes there.

Television advertisements reflect the "green" marketing movement — even major oil companies are touting their commitment to alternative energy solutions. Renewable, sustainable, clean and alternative energy have become the buzz words and the media is now filled with articles about what all these terms mean to us. Capital investment for alternatives, in the form of venture capital (VC) has grown by billions of dollars. Suddenly, the world attitude toward energy and its effects on the environment has changed at every level.

Opportunity = crisis + fear

We are currently in a fear driven market that creates many challenges in today's markets. But therein lies great opportunity. The next great bubble of investment is reported to be in the energy sector. And most of that will be in the alternative and clean technology energy development rather than oil and coal (non-fossil fuels, vs. fossil fuels).

According to the U.S. Department of Energy, world energy demand is projected to grow by 60 percent by 2025. Most of this growth is expected to come from emerging economies. And the growth rate will be 200 percent by 2050.

The International Energy Agency predicts that an estimated \$16 trillion will need to be spent worldwide between now and 2030 to meet the projected demand for new electricity and fuel sources. If just 30 percent of that amount went into clean energy technologies, the influx of capital annually would be approximately \$200 billion a year. That is a lot of investment.

Why green energy?

Forget about the environmentalist, the green move-

Niagara Falls is a major source of hydroelectric power.



ment and the regulations – this is about making good business decisions that will affect the bottom line and free corporations from a real balance sheet negative. This is about corporate energy security that will create better profits for business and its stakeholders. It is about fiduciary responsibility.

Mining resource companies have historically experienced low-cost, easily accessible power generation. The source of power from the grid has been the status quo for the majority of mining projects globally and has worked very well for a long time. Those days are gone. The mining industry can take this opportunity and make it work for them.

Money on the table now

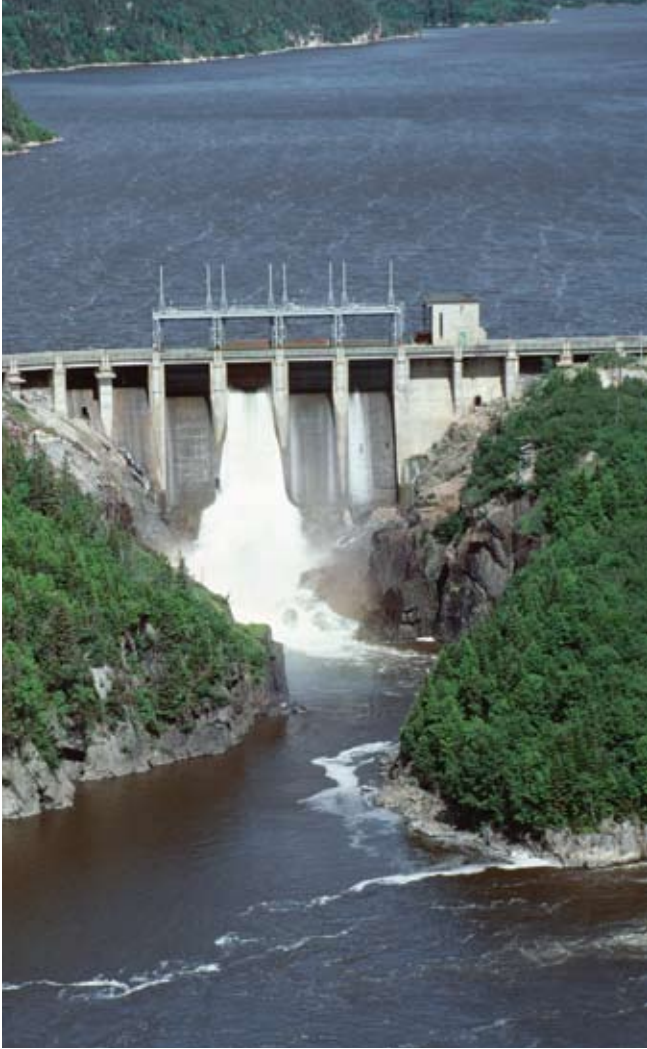
Most recently, at a presentation on energy assessment, one expert presented a case where a mining company that used biofuels rather than diesel fuels to help meet the current U.S. emissions standards, most likely had a hidden value and may not have even realized it. The extra costs of using the biofuels product is measurable against the cost of diesel. And that difference in cost can be considered a carbon credit that can be accounted for and possibly create a tax credit to the company or be monetized and sold in the marketplace. Additionally, the accounting of such behaviors, according to the expert, would preclude the firm from future U.S. compliance regulations relating to carbon footprints, that are inevitably coming down the pike.

This is good news for every mining company, because most likely, many mining companies have some form of energy efficiencies or optimizations already being used which could be accounted for right away. Here is a point of entry into the energy efficiency realm that counts as a sustainable program. Add that to the bottom line.

Why is the green energy a good thing for mining?

So here we are in a scenario of peak commodities and rising commodity prices, driven by rising demand. Additionally, we have higher costs of producing those commodities due to higher energy costs, tight labor markets, cost increases in mining equipment and tools, and other variables. Add in a declining U.S. dollar economy that

Hydro power dam.



creates more uncertainty, plus capital investment markets drying up because of the affects of U.S. subprime lending practices, and this could be setting the stage for a shift into a crash and possibly, another investment craze or bubble. This, in turn, could create an opportunity for investment in something new and better.

If demand and “peak everything” creates even higher commodity prices, the question will become, where will this end when energy costs are rising at unheard rates and supplies are becoming less certain? Where and when is the top and when will this bubble burst, if ever? One thing is for certain, increased demand and higher prices for energy are leading to more development of alternative energy sources around the world. It is no secret now.

This could be the second greatest thing to finding a world-class ore deposit for the mining industry. There are huge land positions around the globe that are controlled by mining companies that have their own unique footprint and lend themselves to unique challenges and opportunities.

Benefits

The benefits to using alternative, self-generating energy solutions for mining include:

- It can turn a balance sheet negative into a positive and bring more profits to the bottom line

- Reliable power generation – reduce the risk of power grid outages.
- Energy security — Inside the fence, independent power.
- Tax incentive programs where available and applicable.
- Carbon credits earned that can be sold, traded, or monetized.
- Extra power generation that can be sold back to the grid and generate revenues.
- Attracts capital to the company for power projects using alternatives that are appealing to investors with money on the sidelines right now.
- Long-term sustainability provides power when a project ends and can be left behind for the local communities.
- Long-term, it pays for itself and becomes a money earner and not a money burner.
- Good citizen awards and accolades.
- Lowers the carbon footprint of the company.
- Proud employees.
- Good image.
- Adds shareholder value through fiduciary responsibility.

There is no doubt this is “thinking outside the box” and that a concept called the Green Mining Industry Initiative is a challenge. It is a challenge the mining industry should embrace to embark on the journey to becoming energy independent and more risk averse.

Solutions

There are many companies and successes in the development of viable power options. The investment by a company, a country or an individual can and will make a difference for the future. Change can happen by using better solutions to these problems of energy. There are thousands of products available now in the alternative, renewable, sustainable, clean, green and efficiency energy markets. One day, these will be the norm instead of the alternative that can be referred to as “Modern Energysm” that will encompass all types of energy and power generation.

Now is the time to consider the options for power use in mining resource projects around the world. There is a movement now of support, a momentum to encourage this change to green living for every individual. As mentioned, it will take incentives, investment, innovation and implementation to continue this movement in a meaningful way. Beginning the process is the key.

So what will mines look like in 10 years? Will mines become models for the future of the mining industry using innovative technologies of power generation with clean energy sources? Will they be star citizens and well recognized for their investment and leadership of industry into clean technologies in solar, wind, geothermal, hydro and others (even combinations of these renewables are applicable) or will they be paying outrageous prices for fossil fuel and depending on the grid for their power, risking reliability?

The innovations in mining and clean technologies can now come together. Now is the opportunity to change the direction of the ship — to keep up with the times and to change the status quo for the better. ■