

Diavik Diamond Mines

Diavik Diamond Mine Wind Farm Project

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26 June 2013



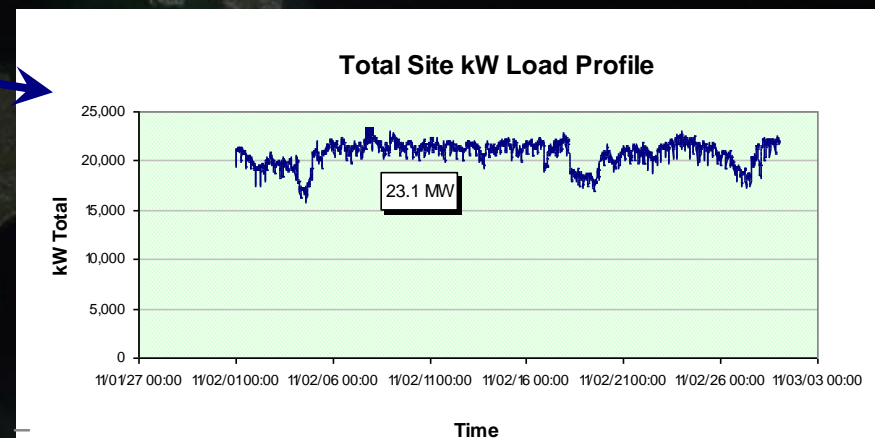
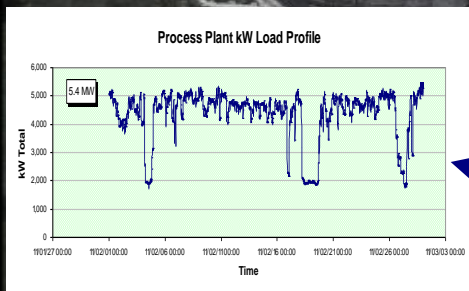
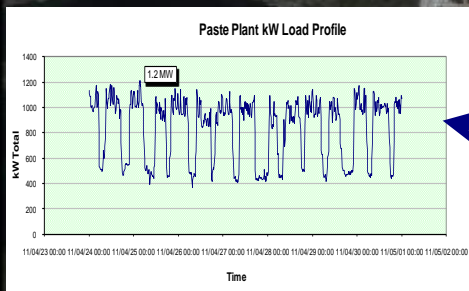
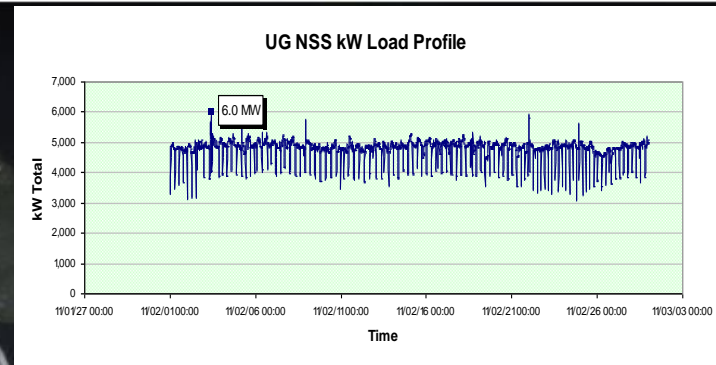




Understanding energy context for northern mines..

- Remote and off-grid
- No Transmission grid future options
- 100% diesel driven – supply chain starts in Alberta
- Ice road for 6 weeks for >70 million liters diesel resupply
- Risk exposure – climate change, fuel price & volatility
- Power security critical safety priority
 - Arctic temperatures below -30C
 - Underground Mining beneath diked Lac de Gras

Understanding Current Energy & Load Profiles



**108 M-I diesel
storage**

Wind Farm at a Glance

- Four E70 Enercon 2.3 MW turbines (9.2MW total)
- Projected to provide 17 GWh of renewable energy per year
- Reliability – direct drive, gearless generator
- Blade de-icing system
- Reduce diesel consumption by 10% (YTD >2.0M liters)
- Reduce carbon footprint by 6% (12,000 tonnes CO₂-e)
- **Positive NPV, Payback < 8yrs**



Project Timeline

- 3 year wind assessment concluded: Dec '10
- **Capex approval Rio Tinto: May '11**
- NRCan, NavCan, AANDC, EC approvals: June '11
- **Enercon turbines contract sign: July '11**
- Geotechnical drilling & micro siting: July '11
- Roads, foundation, crane pads: Aug - Nov '11
- Winter road shipment to site: Febr/Mar '12
- Tower, nacelle and blade lifts, electrical work: July- Sept '12
- Commissioning: Sept/Oct '12
- **Operational: End Sept 2012**



Logistics had to be well thought out..

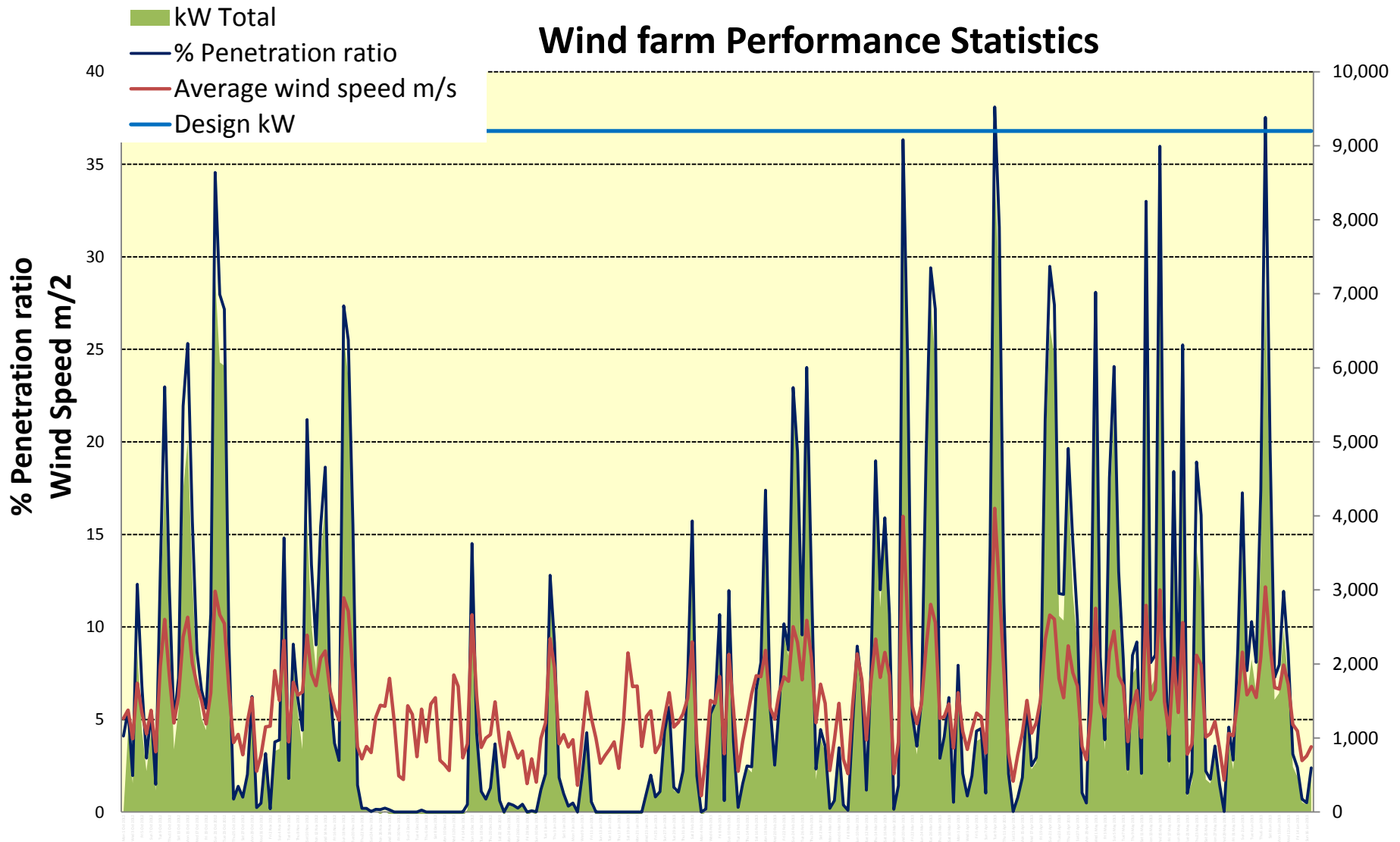


Wind Farm Challenges

- 2012 – 2013 winter was the coldest in 20+ years
- Lubricants and Electronics need to operate at -30 to -40C
- Little frost build up on blades tolerated (blade heating)
- Tower heating for access and electronics
- Accurate calculation of diesel litres displaced & spinning reserve

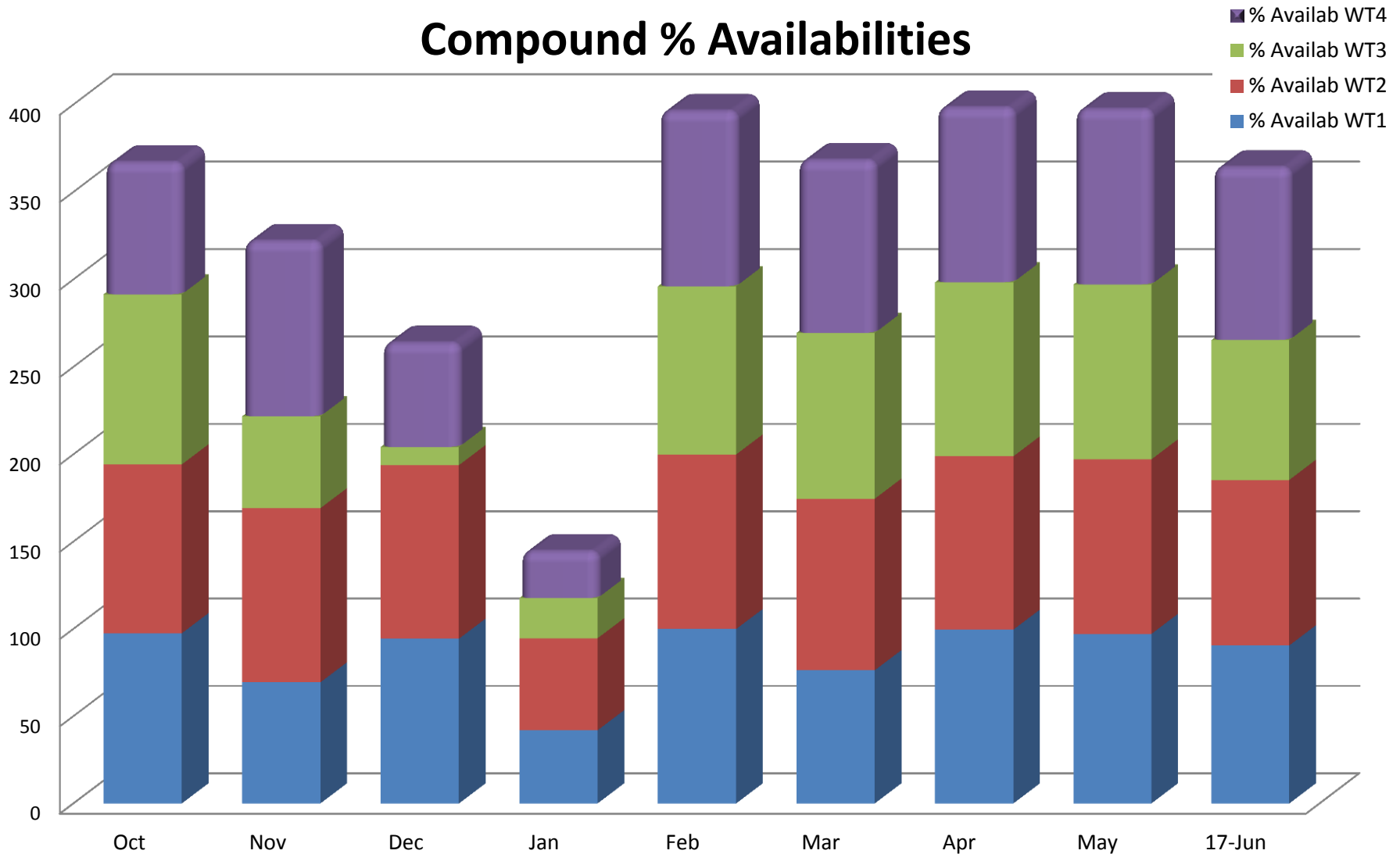


Supply – demand management focus

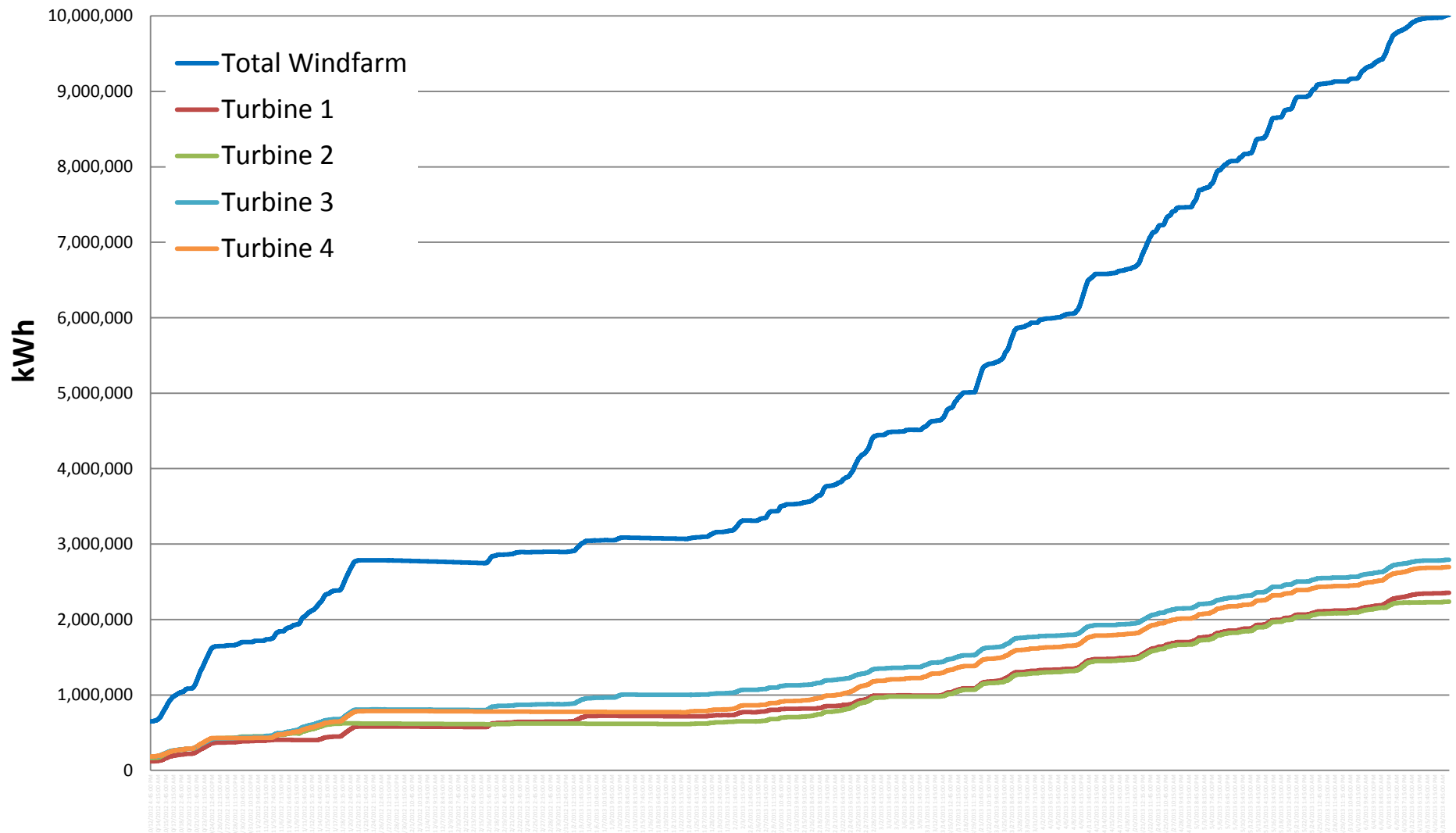


First winter operational challenges

Compound % Availabilities



Energy generated : Oct 2012 - Jun 2013



Environment

- Windfarm within existing lease (no changes required)
- EnvCan, WLWB: Consideration of bird and caribou migration pattern; analogy to impact on cattle due to lacking case studies
- Voluntary bird mortality surveys
- Minimized footprint (crane pads used as laydown areas, fly rig for geotech foundation drilling)
- Early involvement and open communication with AANDC
- Archaeological study done for sacred aboriginal artifacts on project site



Communities

- Demonstrates wind power as a viable option for the North
- Early involvement of communities through engagement letters
- Community consultation showed no concerns with the project
- Presentations for EMAB (includes community representatives)
- Donated weather tower to Det'on Cho Earth Energy Giant Mine wind study



Questions

