



Cost of Carbon Implementation –
Energy and Mines World Congress
November 21, 2016

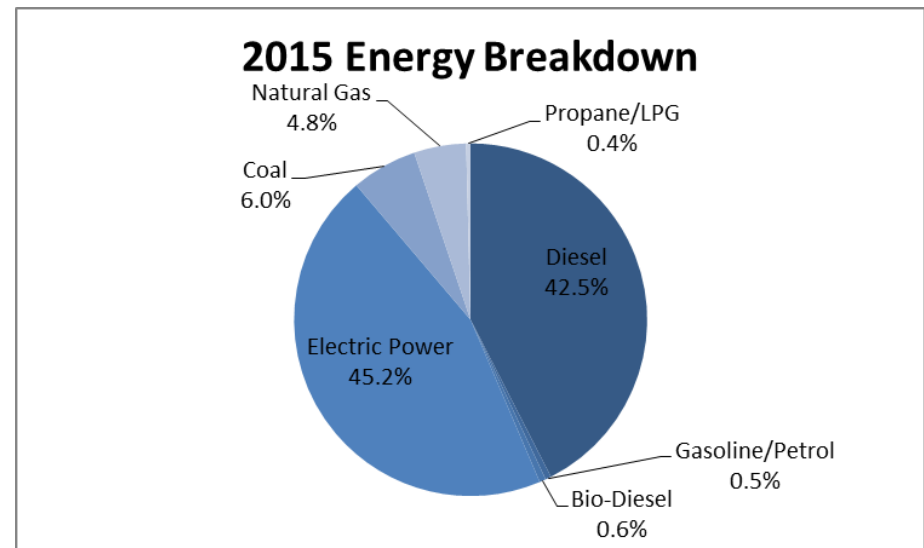


ENERGY & CLIMATE CHANGE STRATEGY

GOAL: Deliver a sustainable, economic, secure supply of energy while balancing our energy demands, energy portfolio, and greenhouse emissions and position the business to adapt to the long-term risks of climate change

KEY ELEMENTS

- Global Strategy
 - Stable, Reliable, Cost-Effective Energy Supply
 - Continuous Cost & Efficiency Improvements
 - Renewable Energy
 - Reduce Carbon Footprint
 - Climate Adaptation
 - Collaboration
- Cost of Carbon – Internal, External
- Energy & GHG Emission Reduction Targets



Internal Carbon Price

- Business energy decisions (fuel source, incorporation of renewables, and efficiency) made today will impact our business resilience for the next 10 to 15 years,
- Hence, incorporating an internal price of carbon is a key objective of Newmont's 2016 Global Energy & Climate (E&C) Strategy.
- The value to the business of this initiative is visibility into an investment's imbedded carbon risk and comparative evaluation of different investment options based on exposure to carbon pricing.
- An internal carbon price is expected to spur innovation in energy efficiency, clean energy and other carbon reduction activities and promote the long-term sustainability of the business in an increasingly carbon constrained world.



Long Canyon, Nevada

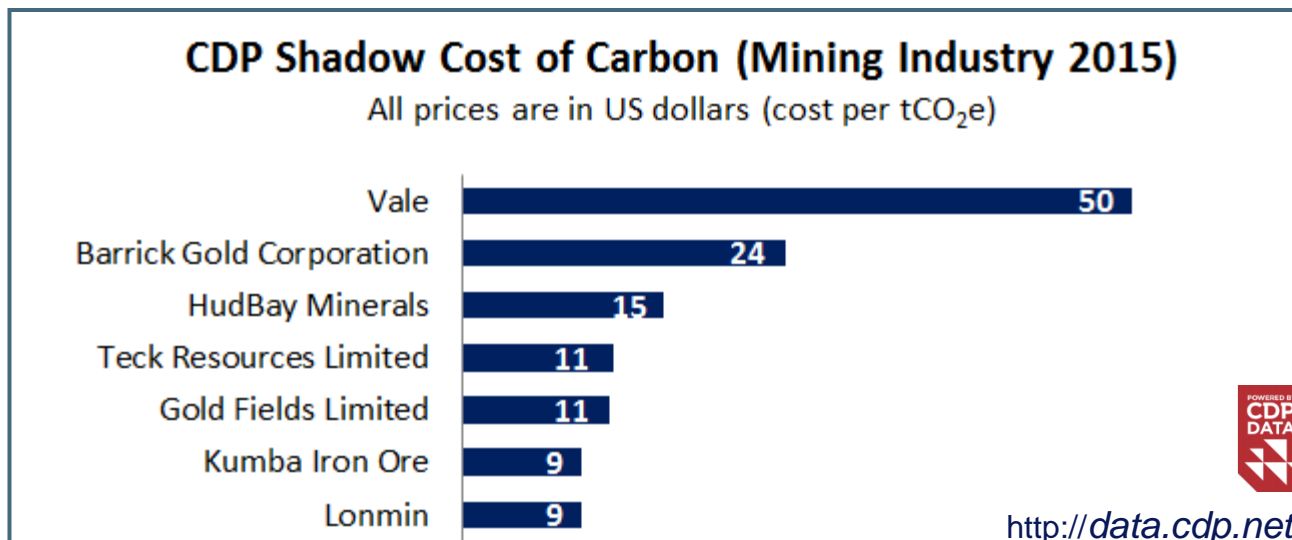
Preparing for Carbon Pricing Schemes

Newmont's global operations require us to work with many of the dominant carbon pricing strategies, including taxes, offsets, credits, and Renewable Portfolio Standards (RPS)



Setting the Internal Carbon Price

- The average internal price of carbon for the mining sector is \$18 per tonne of CO₂ and \$40 per tonne of CO₂ for the energy sector.
- During the period of the Australian carbon tax (July 2012 to July 2014), the price per tonne of CO₂ averaged A\$23.58.
- BHP Billiton suggested that a global price should range from \$24 to \$50 per tonne.
- Various pricing scenarios are directly tied to Paris Climate Accord: \$24/tonne price is not expected to achieve emission reduction goal to stay below the 2°C temperature trajectory; whereas \$50/tonne is expected to achieve the goal.
- **Newmont is recommending an internal price of \$25/tonne (P80) and \$50/tonne (P20) for investments with a carbon footprint > 25,000 t CO₂/year.**



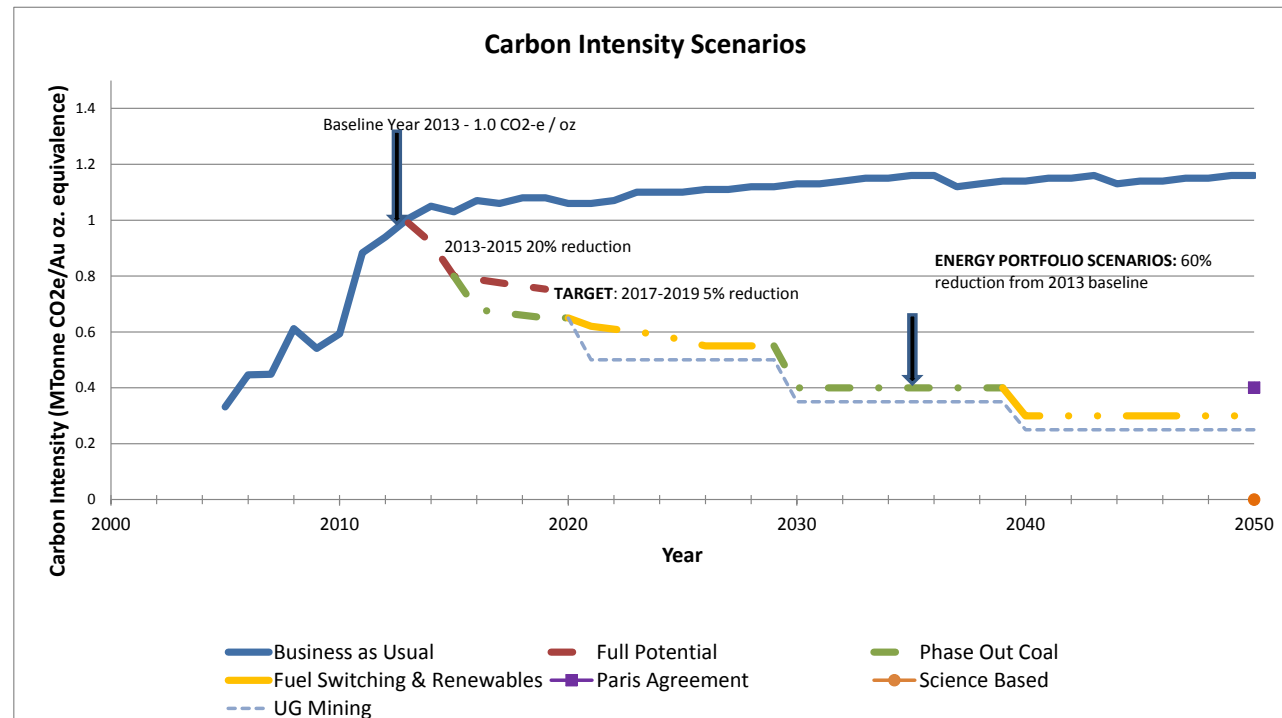
New Metric – “Break Even Cost of Carbon”

- The “Break Even Cost of Carbon” is the carbon price that forces the investment NPV to go to zero.
- It is a measure of the resiliency of an investment to an external carbon pricing regime.

Tanami Power Options	Break Even Cost of Carbon
Do Nothing - Diesel Powered Gen-Sets	\$225
Diesel – 10 MW Solar Hybrid Solution	\$256
Diesel – 15 MW Solar Hybrid Solution	\$273

Newmont Carbon Intensity Scenario Planning Tool

- Evaluate scenarios for alignment with Paris Climate Accord
- Opportunities:
 - Full Potential energy efficiency projects
 - Switching to low carbon footprint energy sources
 - Carbon footprint considerations into strategic decisions
 - Increase underground mine production



Case Study 1: Newmont TS Power Plant

- The Nevada TS Power Plant (TSPP) located in Nevada has assessed the potential for conversion from coal to natural gas to mitigate the impacts of 2015 USEPA Clean Power Plan rule (presently stayed) that places GHG emissions limits by state.
- To determine the impact of a future price on U.S. GHG emissions, a simple pre-tax cost-benefit analysis is presented:

Carbon Price [\$/t CO₂e]	Coal Cost of Carbon	Natural Gas Cost of Carbon	NET BENEFIT (Switch to NG)
0	\$ -	\$ -	\$ (50,000,000)
25	\$ (326,794,169)	\$ (209,480,836)	\$ 117,313,332
50	\$ (653,588,337)	\$ (368,961,672)	\$ 284,626,665



Case Study 2: Long Canyon Open Pit Mine

Goal: Balance initial capital investment with life cycle cost of carbon of power options

Power Options

- Self generate on-site
 - Diesel fuel
 - Natural gas – this option requires a new natural gas pipeline spur from the Ruby Pipeline, ~25 miles north of the site
- Hydro-power from Wells Rural Electric – this option requires ~50 miles of new transmission lines on existing towers.

Option	Capital	Life of Mine Cost of Carbon	Total Cost
Diesel Gen-sets	\$\$	\$\$\$\$	\$\$\$\$\$\$
Natural Gas Gen-sets	\$\$\$\$	\$\$	\$\$\$\$\$\$
Grid Power	\$\$\$\$	\$	\$\$\$\$\$
Hybrid of above & Solar	\$\$\$\$	\$\$	\$\$\$\$\$\$