FLSmidth Minerals
- a world leader in mining and minerals processing

George Robles, Deputy CEO, FLSmidth Minerals
George Robles

- EVP and Deputy CEO, FLSmidth Minerals
- Based in Bethlehem, Pennsylvania, USA
- Joined FLSmidth in 1994

Previous positions:
- VP European Operations, EIMCO Europe (Jan 1988 – 1993)
- GM Chile, WEMCO (Mar 1983 - 1988)
What does FLSmidth Minerals do?

- We make the machines that help our customers make:
The mining world today

Mining industry dynamics and trends

The new FLSmidth Minerals - industries served

‘One Source - One Partner’

Concluding remarks
Three primary objectives

- Grow the minerals business to the size of the cement business
- Establish FLSmidth Minerals as market leader in every major minerals processing category
- Develop a unique value proposition in the Minerals and Processing industry
The mining world today

- The sharp fall in **metals prices** since mid 2008 prompted numerous companies to announce production cut backs and deferrals of capital spending

- Metal prices appear to be **stabilizing** slightly above threshold levels

- The **credit situation** remains severe with the banking sector reluctant to lend new funds

- Most large **viable projects** belong to the major mining houses or are being financed by Chinese investors. Junior companies, and their projects, are the most effected by the crisis

- However, some people continue to realize that the **China and India growth stories** are still intact giving us some optimism for 2009
Mining markets today

- **SOUTH AMERICA** – Very strong market led by investments in copper in Chile and Peru as well as iron ore in Brazil. Once metal prices stabilize, the strong market trend is expected to resume.

- **NORTH AMERICA** – Difficult market due to environmental regulations and high costs. Recent openings of marginal mines have been highly affected by today’s low prices and shut downs have taken place. FGD investments are slowing down, but coal gasification is an emerging technology.

- **SOUTHERN/CENTRAL/WEST/AFRICA** – Strong market with considerable political risk. In today’s climate new mine development will be highly curtailed due to the lack of available funds for junior miners and it will take a while for this market to come back since the large mining houses are more risk averse than the juniors. Gold and uranium are expanding, however.

- **NORTH/EAST AFRICA** – Moderate market that will depend on government financing for further development.

- **EUROPE** – Market activity is primarily for KOCH MVT in coal unloading and rolling mills and EIMCO IT for industrial minerals.
• **AUSTRALASIA** – Very strong market primarily lead by investments in iron ore, coal, and base metals. Many projects have been affected by the lack of funding for junior miners. The Chinese have been playing a major role in the expansion of Australia and this is expected to continue.

• **MIDDLE EAST** – Expanding market with large potential for phosphate and potash.

• **CHINA** – Large market but difficult for Western suppliers due to IP issues as well as low pricing.

• **SOUTHEAST ASIA** – Moderate market that is slowing down fast.

• **RUSSIA/CIS** – Strong market with a lot of volatility. Continued investment expected primarily lead by the continued use of internal financial resources, however, currently hampered by the fall in oil prices and political risk.

• **GENERAL** - Geographical investment will be set by proven exploration results of the recent past. The South American market has lead suppliers to develop ever larger equipment due to the size of the copper and iron ore projects. The China market will lead suppliers to look for lower cost solutions to remain competitive.
## Industry Dynamics

### Industry themes

<table>
<thead>
<tr>
<th>Near term</th>
<th>Near term</th>
<th>Long term</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Slowing economic growth</td>
<td>- Operational closures</td>
<td>- Structural demand from China and India to drive metal consumption growth</td>
</tr>
<tr>
<td>- Capital scarcity</td>
<td>- Driving down costs</td>
<td>- Commodity prices set by marginal costs</td>
</tr>
<tr>
<td>- Commodity prices falling near marginal costs</td>
<td>- Capex deferral</td>
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### Producer response

<table>
<thead>
<tr>
<th>Near term</th>
<th>Long term</th>
<th>Long term</th>
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</thead>
<tbody>
<tr>
<td>- Restructure due to slower growth</td>
<td>- Supply shifts to low cost geographies</td>
<td>- One Source - One Partner market leader</td>
</tr>
<tr>
<td>- Flawless execution to maintain margins</td>
<td>- Resource scarcity</td>
<td>- Low cost manufacturer</td>
</tr>
<tr>
<td>- Consolidation (cheaper than greenfield)</td>
<td>- Cost of capital increases with geopolitical risk</td>
<td>- Industry Leader</td>
</tr>
</tbody>
</table>

### FLSmidth Minerals

- Well positioned for organic growth (systems)
- Restructure due to slower growth
- Flawless execution to maintain margins
- Consolidation (cheaper than greenfield)
- Restructure due to slower growth
- Flawless execution to maintain margins
- Consolidation (cheaper than greenfield)

*FLSmidth Minerals must be positioned for both near-term and long-term*
<table>
<thead>
<tr>
<th>Industry needs:</th>
<th>FLSmidth Minerals Response:</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Shorter project lead times</td>
<td>➢ Complete flowsheet capability</td>
</tr>
<tr>
<td>▪ Water</td>
<td>➢ Technology leader in water recovery</td>
</tr>
<tr>
<td>▪ Reduced environmental impact</td>
<td>➢ Paste thickener technology</td>
</tr>
<tr>
<td></td>
<td>➢ Horizontal belt filters</td>
</tr>
<tr>
<td>▪ Super-sized production lines</td>
<td>➢ Pneumapress</td>
</tr>
<tr>
<td>▪ Lower CAPEX</td>
<td>➢ Exploring new designs for crushing and grinding</td>
</tr>
<tr>
<td>▪ Deeper long term support</td>
<td>➢ Hydrometallurgical processing</td>
</tr>
<tr>
<td></td>
<td>➢ The world’s largest process equipment</td>
</tr>
<tr>
<td></td>
<td>➢ Outsourcing to low cost countries</td>
</tr>
<tr>
<td></td>
<td>➢ Full service maintenance contracts</td>
</tr>
</tbody>
</table>
Historically, reductions in Mining CAPEX, on a year to year basis, have not been as severe as many analysts are forecasting.
Revised CAPEX budgets and total CAPEX plans

Top 5 Mining Companies (USD bn)

<table>
<thead>
<tr>
<th>Company</th>
<th>Approved</th>
<th>Planned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anglo American</td>
<td>4.5 (2009)</td>
<td>45.0</td>
</tr>
<tr>
<td>Vale</td>
<td>14.2 (2009)</td>
<td>56.0</td>
</tr>
<tr>
<td>Xstrata</td>
<td>3.4 (2009)</td>
<td>37.0</td>
</tr>
<tr>
<td>BHP Billiton</td>
<td>17.1 (total approved)</td>
<td>90.0</td>
</tr>
<tr>
<td>Rio Tinto</td>
<td>4.0 (2009)</td>
<td>34.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>43.2</strong></td>
<td><strong>262</strong></td>
</tr>
</tbody>
</table>

Feb 09, based on Q4 company reports
‘Customer Services’ has been more resilient than capital orders in economic down-turns in the past

- \(~20\%\) of current revenue and order intake in Minerals is within Customer Services

- Customer Services is expected to grow relative to capital orders in the coming years

- **Customer Services includes**: spare parts, wear parts, service before, under and after the delivery of new equipment, maintenance contracts, upgrades, modernisation projects, etc.

- FLSmidth Minerals runs three long-term **maintenance contracts** in South America:
  - Los Pelambres, Chile (prolonged in 2008)
  - Collahuasi, Chile (prolonged in 2008)
  - Peñasquito, Mexico (contracted in 2008)
The new FLSmidth Minerals
Capital net sales 2008

**Capital Revenue by Industry**
- Other 24%
- Copper 23%
- Other Base Metals 15%
- Precious Metals 7%
- Aluminum 8%
- Coal & Energy 12%
- Ind. Minerals 6%
- Steel 5%

**Capital Revenue by Product**
- Crushing 8%
- Milling 18%
- Pumps & Class. 9%
- Flotation 8%
- Sediment. 9%
- Filtration 7%
- Pyro 12%
- Material Handling 27%
- Other 5%
Capital order intake 2008

Capital Intake by Industry

- Copper: 33%
- Material Handling: 26%
- Ind. Minerals: 5%
- Coal & Energy: 11%
- Other Base Metals: 11%
- Precious Metals: 4%
- Aluminum: 12%
- Other: 16%
- Steel: 8%

Capital Intake by Product

- Milling: 30%
- Flotation: 7%
- Sediment.: 6%
- Pumps & Class.: 5%
- Filtration: 4%
- Pyro: 8%
- Other: 4%
- Crushing: 7%
Capital Intake by Industry

- Coal: 21%
- Light Metals: 9%
- Gold: 7%
- Other Base Metals: 16%
- Steel: 6%
- Ind. Minerals: 3%

Capital Intake by Product

- Milling: 20%
- Pumps & Class.: 10%
- Flotation: 10%
- Sediment.: 6%
- Filtration: 5%
- Pyro: 8%
- Other: 5%
- Material Handling: 33%
- Crushing: 9%
<table>
<thead>
<tr>
<th>Industry Groups</th>
<th>Segment</th>
<th>Industry Groups</th>
<th>Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base Metals</strong></td>
<td>Copper, Moly, Lead,</td>
<td>**Industrial</td>
<td>Aggregate, Lime/Limestone, Soda Ash/Brine/</td>
</tr>
<tr>
<td></td>
<td>Zinc, Nickel, Iron</td>
<td>Minerals</td>
<td>Phosphate, Fertilizer (Potash/Phos Acid)</td>
</tr>
<tr>
<td></td>
<td>Ore, Uranium</td>
<td></td>
<td>Pigments (Kaolin/TiO₂/PCC)</td>
</tr>
<tr>
<td>**Precious</td>
<td>Gold, Silver,</td>
<td><strong>Energy</strong></td>
<td>**Coal, FGD, Oil Sands, Bio-Ethanol, Geo</td>
</tr>
<tr>
<td>Metals**</td>
<td>Platinum, Diamonds</td>
<td></td>
<td>Thermal, Oil &amp; Gas, Dewaxing (SOD)</td>
</tr>
<tr>
<td><strong>Light Metals</strong></td>
<td>Aluminum, Alumina &amp;</td>
<td><strong>CSPP (Chemical, Steel, Pulp &amp; Paper)</strong></td>
<td>**Pulp &amp; Paper, Steel, Base &amp; Fine Chemicals, Food &amp; Pharma</td>
</tr>
<tr>
<td></td>
<td>Bauxite, Petcoke</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Magnesium</td>
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</table>
One Source for all your equipment needs
FLSmidth Minerals has successfully carried out a number of acquisitions over the past 16 years

- 1993  Technequip, Canada
- 1997  Vecor, South Africa
- 1998  ABON, Australia
- 1999  Buffalo, South Africa
- 2003  ConveyorKit, South Africa
- 2005  MVT & Möller Materials Handling transferred from FLSmidth Cement
- 2005  Excel Crusher Technology, USA
- 2006  Excel Foundry and Machine, USA
- 2006  KOCH Transporttechnik, Germany
- 2007  RAHCO, USA
- 2007  GL&V Process, Canada
- 2008  Pneumapress, USA
- 2008  Dawson Metallurgical Laboratories, USA
- 2008  CEntry Engineers, USA
- 2009  Conveyor Engineering, USA
Together, we:

- Make a perfect match
- Cover the entire flow sheet of a typical minerals plant
- Have a strong position in all geographical regions
- Are a global market leader and preferred supplier
- Have the best people in the industry
The FLSmidth Minerals competitive advantage

- **Strong position** in all relevant product segments
- **Strong local presence** in all geographical markets
- **Total flow sheet coverage** with **Heritage Brand Names**
- **Technological edge** for large-scale equipment/systems
Typical mining site plant

**Exploration**
- Exploration for mineral resources
  - Remote sensing
  - Geophysical / geochemical tests
  - Samples
- Feasibility studies
- Drilling and modelling of the ore body
- Selection of appropriate mining technique
- Capital investment in mine infrastructure

**Development**
- Mining of the ore body
- Rock breaking
- Surface mining
- Underground mining

**Extraction**
- Mined minerals transported to processing site
- Use of loaders, trucks, trains, at the face mining systems and conveyors
- Materials are crushed and ground to achieve finer particles
- Particles sized for optimum recovery of minerals species

**Materials Handling**
- Flotation, leaching, sedimentation and filtration are used to increase the mineral content to an economic level
- Refining to increase concentration of minerals further

**Crushing, Grinding & Sizing**

**Concentration**

**Refining**
- Key techniques:
  - Pyro-metallurgy
  - Electro-winning

**FLSmidth Minerals**
- Metso Minerals
- Outotec
- SANDVIK
- Atlas Copco
- Boart Longyear
- Furukawa
- Terex
- Astec
- Komatsu
- Bucyrus
- Joy Global
- CAT

*Source: Morgan Stanley, FLSmidth*
Coal preparation
Few other technology suppliers can offer such a broad range of brand name equipment and processes:

- Crushing
- Grinding
- Classification
- Separation (Flotation, Hydrometallurgical)
- Dewatering (Thickening, Filtration)
- Pyroprocessing
- Slurry Handling
- Material Handling
Cone Crushers

Gyratory Crushers

Low-Speed Sizers
Classification

From the world’s largest

To the smallest
Separation

Flotation

Hydromet
Sedimentation

Tailings Thickeners

Traction Thickeners

Paste Thickening

E-Cat® Clarifier Thickeners
Pyroprocessing

Rotary Kilns
Rotary Dryers
Fluid Beds
Gas Suspension Calciners
Preheaters
Material Handling

- Mobile Stackers
- Pipe Conveyors
- Mine Hoists
- Long Distance Conveyors
Material Handling

Stockyard Storage Systems

Ship Loaders

Bucket Wheel Reclaimers

Ship Unloaders
Why is Material Handling our growth story?

- **Ore content** of most mined materials is typically +/- 1%

- In an open-pit mine, a lot of overburden material has to be removed to get down to the ore. As the mines have become bigger, the competitive position of FLSmidth has become better.

- The mined material needs to be transported from the mine (at-the-face-mining) to the processing plant (overland and stockpiling) and around the plant (in-plant). After processing, the waste material is transported and deposited in designated areas (dry stocking).

- **FLSmidth Minerals offers** large scale, customised, integrated and energy-efficient material handling solutions which is a technological, economic and environmental alternative to traditional conveying methods (such as trucks) requiring less man-power and fuel.
FLSmidth Minerals

- more than just an equipment supplier!

**Value Chain Engineering Activities**

- **FLSmidth Design**
  - Civil works,
  - Construction management
  - Acquired on 4 August 2008

- **FLSmidth Dawson**
  - Metallurgical services

- **FLSmidth Minerals**
  - Design/supply of Process plant

- **FLSmidth CEntry**
  - Feasibility, basic/detailed engineering
  - Acquired on 1 October 2008
Case Studies – Plant Systems
February 2008: Complete solutions

The Balla Balla project in Australia

- A contract worth over **AUD 170m** from **Aurox Resources Limited** in Australia to supply a complete minerals processing plant for the treatment of magnetite iron ore.

- This contract to supply a **complete minerals processing plant**, is validation of the One Source One Partner concept that FLSmidth offers the industry and the benefits such a model can generate in terms of technology, performance synergies and schedule savings.

- By choosing the FLSmidth model, Aurox will **reduce the project time** by approximately six months.
March 2008: Strategic partnership

Xstrata Copper and Bechtel select FLSmidth Minerals

- **Xstrata**: One of the world’s largest mining companies
- **Bechtel**: One of the world’s largest consultants to the mining industry
- Awarded long term agreement on **strategic partnership** to develop and supply critical process components for:
- **6 complete copper plants** over a five – six year period
October 2007: “At the Face Mining” solution

Fortesque Mining Group in Australia

- FLSmidth Minerals successfully executed the *strategy of “packaging”* group-products into *integrated solutions*

- **RAHCO** in joint efforts with **MVT** and **KOCH** sold a mobile overburden materials handling system with a capacity of 16,000 metric t/hour to world leader Fortesque Metals Group, Australia

- **Synergies** demonstrated by the contract value of 3 x RAHCO’s total sales in 2006
April 2008: Complete solutions

- A contract worth over **US 250m** from **Southern Copper** in Peru to supply a complete dry minerals processing plant for the treatment of oxide copper ore

- This contract to supply a **complete dry minerals processing plant**, was driven by the current lack of engineering resources available. FLSmidth offered engineering services and proprietary equipment for one of the world’s largest copper oxide processing plants

- By choosing the FLSmidth model, Southern Copper will **reduce the project time** by approximately eight months
**New technology focus:**

- **FLotation** – A 300 Cu M cell has been fabricated and is being tested at the Kennecott Copper operation outside of Salt Lake City. Both self induced and forced air mechanisms will be trialed.

- **Thickeners** – A 40 M diameter deep cone thickener, largest in the world, will start up in March of 2009 in Mongolia.

- **Pumps** – Krebs is continuing to fill in their product offering by designing different types of pumps for more applications as well as designing larger pumps.

- **Material Handling** - The successful start up of the FMG waste removal system will open up a totally new market to FLSM – At The Face Mining. A focus on obtaining the technology for large, long distance conveying has been fulfilled with the acquisition of Conveyor Engineering enhancing future sales in copper and iron ore. Material Handling products are the single fastest growing segment of our business and have a potential market in all new projects in many industries.

- **High Pressure Grinding Rolls** – This technology is finding acceptance in Mining applications and FLSmidth Minerals needs to develop much better surface technology than it currently has to become a significant force in this market.
Important investor points

- **Market signals**
  - Metal prices stabilizing
  - Mining capex does not go to zero
  - "Go-Get" hotlist of potential new orders, while smaller, is still considerable

- **Type metals / minerals**
  - We are not dependant on any one or few metals / minerals
  - However, some metals have been more important than others historically
  - Non-metallic minerals gaining importance

- **Flexibility of the cost structure**
  - Limited in-house manufacturing/capital employed
  - Resources can be shifted between cement and minerals
Concluding remarks

- The **future** is not what it used to be – we will have to be at our best, we need to rise to the challenge

- The ‘**One Source - One Partner**’ concept has been well-received by our customers and opens up for new avenues of growth

- Diversity in **order intake** bodes well for stable **turnover, profitability, and future growth** in the coming months and years
Today, there are 6.7 billion people sharing the planet. By mid-century, estimates point to more than **9 billion people**, rapidly overwhelming infrastructure and creating unprecedented competition for minerals, cement, power, water and forest products.

The focus on global warming will redirect focus from the “fuels from hell” – coal, oil, and natural gas to “fuels from heaven” – wind, hydroelectric, tidal and solar creating new and vast opportunities for new uses of minerals.

The global recession has slowed down demand, but rising demand is the new normal. Growth is not negotiable.

- Thomas Friedman, *Hot, Flat and Crowded*
• The **middle class** in poor countries is the fastest growing segment of the world’s population. While the total population of the planet will increase by 1 billion people in the next 12 years, the ranks of the middle class will swell by as many as 1.8 billion.

- Moisés Naím, *Foreign Policy*
Questions?