

Diavik Diamond Mine

Iqaluit Symposium Nunavut
April 10th, 2014

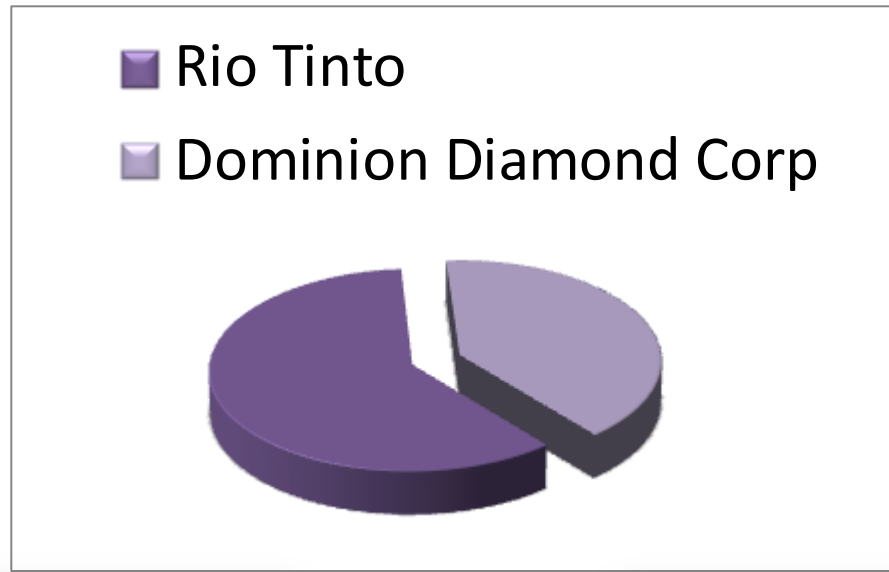


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The Diavik Joint Venture



RioTinto



60 % Owner, and operator

40 % owner

Diavik Diamond Mine Location



- East Island (20² km) at Lac de Gras
- 300km northeast of Yellowknife
- 100km north of the Tree Line
- 350km south of Arctic Ocean
- Accessible by seasonal winter road two months of the year



Diavik Diamond Mine at a Glance

- 5 John T Ryan safety awards
- Reserves: 16.4m tonnes at 2.9 c/t
- Mining 3 kimberlite pipes
- Average workforce: 1,000
- Construction 2000-2002
- Production began in 2003
- Sept 2012 – transition to all underground complete



Energy Options

- Transmission scale project – Capex was ROI prohibitive
- Solar – NPV negative with low penetration
- Geothermal – low temperature differentials
- Wind – largest penetration and NPV positive
- Diesel will continue to account for majority of energy source with its associated uncertainty with escalating fuel costs



Conditions and Energy Scenario

- On-site storage capacity for 80 million liters diesel fuel
- Up until September 2012, power supply was 100% diesel driven
- Ice road open 8 weeks for diesel resupply
- Risks – climate change, fuel price
- Arctic temperatures below -30 C
- Power security critical safety priority



Wind Farm at a Glance

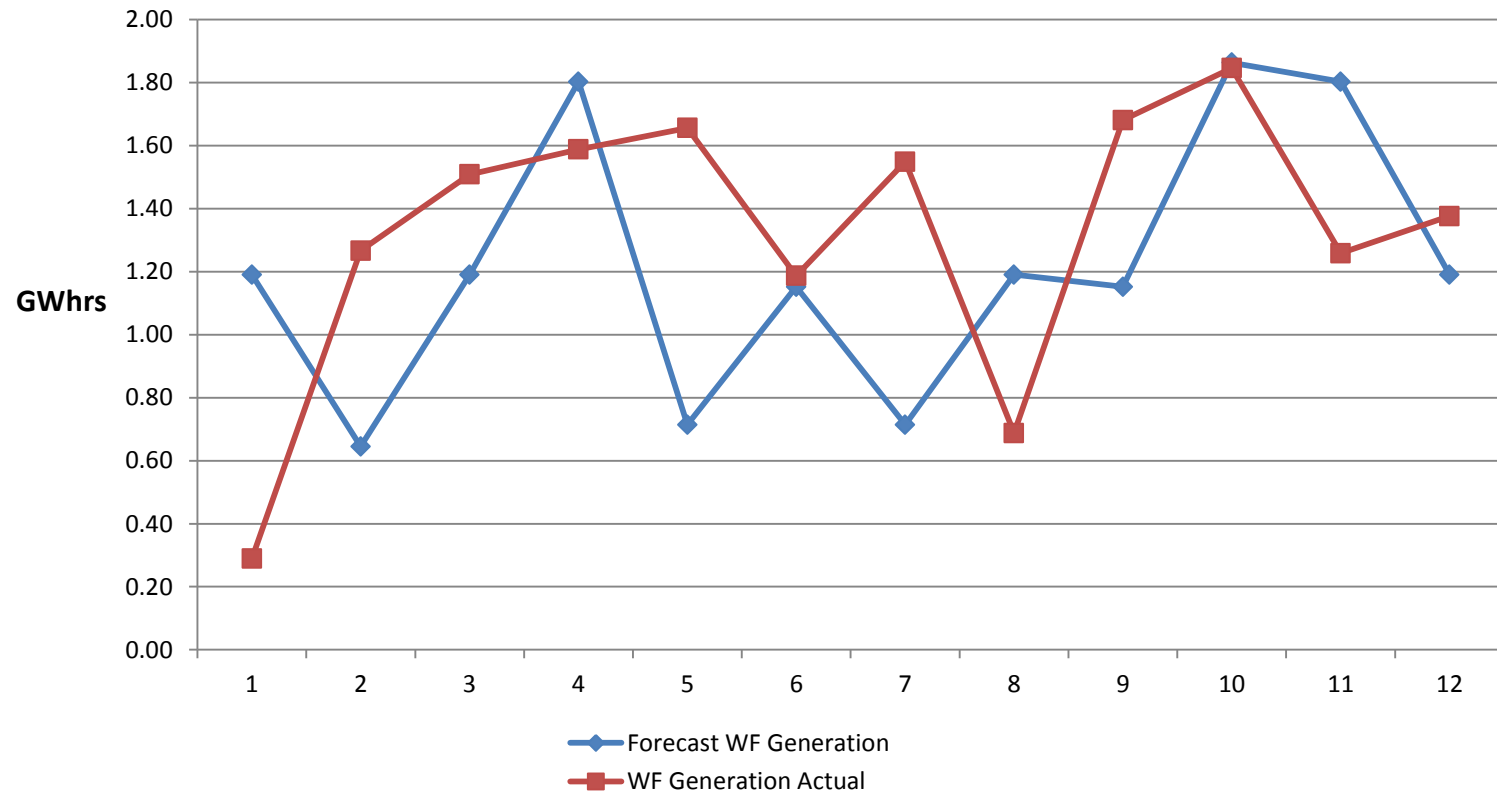
- Four E-70 Enercon 2.3 megawatt turbines
- Will reduce diesel consumption by 10%
- Will reduce carbon footprint by 6% (12,000 tonnes CO₂ equivalent offset)
- Blade de-icing system
- Projected to provide 17 Gigawatt hours of renewable energy per year
- Reliability – direct drive, gearless generator



2013 Year One Energy Production

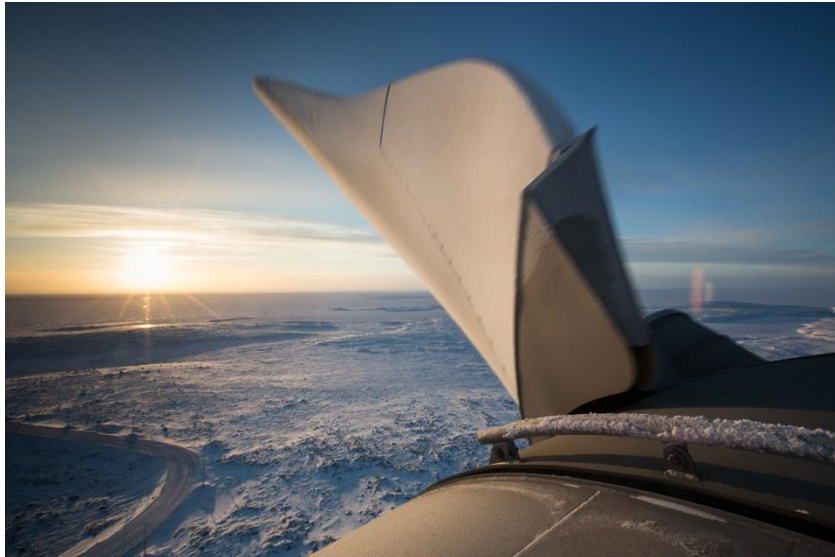
- We projected to produce 17 GWhrs and have an average penetration of 10%
- We finished with 15.9 GWhrs hours and an average penetration of 9.2%
- We had penetration ratios up to 55%, this relates to our UG mine being completely powered by wind of 9 MWhrs

2013 WF Generation



2013 First Winter Production

- Blade heating was supplied incorrectly
- Anemometer failures causing shutdown of Towers
- Electronic Failures on inverters



Support from Enercon without SCADA connection was difficult

2013 Mitigation for Wind Farm

- Installed 600 volt heaters in turbine for electronics and troubleshooting
- Placed Portable diesel generators outside to provide power to heaters
- Replaced electronics (anemometers & inverters)



Support from Enercon improved by Diavik sending them downloads from Turbines

2013 Wind Farm Alterations

- Enercon replaced all blade heating components (cable, heaters and breakers)
- Lubricants replaced for cold weather operation
- New programming for turbines from Germany was installed

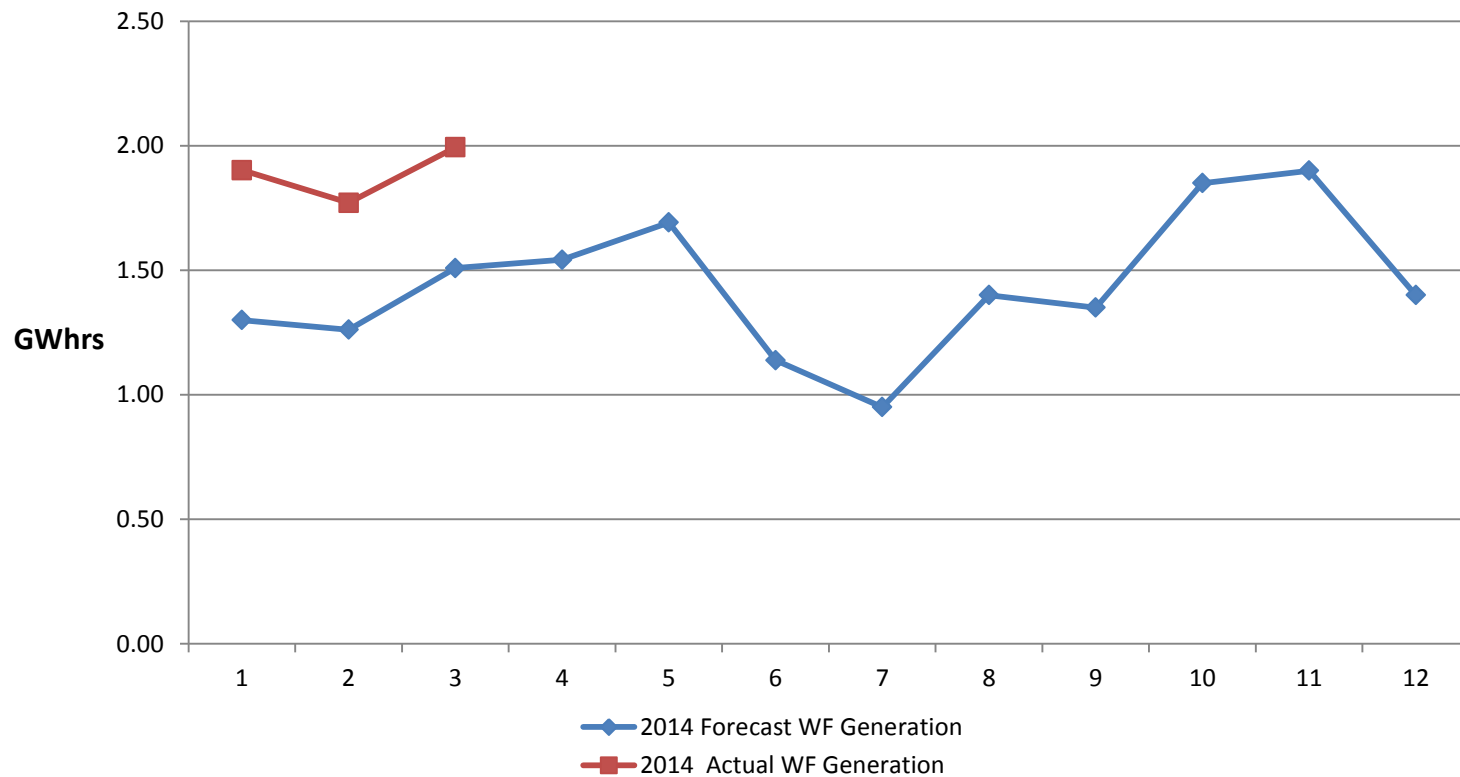


Enercon SCADA – Delta V control was connected and support was improved

2014 Continue the Journey

- WF 2014 Energy production is 17.29 GWhr
- As of end of March we are 1.89 GWhr over forecast
- Enercon is working on internal heating package for maintenance

2014 Forecast WF Generation



Benefits Beyond Diavik

- Demonstrate wind power as a viable option for the North
- Provide support for future wind initiatives and develop northern capacity
- Donated weather tower to Det'on Cho Earth Energy Giant Mine wind study
- Developing local expertise, northern contractors
- Diavik will share knowledge with communities



Diavik Diamond Mines

