

# RENEWABLES & MININGSU

Toronto, October 15-16 2014

#### CONNECTING THE MINING SECTOR WITH RENEWABLES PROVIDERS

Meet the mining leaders driving renewables integration and the developers, technology suppliers and financial experts providing innovative solutions



Stephen Letwin President and CEO IAMGOLD



Mike Aire **Environmental Director** Newmont

Practical case-studies providing project detail and operational insight



Chris Adachi Leader, Energy and Carbon Management **Teck Resources** 



Flyn McCarthy Corporate Energy Manager Goldcorp





Steve Ridge Regional Engineering Manager De Beers



Bill Fisher **Executive Chairman** GoldQuest



cost-savings opportunities for mines and



Jean-François Verret Director Strategy, Projects and Public

**Kevin Smith** 

SolarReserve

Engineering

CEO



Miguel Munoz Director of Structured Finance for Latin America & EMEA





SunEdison



Malaika Masson Extractive Industry Specialist Inter-American **Development Bank** 



Pierre Rivard



**Tugliq Energy Co** 



Marco Northland **Etrion Corporation** 

Will Rayward-Smith

Excellence Group

Laing O'Rourke



Benoit La Salle President and CEO Windiga Energy

The Toronto Summit was a timely interface for the renewable energy and mining industries as they both find common grounds for

Insight and perspective on the

the market potential for renewables

cost-effective renewable energy development. The networking and the exchange of ideas was exceptional. 55

- Scott Fraser, Director, Power Projects, Barrick Gold

Main Sponsor:



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# **RENEWABLES** & MININGSUMMIT ANDEXHIBIT



The 3rd Renewables and Mining Summit will bring together energy decision-makers from the mining sector faced with the challenge of finding alternative energy solutions for both grid-tied and remote sites. As such, the event provides a unique project and business development opportunity for renewables and alternative energy solution providers, integrators, developers and suppliers who are able to meet the specific power needs of the mining sector.

#### Tuesday 14th October

Registration and V.I.P Reception

#### Wednesday 15th October

Mine Energy Strategy

Project and Alternative Finance

Additional Benefits of Renewables for Mines

**Networking Reception** 

#### Thursday 16th October

Ring of Fire Breakfast **Energy Storage Breakfast** 

Diesel Hybrid Projects and Innovations

Bridging the Gap between Mining and Renewables

Cutting Edge Project Case Studies



#### **Projects**

Case studies featuring new and upcoming renewables and hybrid projects

- Project analysis: wind-diesel from prefeasibility to construction
- Supplementing grid power with solar-pv
- Small-hydro integration in mining operations
- Analyzing the fuel cost-savings from biofuels
- PV-diesel hybrid solutions - operational experiences
- Exploring natural gas options for new mines sites



#### Strategy

How are mining energy decisions being made in light of alternative energy solutions

- How do corporate energy and climate goals translate to site-specific decisions?
- What practical steps are mines taking to address energy challenges at an operational level?
- What is the internal process for making energy decisions for a specific site?
- What lessons have been learned by exploring different energy options?
- How will mining's energy profile change in the next few years and what would help mines meet energy goals and operating budgets?



#### **Finance**

Matching mining and renewable finance models and expectations

- What guarantees need to be in place for IPPS and mines to make these deals work for both?
- Lenders and legal input on managing the discrepancy between mine life and project payback
- What type of flexibility can be built around project lifetimes and potential mine shutdowns etc.?
- What types of current deals most closely resemble the risk profile of these types of PPAs?

- How would the risk analysis differ for an on-balance sheet or partnership structure?
- What funding options would work for junior mines that lack the credit history and balance sheet of larger mines?
- Who will own this asset over the long-term - what will takeout financing look like?
- What alternative capital sources are available to secure funding for energy projects for mines?



#### Solutions and partners

What are the latest power technology options for mines and how are service providers developing partnerships to deliver solutions

- Supplying short-term solar for remote locations
- Integrating renewables with diesel: fuel-switching and smoothing capabilities
- Micro-grids and storage for mines - fuel-savings and performance expectations
- Fuel cell applications and benefits in the mine environment
- From project developer to energy management and supply - the changing role and expectations of the renewables sector





# 50+ expert speakers

A unique group of mining professionals and renewables experts



## Mining Energy Decision-Makers



Stephen Letwin President and CFO **IAMGOLD** 



Mike Aire Environmental Director Newmont



**Andrew Hinkly** Executive Head of Marketing **Anglo American Platinum** 



Gil Lawson Vice President Operational Support GoldCorp



Naomi Nemeth Vice President Investor Relations Banro



Flyn McCarthy Corporate Energy Manager Goldcorp



**Ron Halas** Vice President, Commercial, South America, and Project Coordinator **IAMGOLD** 



**Sunil Kumar** Director of **Energy Strategy Kinross Gold** 



Moe Lavigne Vice President of Business Development **KWG Resources** 



Nicolas Seguin Project Manager Raglan Mine



Scott Fraser Director, Power **Projects Barrick Gold** Corporation



**Neil Braizer** Energy Consultant Seabridge Gold

### Renewable project developers and suppliers



Miguel Muñoz Vice President Exploration and Development SunEdison



**Marco Northland** CEO **Etrion** Corporation



**Benoit La Salle** President and CEO Windiga Energy



Pierre Rivard CEO Tugliq Energy

# Legal and financial experts



James Meffen Director of Structured Finance **Overseas Private** Investment Corporation



Anthony Molle Senior Counsel World Bank



Malaika Masson Extractive Industry Specialist Inter-American **Development Bank** 



Vinod Mukani Director, Project Capital & Advisory **Deutsche Bank** 



Stephan Diaz Ellinghaus Structured Finance Director NORD/LB



**Bernard Sheahan** Director for Infrastructure and Natural Resource International **Finance** Corporation



Stephane Carriere Managing Director, Chief Representative **Natixis** 



Samuel Tumiwa Deputy Representative -North America **Asian** Development Bank

#### Supporters/Partners

























# **Sponsorship Opportunities**

Sponsorship of the Renewables and Mining Summit & Exhibition provides unique and cost-effective marketing, thought-leadership and brand exposure to a sector that is looking to invest in renewables projects. It is a proven way to get your organisation noticed by key decision-makers and ensure your company is associated with this new and growing market segment.

All sponsorship packages will be tailored to meet your requirements so that you can receive the best possible return on your investment.

This was a timely and excellent Summit, especially the business networking. There are many challenges ahead – but the conference provided a milestone for the required discussions. The convergence of mining companies, developers, vendors and others at this Summit was valuable. Convergence of Energy Strategy, Kinross Gold

CALL TO DISCUSS EFFECTIVE SPONSORSHIP IDEAS: Adrienne Baker, +1 613 680 2482

#### **THOUGHT LEADERSHIP**

### Keynote and Speaker

Presentations – Reinforce your position as a thought leader by aligning yourself with content based on our extensive research on renewables for mines



#### **Published Interviews**

and Editorials – Have your organization featured in an article written and researched by a leading Washington-based journalist and distributed to the global mining and renewable energy sectors



#### **Workshops and Briefings**

 Demonstrate your expertise and solution and get better understanding of your customers' needs and requirements



**Site Visit Sponsor** – Illustrate to a domestic and international audience how your facilities and projects are capable of serving your customers' needs in the industry

#### **BRAND IDENTITY**



# **Product Giveaways** – Present your audience with something useful to remember your

company – USBs, T-shirts, phone chargers



Conference Bag – One of most practical branded items that a delegate will use time and



Wifi Sponsor – Staying connected is paramount in business, this is an easy way to be seen throughout the Summit





#### Luncheon and

**Refreshments** – Show your hospitality and build a network with potential partners



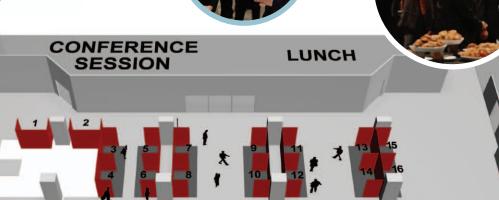
#### **Network Drinks Receptions**

 An opportunity to make valuable connections and prospective partners in a relaxed environment



**Exhibition Stand** – Meet with the top leaders and decision-makers in the mining and renewables sectors





Thank you very much. It was a truly enlightening experience. I must say that your conference was without a doubt the best I have ever seen in its field. 22 Gerhard Wernecke, Energy and Asset Manager, Lonmin





# 3 easy ways to register

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# Don't miss the early bird booking discount and save \$300

Delegate Place – Launch Price (available until July 31st)

\$1395 + HST

**Standard Price** 

\$1695 + HST

#### **Special rates**

Special delegate rates are available for

- Mine energy decision-makers
- NGOs and government organisations
- Multi-delegate bookings. Book three delegates for the price of two
- Members of supporting organisations and associates of supporting companies

To find out more about reduced rate passes please contact Sam Likely at sam.likely@energyandmines.com or call +1 613 680 2483

### Contact the team



For sponsorship opportunities: Company Director Adrienne Baker adrienne.baker@

energyandmines.com +1 613 680 2482



For registration and logistics

Delegate service and sales Sam Likely sam.likely@

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# **Day 1:** October 15, 2014



#### 8.30 Coffee and Registration

#### 8.55 Chair's Opening Remarks

**Adrienne Baker**, Director, **Energy and Mines** 

# 9.00 Opening Keynote: Strategic Energy Choices for the Mining

Stephen Letwin, President and CEO, IAMGOLD

#### 9.20 Keynote Panel: Shaping New Energy Strategies for Global Mining Operations

Energy costs are one of the most significant expenditures today accounting for 15% of the total cost of production on average moving to 20-40% in metals mining. The energy intensity of the extraction process is also increasing as new projects move to more remote locations and deeper mines. This opening panel will bring together senior executives from mines who have taken a lead on energy to discuss how they are developing their strategies for global operations and what role new

- How are current challenges in the mining sector impacting energy strategies?
- How are mines evolving energy plans to address cost and supply concerns for global operations?
- How are social license to operate and potential carbon pricing influencing energy decisions?
- What role do mines see for new solutions to power sites including renewables? How should the renewables industry develop to better fit the needs
- of the mining sector?
- What financial structures for new energy projects are preferred?
- Who would sit on your "energy dream team" and what skills and knowledge would they represent - i.e. carbon mitigation, engineering expertise etc.?
- How do you see the power choices of mines changing over the next 3-5 years?

Stephen Letwin, President and CEO, IAMGOLD

#### 10.30 Networking Break

#### 11.10 Session 1: Meeting Energy Challenges for Mines

This session will bring together engineering and operational experts from mines to discuss how they are addressing energy challenges for their operations. It will provide practical insight from mining energy decisionmakers on how mines are addressing energy costs and supply concerns for new or existing operations.

- How do corporate energy and climate goals translate to site-specific decisions?
- What practical steps are mines taking to address energy challenges at an operational level?
- What is the internal process for making energy decisions for a specific site?
- What lessons have been learned by exploring different energy options?
- What type of performance guarantees are mines' looking for from new energy solutions?
- Insight from mines on operational experiences with renewables
- How will mining's energy profile change in the next few years and what would help mines meet energy goals and operating budgets?

Chris Adachi, Leader, Energy and Carbon Management, Teck Resources Ltd. Mike Aire, Environmental Director, Newmont Neil Braizer, Energy Consultant, Seabridge Gold

Flyn McCarthy, Corporate Energy Manager, Goldcorp Inc.

Steve Ridge, Regional Engineering Manager, De Beers Snap Lake Mine

#### 12.00 Networking Lunch

#### 13.10 Session 2: Creating Innovative Finance Models

The primary challenge of structuring finance for these projects is managing returns based on the projected life of the mine compared to the payback period of the renewable energy asset. This session will offer case studies and expert views on different deal structures for renewable energy projects for mines including PPAs, on-balance sheet structures and co-investments between IPPs and mines.



#### 13.10 Deal Analysis: Project Amanecer Solar CAP - A 100 MW Solar Project for a Chilean Mine

- A detailed description of this deal which provided \$212.5 million USD in debt financing
- What were the specific requirements of the various lenders?
- The process lenders took to analyze the creditworthiness of the offtaker and the structure of the PPA
- Structuring the transaction and the various positions of the participants
- Lessons learned from this landmark deal

James Meffen, Director of Structured Finance, Overseas Private Investment Corporation Bernard Sheahan, Director for Infrastructure. and Natural Resource, International Finance Corporation Miguel Muñoz, Director of Structured Finance for Latin America & EMEA, SunEdison **Gregory Hutton**, Executive Director, Project Finance, Americas, Rabobank International

#### 14.00 Panel Discussion: Benchmarking Finance Options and Structuring Power Purchase Agreements

- What guarantees need to be in place for IPPS and mines to make these deals work for both?
- Lenders and legal input on managing the discrepancy between mine life and project payback
- What type of flexibility can be built around project lifetimes and potential mine shutdowns etc.?
- What types of current deals most closely resemble the risk profile of these types of PPAs?
- How would the risk analysis differ for an on-balance sheet or partner-
- What funding options would work for junior mines that lack the credit history and balance sheet of larger mines?
- Who will own this asset over the long-term what will takeout financing look like?

Vinod Mukani, Director, Project Capital & Advisory, Deutsche Bank Stephan Diaz Ellinghaus, Structured Finance Director, NORD/LB Stephane Carriere, Managing Director, Chief Representative, Natixis Sean Whittaker, Senior Industry Specialist, Renewable Energy, International Finance Corporation

#### 14.50 Networking Break

#### 15.20 Session 3: Exploring Alternative Funding Options

Alternative sources of funding available for renewable energy projects for mines that have a community development aspect. This session will explore what those sources are and how mines and developers can access this type of finance.

- What alternative capital sources are available to secure funding for energy projects for mines?
- What specific criteria need to be met to qualify for this type of
- Do these institutions assess risk differently than traditional lenders?
- Examples of recent deals where these institutions have partnered on energy projects for large industrial users
- How should mines and developers investigate additional community, infrastructure or economic development benefits to help move proiects forward?

Anthony Molle, Senior Counsel, World Bank

Malaika Masson, Extractive Industry Specialist, Inter-American Development Bank Samuel Tumiwa, Deputy Representative – North America, Asian Development Bank

# 16.10 Session 4: Expanding the Benefits of Renewables Projects

Incorporating renewable energy into a mine's energy mix can add value beyond energy security and affordability. Mining companies are increasingly exploring how the benefits of renewable energy can leaving a lasting impact on the communities and environments they operate in.

- What additional benefits have been derived from existing projects i.e. permitting approvals, community acceptance?
- What is the opportunity for enhancing mine closure and rehabilitation plans with renewables?
- How important these additional benefits to mines?
- When can energy crop agriculture be used on reclaimed mining
- How can projects improve neighbouring communities, especially in remote or developing areas?
- Insight on the long-term benefits of renewables for a mine's legacy

Bryan Tisch, Senior Environmental Scientist, Natural Resources Canada Scott Davidson, Environment and Social Responsibility Manager, New Gold Benoit La Salle, President and CEO, Windiga Energy

17.00 Networking Drinks



# Day 2: October 16, 2014



#### **ENERGY STORAGE BRIEFING**

#### 7.45 Energy Storage Breakfast Briefing: Adding Flexibility and Reliability to Mining Hybrids

Energy storage at mine sites allows for higher penetration of renewables, increased system flexibility, and efficient back-up power. As hybrids solutions continue to evolve, storage will play a central role in the reliability, integration and balance of these site-by-site solutions. This session will highlight earlystage projects that demonstrate the performance capabilities of storage and examine key questions around the applications and economics for mining hybrids.

#### 7.45 Energy Storage for Mines: Economics, Applications and Innovations

#### 8.05 Panel Discussion: Advances in Energy Storage for Mine Sites

- What are the most current examples of energy storage deployment
- What can be learned from these early projects in terms of operability?
- What are the key criteria for determining whether storage makes sense for a remote system?
- How can storage ensure the reliability and consistency of power required by mining operations?
- What do experts see in terms of the evolution and economics of storage applications - when will we see widespread adoption of largescale storage for remote mines?

Karim Kassam, Vice President Corporate Development, Ballard Power Systems

#### RING OF FIRE BRIEFING

#### 7.45 Ring of Fire Breakfast Briefing: Building Social License and Securing Costs for Remote Operations

Ontario's Ring of Fire is a 5000 square kilometer expanse with significant deposits of nickel, copper and chromite in a very isolated part of the province. The region has no electricity infrastructure and local First Nations communities are eager to get off diesel-power with some favouring renewables. What role can renewables play in helping drive socioeconomic benefits for First Nations communities and providing affordable power for mining operations? Using the Ring of Fire as a case study, this session will examine how energy choices can help build social license to operate and secure energy costs for remote operations.

#### 7.45 The Potential of Renewables in Powering the Ring of Fire

#### 8.05-8.55 Panel Discussion: Energy Solutions for the Ring of Fire

- What initial energy plans have mining companies developed to power their operations?
- How are mines exploring the role renewables could play in reducing diesel or supplementing grid power if a transmission line is built?
- What impact would integrating renewables have on relations with First Nations communities?
- What sort of opportunities are there for building partnerhips with First Nations on energy infrastructure and how would this build license to operate?
- Insight from mines that have partnered with First Nations communities on energy infrastructure
- What would it take for renewables to be part of the energy solution for Ring of Fire mines?

Chair: Chris Benedetti, Principal, Sussex Strategy Group David Paul Achneepineskum, CEO, Matawa First Nations Moe Lavigne. Vice President Exploration & Development, KWG Resources Gil Lawson, Vice President, Operational Support, GoldCorp



#### 9.10 Chair's Opening Remarks

Adrienne Baker, Director, Energy and Mines

Session 5: Hybrid Solutions for Mines - Leading Edge Case Studies This session will feature the very latest case studies from mines that are integrating renewable energy hybrid solutions to power mining operations around the world. These ground-breaking projects will provide insight into the business case, approvals' process, implementation and performance of these innovative energy systems.

#### 9.10 Case Study: From Pre-Feasibility to Construction: Glencore's Wind-Diesel Hybrid

Glencore's Raglan Mine is implementing a 3 MW wind-diesel hybrid system in Northern Quebec. This detailed project analysis explores the project from the perspective of the mine and project developer

- Insights on the key drivers and approvals' process behind this this project
- Insight on the decision to include energy storage to maximize the value of the wind investment
- Exploring the challenges of building a wind project in this remote Northern region

Nicolas Seguin, Project Lead, Glencore Raglan Mine Pierre Rivard, CEO, Tugliq Energy Co.

#### 9.30 Case Study: Managing and Measuring the ROI of Solar PV: IAMGOLD's Rosebel Project

Insight on the drivers, goals and costs of this 5 MW PV project for IAM-GOLD's Rosebel site in Suriname

- What is involved when a mine manages the project internally?
- Lessons learned from the permitting and construction phase
- Next steps in managing the O&M and return on investment of this energy solution

Ron Halas, Vice President, Commercial, South America, and Project Coordinator, IAMGOLD

#### 9.55 Case Study: Driving Down Mining's Operating Costs with Secure, Renewable Power

10.15 Networking Break

#### 10.55 Session 6: The Evolution and Application of Hybrid **Solutions for Mines**

This session will focus on the latest developments in the integration, performance and maintenance of these hybrid solutions for mines that are being developed on a case-by-case basis to meet the particular power needs of a mine site. It will provide critical insight into how these systems can ensure the reliability, consistency and affordability of power.

#### 10.55 Case Study: Designing a Flexible and Customized Hybrid Solution

- Applying the latest innovations in hybrid systems for a mining operation
- What do the metrics look like in terms of ROI and fuel savings?
- Developing performance guarantees to ensure reliability and operability

#### 11.15 Temporary Diesel-PV Hybrids: Addressing the Life-of-Mine vs. Project Payback Hurdle

The Australian Renewable Energy Agency this innovative project to develop a portable solar-diesel system that directly addresses the challenge of matching the life of mine with project payback timelines.

- What would the financial model look like for a mine using a temporary system?
- How much power could be supplied by a temporary solar-diesel solu-
- How are these systems performing and what are the potential energy cost savings?

Will Rayward-Smith, Engineering Excellence Group, Laing O'Rourke

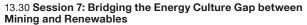
#### 11.35 Panel Discussion: Hybrid Solutions for Mines: Performance, Fuel-Savings and Guarantees

- How have hybrid systems evolved to fit the highly customized needs of mining operations?
- Examples of operational data from mining projects or other largeindustrial hybrid systems
- What guarantees are available from suppliers to ensure the system delivers the energy and power consistency required?
- What are the latest advances in control systems to manage power fluctuations?
- What can mines expect in terms of the amount of fuel and cost savings from these solutions?
- What is involved in the operation and maintenance of these systems over time and what options are available?

12.25 Networking Lunch

# **Day 2:** October 16, 2014





While the mining industry is proactively exploring new energy solutions, there is often a mismatch between the way mines think and talk about energy and how renewables solutions are presented. This session will bring together mining experts to talk about how energy is handled internally and provide insight into how renewables solutions can better fit with mining's energy culture.

- What are the key differences with the way mines and renewables view and talk about energy?
- How does this impact on the ability for mines to move renewables forward internally?
- Examples of mistakes mines have seen from energy experts pitching a renewable solution
- What key criteria and terminology will assist in moving a new energy
- solutions through the approvals' process? Once a project has been approved, what are some of the common
- reasons implementation is delayed? Are there additional concerns over the costs of maintaining these systems vs. diesel generators?
- How can the renewables sector better meet and match the energy culture of mines?

Sunil Kumar, Director of Energy Strategy, Kinross Gold Naomi Nemeth, Vice President Investor Relations, Banro

Bill Fisher, Executive Chairman, GoldQuest

Scott Fraser, Director Power Projects, Barrick Gold Corporation

#### 14.20 Session 8: Renewables for Mines - Cutting Edge Case Studies and Strategies

The application of renewables for mines will grow exponentially with the continued evolution and implementation of ground-breaking projects that demonstrate the reliability, economics and operability of these customized systems. This session will feature the latest case studies from mines that are pushing the boundaries of renewables penetration, hybrid design and operation.

#### 14.20 Case Study: Operating Large-Scale Wind

- Insight on the partnership structure, finance and customization of this project
- What challenges were overcome during the permitting and construction phase?
- How does this project set the stage for future utility-scale wind proiects for mines?

#### 14.40 Joint Case Study: Securing Energy Supply with Large-Scale PV

Swiss IPP Etrion is constructing this 72 MW solar PV system to provide power for RB Energy's Aguas Blancas iodine mine in Chile using a 15 year take-or-pay agreement.

- Hear how solar is solving energy supply constraints for this mining operations
- Understand the predicted energy cost savings over the project's life-
- Insight on the important role project location played in reducing risk for the IPP

Marco Northland, CEO, Etrion Corporation A Representative, RB Energy

#### 15.00 Case Study: Testing the Waters with Small-Scale Renewables

Hear how this global mining company is investing in a number of small scale-projects renewables projects in order to assess the potential for larger-scale projects.



#### 15.20 Networking Break

#### Session 9: Alternative Energy Solutions - Case Studies

This session will focus on alternative energy solutions including fuel cells and natural gas and how these technologies can fit with renewables systems

#### 15.50 Case Study: Exploring Natural Gas for a New Mine Site

Hear how Sage Gold is exploring natural gas options to power its Clavos Property in Timmins, Ontario

- Assessing the viability of sourcing liquefied natural gas from an existing pipeline
- Supplementing diesel with compressed gas for mine equipment and surface haul trucks
- Using compressed gas for heating and powering applications benefits and challenges

William Love, Vice President of Business Development, Sage Gold

# 16.30 Case Study: Advancing Fuel Cell Applications for Mining

Anglo American's Platinum business is testing the applications of fuel cells for its operations including powering locomotives, and back-up for mine communications systems.

Andrew Hinkly, Executive head of Marketing, Anglo American Platinum

#### 16.50 Panel Discussion: Alternative Energy Solutions for Mines

- Why do mines choose these technologies over renewable energy options?
- Is there a better way for alternative fuels to collaborate with renewables on mining solutions?
- What are the latest developments that are driving mines to consider these technologies?
- What are the expectations in terms of widespread adoption of gas and fuel cells to power mines?

#### 17.30 Conference Close









