The Valuation of Rare Earth Deposits

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Evaluation Methods in Use

- Deposit Tonnage and Grade
- Rare Earth Distribution
- Perceived Location Preferences

or

- Financial Benefit that Accrue from the development of the Project.

  Net Present Value (NPV)

  Internal rate of Return (IRR)

Unique Rare Earth Challenges

Two Completely Different Markets – Light & Heavy

Light Rare Earths

La – Gd +/- 95% Purity

Heavy Rare Earths

Sm – Lu >99.5% Purity

Some Overlap between the two.

Business Drivers

Attribute	Light Rare Earths	Heavy Rare Earths
Current Supply Position	Oversupplied	Enough for 35 years?
Current production	Bastnaesite - China	South China Clay
Near potential	Mountain Pass USA	
Current Comp. Advantage	Byproduct – Inner Mongolia	China - High Pollution tolerance
Current Weaknesses	Production all in China	Production all in China
Barriers to Entry	Low	High: Raw Material Supply tight
Capital Costs of Plant/ Tonne product	Low	Higher
Analytical Requirements	Modest	Costly
Market Size	100,000 tpa TREO	20,000 tpa TREO
Number of Separation Plants	> 45	< 10
Product Complexity	Almost Commodity	Very Specialized
Profitability	Low	High

Current Market Drivers

Light Rare Earths

Nd Pr – Magnets

Heavy Rare Earths

La Nd Dy Tb Y - Electronics

Light RE Distribution

Oxide	Oxide/TREO %
La2O3	25.0
CeO2	50.0
Pr6O11	5.5
Nd2O3	17.0
Sm2O3	1.5
Eu2O3	0.2
Gd2O3	0.4
Tb4O7	0.1
Dy2O3	0.1
Er2O3	0.1
Y2O3	0.3

Product Balance

$CeO_2/TREO = 50.0\%$, $Nd_2O_3/TREO = 17{,}0\ \%$

$CeO_2/Nd_2O_3 = 2.94$

- Sell all the Nd
- Market constrained on the Cerium

Result is inventoried or discounted Cerium and lower than anticipated Revenue

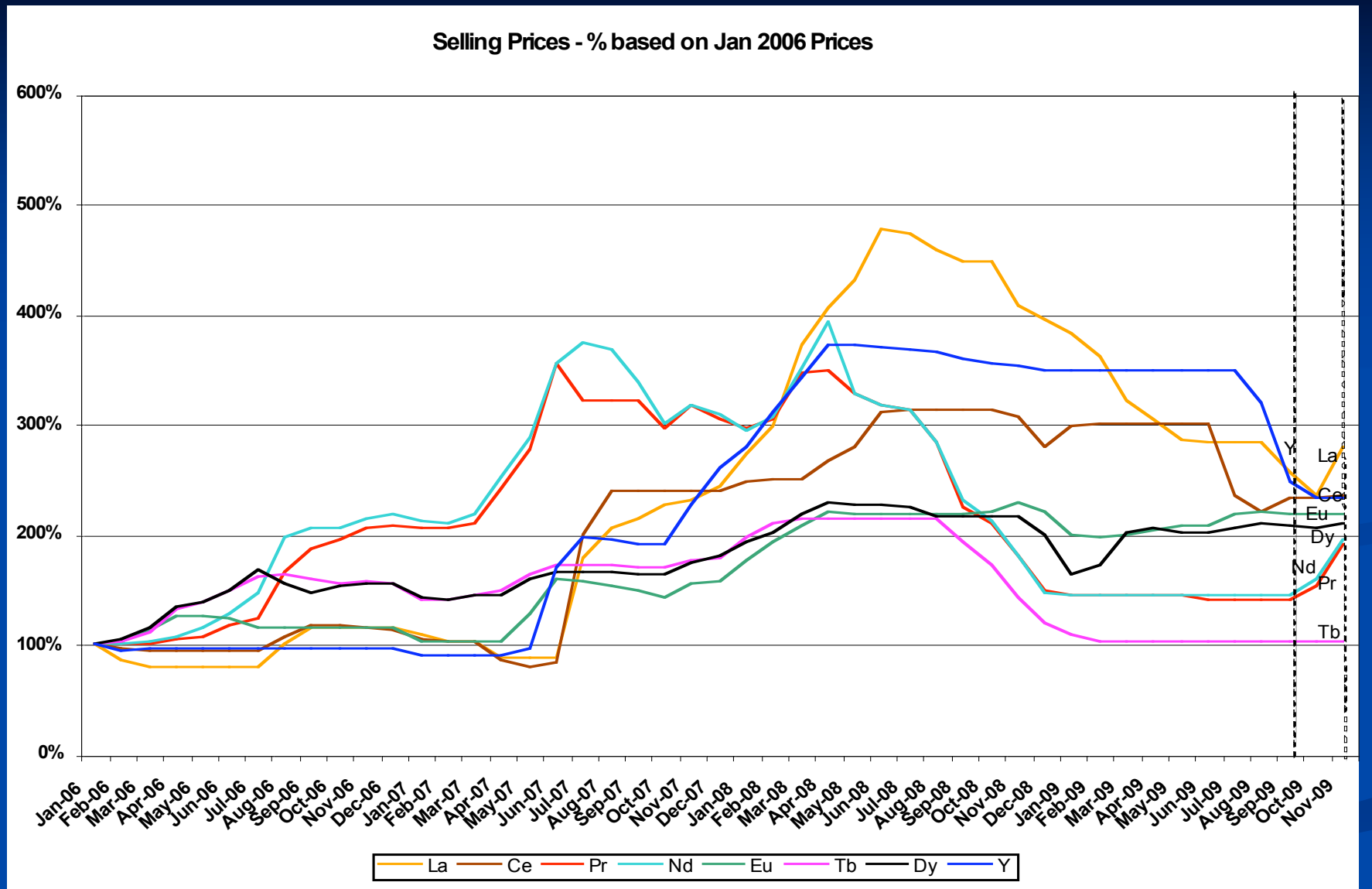
	Ion Absorption Clays (Oxide/TREO %)					Xenotime
	Long Nan	Xin Fong	Wan Nan	Xun Wu	Din Nan	
La2O3	2.10	20.00	8.45	29.84	27.36	1.20
CeO2	1.00	1.34	1.09	7.18	3.07	3.00
Pr6O11	1.10	5.52	1.88	7.41	5.78	.60
Nd2O3	5.10	26.00	7.36	30.18	18.66	3.50
Sm2O3	3.20	4.50	2.55	6.32	4.26	2.10
Eu2O3	0.30	1.10	.20	.51	.30	.15
Gd2O3	5.69	4.54	6.75	4.21	4.37	5.00
Tb4O7	1.13	.56	1.36	.46	.70	1.20
Dy2O3	7.48	4.08	8.60	1.77	4.00	9.10
Ho2O3	1.60	0.30	1.40	.27	0.51	2.60
Er2O3	4.26	2.19	4.22	.88	2.26	5.60
Tm2O3	0.6	.30	1.40	.27	0.51	1.30
Yb2O3	3.34	1.40	4.10	.62	1.97	6.00
Lu2O3	0.47	.30	.69	.13	.30	1.80
Y2O3	62.90	25.89	49.88	10.07	26.36	6.00

Heavy Rare Earth Balance

- Clay comes from many sources – blending possible
- Not possible if sourced at a single mine
- Raw Material price depends on metal makeup
- Unsold or inventoried material is of higher value

Other Revenue Issues

- Some metals have a very small or insignificant market – should not use their value in revenue projections.
- Cyclic nature of prices. – Use average values


Selling Prices - % based on Jan 2006 Prices
600%
500%
400%
300%
200%
100%
0%
Jan-06
Feb-06
Mar-06
Apr-06
May-06
Jun-06
Jul-06
Aug-06
Sep-06
Oct-06
Nov-06
Dec-06
Jan-07
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Nov-08
Dec-08
Jan-09
Feb-09
Mar-09
Apr-09
May-09
Jun-09
Jul-09
Aug-09
Sep-09
Oct-09
Nov-09
Y
La
Ce
Eu
Dy
Nd
Pr
Tb
La
Ce
Pr
Nd
Eu
Tb
Dy
Y

Processing and Mining Costs

- Minerals concentrate and crack with differing ease – understand that the operating cost structure will differ from deposit to deposit.
- Capital cost depend on location, mineral type and production scale.
- The cost of infrastructure can be as high as 50% of the entire project cost – this is very location sensitive.

Conclusions.

- NPV is a good way to evaluate and rank deposits
- One cannot credit the project with revenue "in the ground" – balance and unsellable product
- It is necessary to discount away from price peaks
- The effect on profitability more than 7 years out will be negligible.
- Deposits are being systematically overvalued – realism is required for a long term investment environment