

# Reducing Chile's Dependency on Energy Imports



ASX Code: EQE February 2015



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### **Equus Mining Company Details**

• ASX Code: EQE

Ordinary Shares: 374M

Share Price: 0.9 cents

Market Capitalisation: \$3.4M

• Cash: A\$1.3M

Top 20 Shareholders: 52%

Board: Mark Lochtenberg

Ted Leschke Juerg Walker



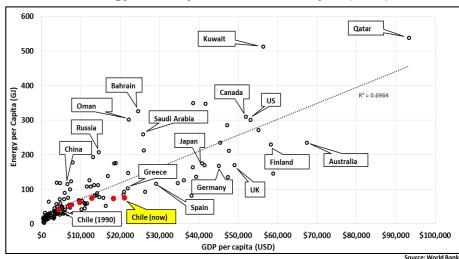




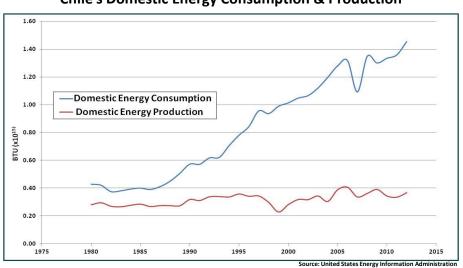
### **Chile is Highly Dependent on Imported Energy**

- Chile has a free market-oriented economy:
  - Ranked as a high-income economy by the World Bank
  - Only OECD member in South America
- Chile's economic development is driving strong energy demand growth:
  - ➢ GDP & energy consumption has grown 5.4% pa & 5.3% pa respectively since 1987
  - Both energy consumption and GDP per capita rates trending towards position of southern European countries (see top chart)
  - New energy supply mostly through imports (see bottom chart)
  - Government expects power consumption to grow 6% to 7% pa out to 2020, requiring an additional 8,000MW in installed capacity
- Energy consumption and GDP growth are interdependent
- A lack of affordable domestic energy means supply and price risk to Chile's economic wellbeing and standard of living

#### **Energy Consumption vs GDP Per Capita (2013)**



#### **Chile's Domestic Energy Consumption & Production**





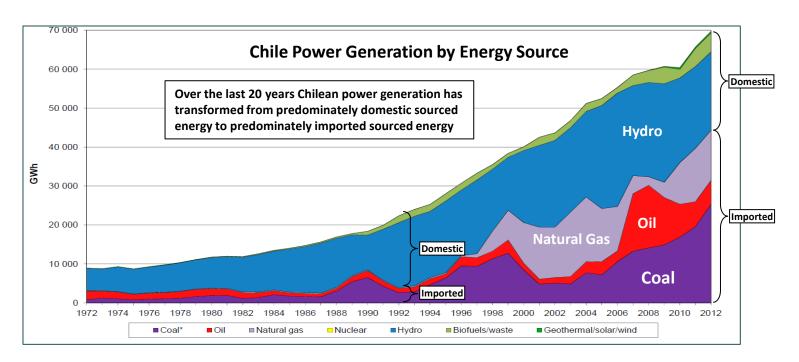
### Imported Energy Dependency = Supply & Price Risk

#### 2007 Argentina cut gas supplies:

- Marginal power costs increased from US\$46/MWh in 2006 to a peak of US\$300/MWh in 2008
- > Power plants converted to expensive fuel oil and subsequently to cheaper coal
- > Coal fired power capacity grew substantially, quadrupled to current 4,700MW
- Currently 12 existing coal fired power plants import 80% of thermal coal requirements
- Nevertheless thermal coal is just 27% of power generation fuel mix compared to a world average of 43%

2008 Severe drought substantially affects the hydro-dominated SIC power system

2010 Major earthquake severely disrupts distribution networks within the SIC power system





### Imported Energy Dependency = Supply & Price Risk

(continued)

#### 2011 Several blackouts:

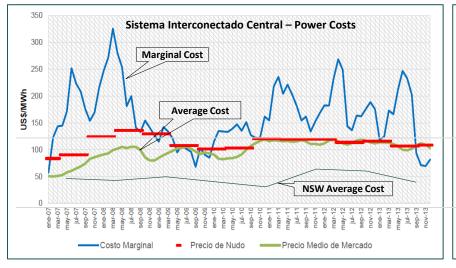
- > 10 million of 17 million Chileans without electricity for several hours
- Demonstrated lack of system capacity

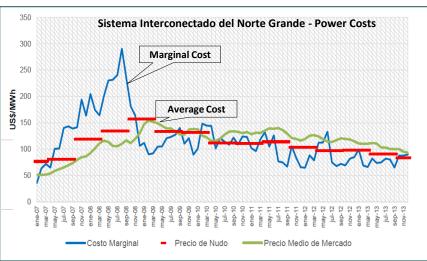
#### 2014 Government cancels 2,750MW HidroAysén project:

- Was to supply 15 to 20% of future capacity
- ➤ Will result in lower hydropower fuel mix with no domestic alternative
- > Imported coal, gas & oil are the only alternatives. Equivalent to 7 8 million tonnes pa of thermal coal demand

#### **Present & Future:**

- Marginal cost of power from SIC power grid has not fallen below \$100/MWh over the past 3 years (NSW is \$34/MWh)
- Chile's copper mines pay twice for power compared to their peers in neighbouring Peru.
- > High dependency on imported energy remains, so does the supply & price risk
- > Danger of an energy crises remains, a risk to social progress, economic growth and wellbeing of Chileans

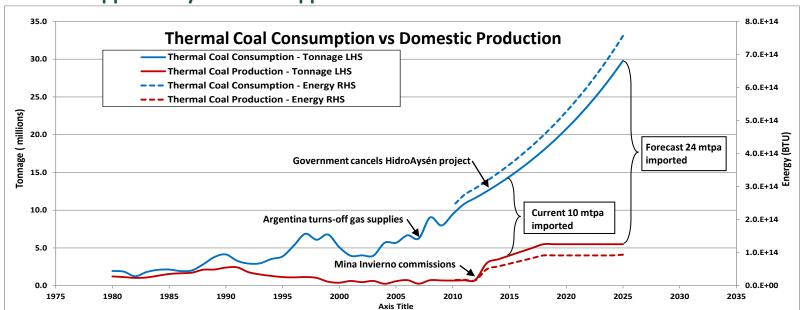






### **Excellent Opportunity to Supply Domestic Coal**

- Chile's Government supports coal fired power as it diversifies fuel source and is cheap:
  - National Energy Strategy 2012 2030 states "the matrix in the future cannot dispense with coal, among other fossil fuels. Coal provides both technical and economic stability to our electricity system, thereby bringing certainty to the adequate development of the electricity matrix"
  - > Power generation costs at \$80/MWh from coal, \$120/MWh from gas, \$140/MWh from wind & \$200/MWh from fuel oil
- Thermal coal consumption expected to grow 100% over the next decade
  - > Equates to 30 million tonnes pa of thermal coal based on government growth figures & constant primary energy mix
  - > Equus has identified 10 new coal fired power plants under construction or approved which will demand 15mtpa (65% subbituminous as per approval documents) confirms governments figures
  - > Imported thermal coal to grow from existing 10mtpa to 24mtpa only 1 domestic source
- Excellent opportunity for a 2<sup>nd</sup> supplier of domestic coal





### **Thermal Coal Mining in Chile**

- The Magallanes Basin hosts the largest coal deposits in Chile
- Loreto Formation hosted coal seams classified as sub-bituminous:
  - Low sulphur & moderate ash
  - Calorific value generally improves from south to north (AR: 4,000 6,000 Kcal/kg, DAF: 5,000 7,000 Kcal/kg)
- One existing and one idle coal mining operation:
  - Mina Invierno 3mtpa (supplying 15mtpa domestic market growing to a 30mtpa domestic market)
  - Mina Pecket 0.7mtpa, ceased production April 2014
- Significant cost advantage due to no long distance land transport & shorter shipping distances
  - Thermal coal shipped directly from mine to coastal based power stations via bulk carriers
  - Magallanes coal transport (shipping only) cost advantage over Colombian supplied coal:
    - Advantage ranges US\$9/t for Region I to US\$21/t for Region VIII
    - Average advantage US\$14/t for all existing power stations

#### **Mina Pecket Coal Mining - ceased**



#### Mina Invierno Ship Loader



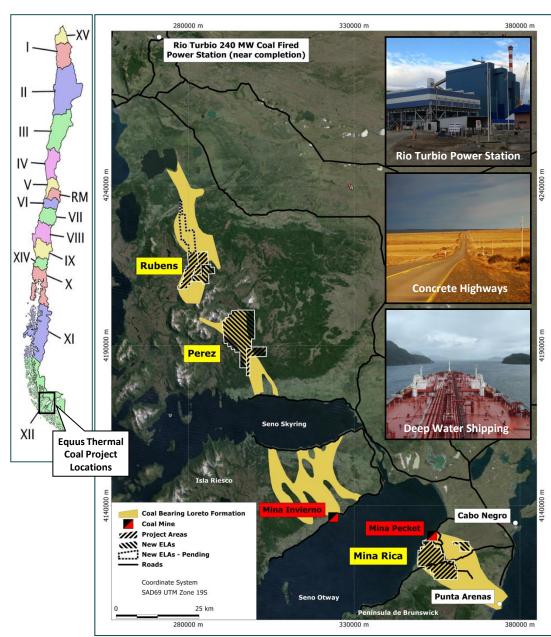
Guacolda Coal Fired Power Plant Region III (600MW)





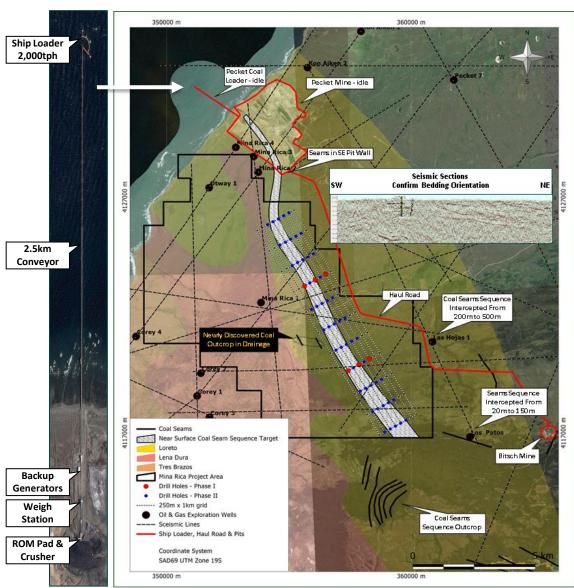
# **Equus Mining's Coal Assets**

- EQE owns 51% rights of Andean Coal Pty Ltd. Option to purchase 49% via 2 year purchase option for A\$0.16m in EQE scrip
- Three strategic project locations:
  - > Total area initially 170km<sup>2</sup>
  - > Total area more than doubled to 360km<sup>2</sup> since acquisition
  - Centred on coal bearing Loreto Formation
  - > 50% of the available strike extent
- EQE now holds the most dominate position over the largest known near surface coal occurrence in energy starved Chile
- Project areas host thick shallowly dipping coal seams suitable for bulk open cut extraction - targeting 250 million tonnes
- Coal seams traced via outcrop, float and intercepts in oil & gas wells in general project area
- Close proximity to infrastructure & deep water





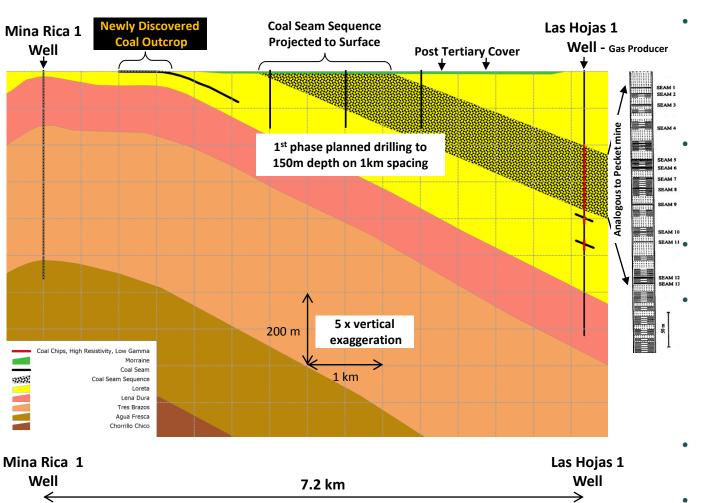
### Mina Rica Thermal Coal Project



- 88km² project area adjacent to critical & available infrastructure
- Port, 2000tph ship loader, haul roads, etc. All on care and maintenance
- Minimal capex required and short development time frame to production
- Thin post-tertiary cover & restricted access to oil well information prevented historical interest
- Descriptive data & electrical logs from oil wells together with seismic sections proves presences of coal seams analogous with those at Mina Pecket
- Targeting 10km strike zone with potential for 100mt global resource
- Drilling to commence this quarter
- Targeting 2mtpa to 4mpta operation
- Discussions with infrastructure owner has commenced



#### Mina Rica Section – Wells Reveal Coal Seams



No vertical

exaggeration

Oil well tri-cone drilling returned coal chips over broad zones on deeper portion of anticline limb (200 to 500m)

Down hole logs – high resistivity & low gamma consistent with coal seams

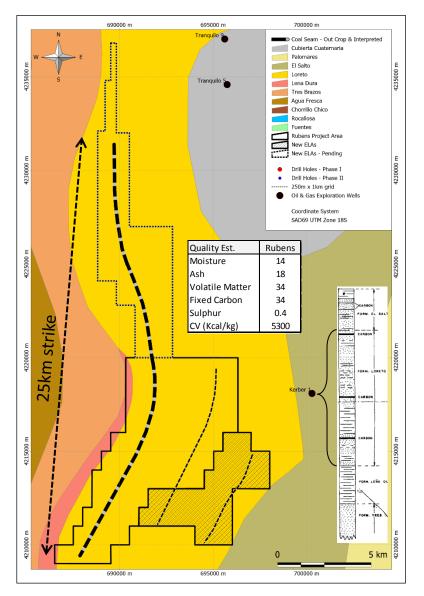
Coal seam sequence analogous to Pecket mine

Coal seam sequence projected up dip to surface provides compelling exploration target beneath surface gravels

- To be tested by shallow drilling
- Newly discovered coal outcrop interpreted to be situated at Loreto Formation base



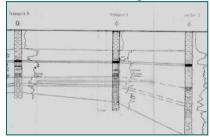
#### **Rubens Thermal Coal Project**



Thick seam outcrops continuously over 800m



Oil wells intercept seam along 21km strike length



BHP intercepted same seam sequence to the north

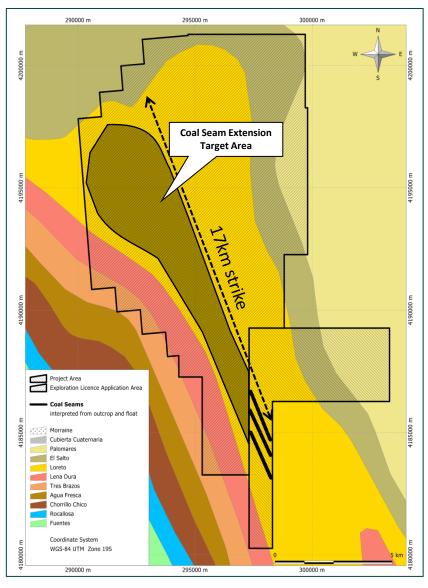


- Project covers 11km strike length of Loreto Formation
- Strike length likely to be doubled to 25km of coal bearing Loreto Formation
  - Coal seam continuity traced in outcrop, float & intercepts down dip in wells
  - 8.5m thick coal seam dips 2° 7° to east with one outcrops exposure extending for 800m
  - 15km to Ultima Esperanza
    Sound, 16km to concrete
    Highway 9, 50km to 240 MW Rio
    Turbio coal fired power station
    due for commissioning 4Q 2014
  - Simple drill out along strike and down dip of known thick coal seams
  - Targeting 10km strike zone with potential for +100mt global resource

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### **Perez Coal Project**







Coal seam sampling in 1984



- Area 140km<sup>2</sup>
- Several coal seams reported in 1984
- Same basal coal seam geology as **Rubens**
- **Increased Loreto Formation strike** length to 17km with new applications
- Mapping of outcrop & float required prior to drilling
- 9km to Skyring Sound

Calorific Values from 1984 sampling

Poder Calorífico	Punto 1	Punto 3-A	Punto 3-B
CV (base seca) (Kcal/Kg) Cenizas % (BS)	5.393	5-902	5.631
Cenizas % (BS)	22,98	15,58	17,99
CV (DAF) Kcal/Kg	7.002	6.991	6.866



### **Summary & Strategy**

- Chile is severely deficient in domestic supplied energy & heavily depend on fuel imports for thermal power generation
- Coal demand has doubled since 2007 & is expected to more than double again in the next decade to maintain Chile's economic wellbeing and standard of living
- Only one large domestic coal producer supplying 3mtpa into a forecast 30mtpa market
- Equus controls 360km<sup>2</sup> of coal licences <u>most dominate position over the largest known near</u> surface coal occurrence in energy starved Chile
- All project areas host thick shallowly dipping coal seams suitable for bulk open cut extraction
- Magallanes thermal coal advantages: low transport costs, low mining costs, low capital requirements, low supply & price risk, available work force, established idle infrastructure, low sulphur, basin dominance, etc.
- Strategy is to simply:
- 1. Dominate prospective coal acreage Done
- 2. Dominate strategic infrastructure positioning Done
- 3. Drill obvious coal measures for "easy" tonnage
- 4. Invite JV offers from potential strategic partners

"Equus Mining is Well Positioned to reduce Chile's Dependency on Energy Imports"



## **Appendix I**

COAL FIRED THERMOELECTRIC PLANTS - UNDER CONSTRUCTION AND/OR APPROVED								
COMPANY	THERMAL ELECTRIC PLANT	POTENCIAL (MW)	SUB-BITUMINOUS PORTION OF FUEL MIX	SUB-BITUMINOUS (tpa)	BITUMINOUS (tpa)	REGIÓN	INVESTMENT US\$M	OPERATIVE DATE/STATUS
AES Gener	Cochrane I	560	55%	1,089,000	748,000	II, Chile	1,100	May-16
AES Gener	Guacolda V	150	55%	457,000	235,000	III, Chile	235	Dec-15
AES Gener	Los Robles I	750	55%	1,047,000	730,000	VII, Chile	1,300	Approved
Endesa	Patache II	110	0%	0	368,000	I, Chile	150	Approved
Endesa	Punta Alcalde I	740	100%	3,974,000	0	III, Chile	1,400	Approved
Endesa	Bocamina II	370	30%	307,000	715,000	VIII, Chile	800	Approved
E-CL	Mejillones IV & V	750	50%	903,000	558,000	II, Chile	1,500	Jan-17
Río Seco	Pacífico I	350	30%	323,000	754,000	I, Chile	750	Approved
Colbun	Santa María II	350	0%	0	1,109,000	VIII, Chile	850	Approved
YCRT	Rio Turbio I	240	100%	1,400,000	0	Santa Cruz, Arg.	800	Apr-16
TOTAL		4,370		9,500,000	5,217,000		8,885	