Mineral resources

As required by the Australian Securities Exchange, the following tables contain details of other mineralisation that has a reasonable prospect of being economically extracted in the future but which is not yet classified as Proved or Probable Reserves. This material is defined as Mineral Resources under the JORC Code. Estimates of such material are based largely on geological information with only preliminary consideration of mining, economic and other factors. While in the judgement of the Competent Person there are realistic expectations that all or part of the Mineral Resources will eventually become Proved or Probable Reserves, there is no guarantee that this will occur as the result depends on further technical and economic studies and prevailing economic conditions in the future.

Resources are stated as additional to the reserves reported earlier. Where operations are not managed by Rio Tinto the resources are published as received from the managing company. Where new project resources are reported for the first time, additional information about them can be viewed on the Rio Tinto web site, in the section titled 'what we produce'.

	Likely mining method (a)	Measured resources at end 2008		Indicated resources at end 2008		Inferred resources at end 2008		Total resources 2008 compared with 2007				Rio Tinto interest
		Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage		Grade		
								2008	2007	**2008**	2007	%
BAUXITE		millions of tonnes	% Al_2O_3	millions of tonnes	% Al_2O_3	millions of tonnes	% Al_2O_3	**millions of tonnes**	millions of tonnes	**% Al_2O_3**	% Al_2O_3	
Gove (Australia)	O/P	11	49.6	32	49.6	3	50.3	**46**	83	**49.7**	50.1	100.0
Porto Trombetas (MRN) (Brazil)	O/P					401	50.0	**401**	444	**50.0**	50.0	12.0
Sangaredi (Guinea) (b)	O/P	91	48.9	169	48.4	188	48.1	**448**	661	**48.4**	49.5	23.0
Ducie-Wenlock (Australia) (c)	O/P					453	51.8	**453**	–	**51.8**	–	100.0
Weipa (Australia) (c)	O/P	75	50.2	1,528	50.6			**1,603**	2,219	**50.6**	50.9	100.0
BORATES		millions of tonnes		millions of tonnes		millions of tonnes		**millions of tonnes**	millions of tonnes			
Rio Tinto Minerals – Boron (US)	O/P	5.3				0.1		**5.4**	5.4			100.0
Jadar (Serbia) (d)	U/G					9.0		**9.0**	–			100.0
		Coal type (e)		Coal resources at end 2008								
				Measured	Indicated	Inferred						
COAL				millions of tonnes	millions of tonnes	millions of tonnes		**millions of tonnes**	millions of tonnes			
Chapudi (South Africa)	O/C	SC		90	220	730		**1,040**	1,040			59.1
Rio Tinto Coal Australia (Australia)												
Bengalla	O/C+U/G	SC		30	81	59		**170**	170			30.3
Blair Athol (f)	O/C	SC		7	0.5			**7**	–			71.2
Clermont	O/C	SC		11		3.7		**15**	15			50.1
Hail Creek (f)	O/C	MC			176	260		**435**	235			82.0
Hunter Valley Operations	O/C+U/G	SC+MC		119	526	686		**1,331**	1,392			75.7
Kestrel Coal	U/G	MC		9	0.1			**9**	9			80.0
Kestrel West	U/G	SC+MC			153			**153**	153			80.0
Lake Elphinstone	O/C	SC+MC			61	17		**78**	78			82.0
Maules Creek (g)	O/C	SC+MC		57	218	123		**398**	680			75.7
Mount Pleasant	O/C+U/G	SC+MC		200	218	281		**699**	699			75.7
Mount Thorley Operations	U/G	SC+MC			48	65		**113**	115			60.6
Oaklands	O/C	SC		480	800			**1,280**	1,280			75.7
Valeria	O/C	SC		200	240			**440**	440			71.2
Vickery	O/C+U/G	SC+MC		100	200			**300**	300			75.7
Warkworth (h)	O/C+U/G	SC+MC		5	247	351		**604**	423			42.1
Winchester South	O/C	SC+MC		90	7			**97**	97			75.0
Rio Tinto Energy America (US)												
Antelope	O/C	SC		31	30	12		**73**	73			100.0
Colowyo	O/C+U/G	SC		161	68	21		**250**	248			100.0
Cordero Rojo (i)	O/C	SC		57	87			**144**	–			100.0
Decker (j)	O/C	SC		39				**39**	43			50.0

See notes on page 121

	Likely mining method (a)	Measured resources at end 2008		Indicated resources at end 2008		Inferred resources at end 2008		Total resources 2008 compared with 2007				Rio Tinto interest
		Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage		Grade		
								2008	2007	**2008**	2007	**%**
COPPER		millions of tonnes	%Cu	millions of tonnes	%Cu	millions of tonnes	%Cu	**millions of tonnes**	millions of tonnes	**%Cu**	%Cu	
Bingham Canyon (US) (k)	O/P			173	0.55	476	0.44	**649**	9	**0.47**	0.34	100.0
Eagle (US) (l)	U/G			0.5	2.15	0.4	2.07	**0.9**	0.6	**2.12**	2.34	100.0
Escondida (Chile) (m)												
– sulphide	O/P	3.9	0.77	85	0.80	614	0.89	**703**	740	**0.88**	0.83	30.0
– sulphide leach	O/P	81	0.44	498	0.43	3,583	0.48	**4,162**	3,612	**0.47**	0.47	30.0
– oxide	O/P					31	0.81	**31**	39	**0.81**	0.86	30.0
Grasberg (Indonesia)	O/P+U/G	617	0.64	1,985	0.56	237	0.26	**2,838**	3,049	**0.56**	0.55	(n)
La Granja (Peru) (o)	O/P					2,770	0.51	**2,770**	–	**0.51**	–	100.0
Northparkes (Australia)												
– open pit (p)	O/P							**–**	12.0	**–**	0.49	80.0
– underground (q)	U/G	8.6	0.95	2.5	0.71			**11.1**	18	**0.90**	0.79	80.0
Oyu Tolgoi (Mongolia)												
– South Oyu	O/P			189	0.43	267	0.34	**456**	456	**0.38**	0.38	9.9
– Heruga (r)	U/G					760	0.48	**760**	–	**0.48**	–	13.5
– Hugo South	U/G					490	1.05	**490**	490	**1.05**	1.05	9.9
– Hugo North	U/G			703	1.82	723	0.97	**1,426**	1,426	**1.39**	1.39	9.9
– Hugo North Extension	U/G			117	1.80	96	1.15	**213**	213	**1.51**	1.51	13.5
Palabora (South Africa) (s)												
– stockpiles		7.1	0.29					**7.1**	7.9	**0.29**	0.31	57.7
Resolution (US) (t)	U/G					1,341	1.51	**1,341**	–	**1.51**	–	55.0
DIAMONDS		millions of tonnes	carats per tonne	millions of tonnes	carats per tonne	millions of tonnes	carats per tonne	**millions of tonnes**	millions of tonnes	**carats per tonne**	carats per tonne	
Argyle (Australia)												
– AK1 pipe	O/P+U/G	40	2.9	27	3.1	9	2.1	**77**	75	**2.9**	2.9	100.0
– Alluvials	O/P	11	0.2	8	0.2	9	0.2	**28**	28	**0.2**	0.2	100.0
Bunder (India) (u)	O/P					37	0.7	**37**	–	**0.7**	–	100.0
Diavik (Canada)	O/P+U/G			4.1	3.1	3.9	3.2	**8.1**	7.7	**3.1**	3.1	60.0
Murowa (Zimbabwe)	O/P					1.4	0.4	**1.4**	1.4	**0.4**	0.4	77.8
GOLD		millions of tonnes	grammes per tonne	millions of tonnes	grammes per tonne	millions of tonnes	grammes per tonne	**millions of tonnes**	millions of tonnes	**grammes per tonne**	grammes per tonne	
Bingham Canyon (US) (k)	O/P			173	0.22	476	0.17	**649**	9	**0.18**	0.28	100.0
Cortez/Pipeline (US) (v)	O/P+U/G							**–**	87	**–**	2.30	
Eagle (US) (l)	U/G			0.5	0.18	0.4	0.19	**0.9**	–	**0.19**	–	100.0
Grasberg (Indonesia)	O/P+U/G	617	0.55	1,985	0.51	237	0.24	**2,838**	3,049	**0.49**	0.49	(n)
Greens Creek (US) (w)	U/G							**–**	2.4	**–**	4.43	
Northparkes (Australia)												
– open pit (p)	O/P							**–**	12	**–**	0.35	80.0
– underground (q)	U/G	8.6	0.35	2.5	0.12			**11.1**	18	**0.29**	0.29	80.0
Oyu Tolgoi (Mongolia)												
– South Oyu	O/P			189	0.27	267	0.23	**456**	456	**0.25**	0.25	9.9
– Heruga (r)	U/G					760	0.55	**760**	–	**0.55**	–	13.5
– Hugo South	U/G					490	0.09	**490**	490	**0.09**	0.09	9.9
– Hugo North	U/G			703	0.39	723	0.30	**1,426**	1,426	**0.34**	0.34	9.9
– Hugo North Extension	U/G			117	0.61	96	0.31	**213**	213	**0.48**	0.48	13.5
Wabu (Indonesia)	O/P					43	2.56	**43**	43	**2.56**	2.56	(n)

See notes on page 121

	Likely mining method (a)	Measured resources at end 2008		Indicated resources at end 2008		Inferred resources at end 2008		Total resources 2008 compared with 2007				Rio Tinto interest
		Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage		Grade		
								2008	2007	**2008**	2007	%
IRON ORE		millions of tonnes	%Fe	millions of tonnes	%Fe	millions of tonnes	%Fe	**millions of tonnes**	millions of tonnes	**%Fe**	%Fe	
Corumbá (Brazil) †	O/P	38	64.1	51	63.4	493	62.6	**583**	583	**62.7**	62.7	100.0
Hamersley Iron wholly owned (Australia)												
– Brockman 2	O/P	5	62.9			5	62.8	**10**	10	**62.9**	62.6	100.0
– Brockman 4	O/P	15	62.1	15	61.9	5	62.6	**35**	35	**62.1**	62.1	100.0
– Marandoo Marra Mamba (x)	O/P	225	62.8	55	62.5	125	62.9	**405**	560	**62.8**	62.4	100.0
– Mt Tom Price high grade (y)	O/P	35	63.2	85	63.6	10	64.4	**130**	100	**63.5**	63.9	100.0
– Mt Tom Price low grade	O/P	25	56.8	30	55.9	5	55.0	**60**	60	**56.2**	55.9	100.0
– Mt Tom Price Marra Mamba (z)	O/P	15	61.7	5	62.3			**20**	15	**61.9**	61.8	100.0
– Nammuldi Detrital	O/P	5	60.4	75	60.7			**80**	80	**60.7**	60.7	100.0
– Nammuldi Marra Mamba	O/P	155	62.8	120	62.6			**275**	275	**62.7**	62.8	100.0
– Paraburdoo Brockman (aa)	O/P	30	62.9	40	63.6	35	63.4	**105**	90	**63.3**	63.6	100.0
– Western Turner Syncline (bb)	O/P	40	62.4	15	62.0	5	61.8	**60**	–	**62.2**	–	100.0
– Yandicoogina	O/P	280	58.0	355	58.0	35	57.5	**670**	675	**58.0**	57.9	100.0
Hamersley Iron undeveloped resources (cc)												
– Brockman	O/P	40	62.6	1,190	62.5	2,420	62.5	**3,650**	3,780	**62.5**	62.5	(cc)
– Brockman Process ore (dd)	O/P	210	57.6	430	57.8	520	56.7	**1,160**	1,785	**57.3**	55.6	(cc)
– Marra Mamba	O/P			665	62.2	1,550	62.2	**2,215**	2,110	**62.2**	62.2	(cc)
– Channel Iron deposits	O/P					1,750	57.0	**1,750**	1,750	**57.0**	57.0	100.0
– Detrital deposits (ee)	O/P	5	63.4	120	61.7	40	61.9	**165**	195	**61.8**	61.8	100.0
Hamersley Iron – Channar (Australia) (ff)												
– Brockman	O/P	30	61.8	5	61.7			**35**	25	**61.8**	61.9	60.0
Hamersley Iron – Eastern Range (Australia)												
– Brockman	O/P	10	61.6	5	61.7	15	61.8	**30**	30	**61.7**	61.7	54.0
Hope Downs (Australia)												
– Hope Downs 1 Marra Mamba (gg)	O/P	5	61.7	80	61.9	20	60.2	**105**	95	**61.6**	61.4	50.0
– Hope Downs 1 Detritals (hh)	O/P			10	60.2	5	58.8	**15**	25	**59.7**	59.5	50.0
Hope Downs undeveloped resources												
– Brockman (ii)	O/P	95	62.6	85	61.6	295	62.1	**475**	385	**62.1**	62.2	50.0
– Brockman Process ore	O/P	60	57.0	5	57.2	120	57.7	**185**	195	**57.5**	56.8	50.0
– Marra Mamba and Detritals	O/P					220	61.1	**220**	220	**61.1**	61.1	50.0
Iron Ore Company of Canada (Canada) (jj)	O/P	169	65.0	448	65.0	624	65.0	**1,240**	1,449	**65.0**	65.0	58.7
Palabora (South Africa)	O/P			240	55.9			**240**	240	**55.9**	56	57.7
Robe River (Australia)												
– Marra Mamba	O/P	55	62.0	145	62.1			**200**	190	**62.1**	62.3	53.0
– Pisolite (kk)	O/P	85	56.9			20	56.8	**105**	135	**56.9**	56.4	53.0
Robe River undeveloped resources												
– Marra Mamba	O/P			290	61.3	165	59.5	**455**	445	**60.7**	60.6	53.0
– Pisolite	O/P	50	58.9	995	58.4	490	57.6	**1,535**	1,530	**58.2**	58.1	53.0
– Detritals (ll)	O/P					35	61.0	**35**	–	**61.0**	–	53.0
Simandou (Guinea) (mm)	O/P			1,300	66.0	955	65.9	**2,254**	–	**66.0**	–	95.0
LEAD		millions of tonnes	%Pb	millions of tonnes	%Pb	millions of tonnes	%Pb	**millions of tonnes**	millions of tonnes	**%Pb**	%Pb	
Greens Creek (US) (w)	U/G							**–**	2.4	**–**	3.92	
LITHIUM		millions of tonnes	$\%Li_2O$	millions of tonnes	$\%Li_2O$	millions of tonnes	$\%Li_2O$	**millions of tonnes**	millions of tonnes	**$\%Li_2O$**	$\%Li_2O$	
Jadar (Serbia) (d)	U/G					114.6	1.8	**114.6**	–	**1.8**	–	100.0
MOLYBDENUM		millions of tonnes	%Mo	millions of tonnes	%Mo	millions of tonnes	%Mo	**millions of tonnes**	millions of tonnes	**%Mo**	%Mo	
Bingham Canyon (US) (k)	O/P			173	0.036	476	0.033	**649**	9	**0.034**	0.039	100.0
Oyu Tolgoi (Mongolia)												
– Heruga (r)	U/G					760	0.015	**760**	–	**0.015**	–	13.5
Resolution (US) (t)	U/G					1,341	0.040	**1,341**	–	**0.040**	–	55.0

See notes on page 121

	Likely mining method (a)	Measured resources at end 2008		Indicated resources at end 2008		Inferred resources at end 2008		Total resources 2008 compared with 2007				Rio Tinto interest
		Tonnage	Grade	Tonnage	Grade	Tonnage	Grade		Tonnage		Grade	
								2008	2007	**2008**	2007	%
NICKEL		millions of tonnes	%Ni	millions of tonnes	%Ni	millions of tonnes	%Ni	**millions of tonnes**	millions of tonnes	**%Ni**	%Ni	
Eagle (US) (l)	U/G			0.5	3.16	0.4	2.28	**0.9**	0.6	**2.78**	2.65	100.0
Sulawesi (Indonesia) (nn)	O/P					162	1.62	**162**	–	**1.62**	–	100.0
POTASH		millions of tonnes	%KCl	millions of tonnes	%KCl	millions of tonnes	%KCl	**millions of tonnes**	millions of tonnes	**%KCl**	%KCl	
Potasio Rio Colorado (Argentina) (oo)†	S/M			361	34.2	665	30.8	**1,026**	1,037	**32.0**	32.1	100.0
SILVER		millions of tonnes	grammes per tonne	millions of tonnes	grammes per tonne	millions of tonnes	grammes per tonne	**millions of tonnes**	millions of tonnes	**grammes per tonne**	grammes per tonne	
Bingham Canyon (US) (k)	O/P			173	2.3	476	2.0	**649**	9	**2.1**	1.7	100.0
Grasberg (Indonesia)	O/P+U/G	617	3.4	1,985	3.3	237	1.3	**2,838**	3,049	**3.2**	3.2	(n)
Greens Creek (US) (w)	U/G							**–**	2.4	**–**	458	
Wabu (Indonesia)	O/P					43	2.5	**43**	43	**2.5**	2.5	(n)
TALC		millions of tonnes		millions of tonnes		millions of tonnes		**millions of tonnes**	millions of tonnes			
Rio Tinto Minerals – talc (Australia/Europe/N America)	O/P+U/G	20		29		32		**81**	80			100.0
TITANIUM DIOXIDE FEEDSTOCK		millions of tonnes		millions of tonnes		millions of tonnes		**millions of tonnes**	millions of tonnes			
QIT (Canada)	O/P	4.1						**4.1**	4.1			100.0
QMM (Madagascar)	D/O	0.2		35.9		1.8		**37.9**	38.8			80.0
RBM (South Africa) (pp)	D/O			1.2		0.1		**1.3**	3.0			50.0
URANIUM		millions of tonnes	$\%U_3O_8$	millions of tonnes	$\%U_3O_8$	millions of tonnes	$\%U_3O_8$	**millions of tonnes**	millions of tonnes	**$\%U_3O_8$**	$\%U_3O_8$	
Energy Resources of Australia (Australia)												
– Jabiluka	U/G	1.2	0.887	13.9	0.520	10.0	0.545	**25.1**	25.1	**0.547**	0.547	68.4
– Ranger #3 (qq)	O/P	60.5	0.062	61.7	0.113	6.1	0.134	**128.3**	42.4	**0.090**	0.119	68.4
Rössing (Namibia) (rr)	O/P	8.7	0.022	92.9	0.021	12.9	0.023	**114.5**	191.3	**0.021**	0.023	68.6
ZINC		millions of tonnes	%Zn	millions of tonnes	%Zn	millions of tonnes	%Zn	**millions of tonnes**	millions of tonnes	**%Zn**	%Zn	
Greens Creek (US) (w)	U/G							**–**	2.4	**–**	10.12	
La Granja (Peru) (o)	O/P					2,770	0.10	**2,770**	–	**0.10**	–	100.0

See notes on page 121

Notes

(a) Likely mining method: O/P = open pit; O/C = open cut; U/G = underground; D/O = dredging operation; S/M = solution mining.

(b) Following completion of technical and economic studies some resources at Sangaredi were upgraded to reserves.

(c) Rio Tinto acquired the operating assets of Alcan with effect from 24 October 2007 and Ducie-Wenlock resources are presented here for the first time. The Weipa deposit includes the resource for Ely as the deposit is contiguous. Resources at Weipa decreased through conversion to reserves. Rio Tinto has an 80 per cent interest in the Awaso mine in Ghana but the resource estimate is still under review.

(d) Following completion of technical and economic studies the resource at Jadar is reported for the first time. The borate resource tonnage is expressed in terms of marketable product, whereas the lithium resource is expressed as in situ tonnes.

(e) Coal type: SC = steam/thermal coal, MC = metallurgical/coking coal.

(f) Following completion of economic studies at Blair Athol and Hail Creek, coal resources have been increased.

(g) Resources at Maules Creek have decreased as a result of economic studies.

(h) Following completion of economic studies coal resources have been increased at Warkworth. Technical studies have led to a reclassification of resources.

(i) Resources at Cordero Rojo have increased following the acquisition of a federal lease, drilling and technical studies.

(j) Resources at Decker have decreased as a result of upgrading resources to reserves and technical studies.

(k) Resources at Bingham Canyon have increased as a result of updates to the resource model with additional drilling and technical and economic studies. Molybdenum grades reflect reconciliation of model and plant grades.

(l) Resources at Eagle have increased as a result of the development of a new resource model incorporating data from additional drilling.

(m) Changes in inferred resources at Escondida resulted from technical and economic studies as well as additional drilling.

(n) Under the terms of a joint venture agreement between Rio Tinto and FCX, Rio Tinto is entitled to a direct 40 per cent share in resources discovered after 31 December 1994.

(o) Rio Tinto acquired La Granja during 2005 and resources are presented here for the first time following technical and economic studies. The timeline and options for development for this project are under review given the current global economic setting.

(p) Open pit resources at Northparkes have decreased as a result of upgrading to reserves.

(q) Underground resources at Northparkes have decreased as a result of upgrading resources to reserves and technical studies.

(r) Following completion of technical and economic studies the resource at Heruga is reported for the first time.

(s) Stockpiles at Palabora decreased as the material was transferred for processing.

(t) Following completion of technical and economic studies the resource at Resolution is reported for the first time.

(u) Following completion of technical and economic studies the resource at Bunder is reported for the first time.

(v) On 5 March 2008, Rio Tinto completed the sale of its interest in the Cortez joint venture to its partner.

(w) On 16 April 2008, Rio Tinto completed the sale of its interest in the Greens Creek joint venture to its partner.

(x) Resources at Marandoo Marra Mamba have decreased following the development of new resource models incorporating additional drilling as well as conversion of resources to reserves.

(y) Mt Tom Price high grade resources have increased due to new pit designs and resource model.

(z) Mt Tom Price Marra Mamba resources have increased due to a new pit design and resource model.

(aa) Paraburdoo Brockman resources have increased due to new pit designs and resource models.

(bb) Following completion of technical and economic studies the resource at Western Turner Syncline is reported for the first time.

(cc) Resources in this category consist of 32 deposits, 24 of which are wholly owned by Hamersley Iron. The Shovelanna resource (50 per cent Hamersley Iron) is not included as mining lease applications are currently awaiting grant.

(dd) Hamersley Brockman process ore resources have decreased following technical studies.

(ee) Detrital resources have decreased following geological re-evaluation.

(ff) Channar resources have increased due to a new pit design and resource model.

(gg) Hope Downs 1 Marra Mamba resources have increased due to remodelling and additional drilling data.

(hh) Hope Downs 1 detritals resources have decreased due to remodelling.

(ii) Hope Downs Brockman resources have increased as a result of the development of new resource models incorporating additional drilling and the reporting of new deposits for the first time.

(jj) Resources at Iron Ore Company of Canada (IOC) have decreased following conversion of resources to reserves and technical and economic studies. Resources are reported as marketable product, using process upgrade factors derived from current IOC concentrating and pellet operations. The in situ material equivalent is 3,121 million tonnes at 38 per cent iron.

(kk) Robe River pisolite resources were reduced following a boundary re-evaluation.

(ll) Following completion of technical and economic studies, Robe River detrital resources are reported for the first time.

(mm) Following completion of technical and economic studies the resource at Simandou is reported for the first time. The timeline and options for development for this project are under review given the current global economic setting.

(nn) Following completion of technical and economic studies the resource at Sulawesi is reported for the first time. The timeline and options for development for this project are under review given the current global economic setting.

(oo) The Potasio Rio Colorado resource is shown as estimated recoverable tonnes of potash.

(pp) Resources at RBM have decreased following technical studies.

(qq) Resources at Ranger have increased as a result of the development of a new resource model incorporating results from additional drilling as well as technical and economic studies.

(rr) Resources at Rössing have decreased following conversion of resources to reserves and the development of a new pit design incorporating a new resource model and results from additional drilling.

† In January 2009, Rio Tinto announced that it had signed definitive agreements to sell its 100 per cent interests in the Potasio Rio Colorado project and the Corumbá mine. The Potasio Rio Colorado sale was completed on 5 February 2009.