

The Adaro Group's Coal Resources and Reserves

Sumber Daya dan Cadangan Batu Bara Grup Adaro

Adaro (Equity Adjusted) Consolidated Coal Resources

Konsolidasi Sumber Daya Batu Bara Adaro (Disesuaikan per Ekuitas)

Reported according to JORC Code 2012 Edition

Dilaporkan menurut JORC Code 2012 Edition

Group and Operating Company Grup dan perusahaan	Resources estimated as at Dec. 31, 2019 ¹ Perkiraan Sumber Daya per 31 Des 2019				Resources estimated as at Dec. 31, 2018 Perkiraan Sumber Daya per 31 Des 2019				Calculated changes 2019 vs. 2018 Perubahan 2019 vs. 2018	
	Total Measured, Indicated & Inferred (Mt) Total Terukur, Terkira & Tereka (Mt)	Measured (Mt) Terukur (Mt)	Indicated (Mt) Terkira (Mt)	Inferred (Mt) Tereka (Mt)	Total Measured, Indicated & Inferred (Mt) Total Terukur, Terkira & Tereka (Mt)	Measured (Mt) Terukur (Mt)	Indicated (Mt) Terkira (Mt)	Inferred (Mt) Tereka (Mt)	Measured, Indicated & Inferred change (Mt) Perubahan Terukur, Terkira & tereka (Mt)	Measured, Indicated & Inferred % change Perubahan Terukur, Terkira & Tereka (%)
Adaro total sub-bituminous Coal Resources: PT Adaro Indonesia, PT Semesta Centramas, PT Paramitha Cipta Sarana, PT Laskar Semesta Alam, PT Mustika Indah Permai	3,088	2,437	466	185	4,997	3,027	951	1,019	-1,909	-38%
Adaro total metallurgical Coal Resources: Adaro MetCoal, Kestrel Coal Mine, Australia	1,024	133	441	449	1506	192	360	954	-483	-32%
Adaro total bituminous Coal Resources: PT Maruwai Coal	9.0	9	0.3	0.0	9.5	-	-	9.5	-0	-5%
Adaro total low-rank Coal Resources: PT Bhakti Energi Persada	334	201	125	7	7,161	3,480	2,885	797	-4,216	-59%

Adaro (Equity Adjusted) Consolidated Coal Reserves

Konsolidasi Cadangan Batu Bara Adaro (Disesuaikan per Ekuitas)

Reported According to JORC Code 2012 Edition

Dilaporkan menurut to JORC Code 2012 Edition

Group and Operating Company Grup dan perusahaan	Reserves estimated as at Dec. 31, 2019 Perkiraan Cadangan per 31 Des 2019			Reserves estimated as at Dec. 31, 2018 Perkiraan Cadangan per 31 Des 2019			Calculated changes 2019 vs. 2018 Perubahan 2019 vs. 2018	
	Total Proved & Probable (Mt) Total Terbukti & Terkira (Mt)	Proved (Mt) Terbukti (Mt)	Probable (Mt) Terkira (Mt)	Total Proved & Probable (Mt) Total Terbukti & Terkira (Mt)	Proved (Mt) Terbukti (Mt)	Probable (Mt) Terkira (Mt)	Change to Proved & Probable total (Mt) Perubahan Total Terbukti & Terkira (Mt)	% change on Proved & Probable total Perubahan Total Terbukti & Terkira (%)
Adaro total sub-bituminous Coal Reserves: PT Adaro Indonesia, PT Semesta Centra Mas, PT Parmitha Cipta Sarana, PT Mustika Indah Permai	988	872	116	1,109	986	123	-121	-11%
Adaro total bituminous Coal Reserves: PT Lahai Coal, PT Maruwai Coal	7.73	7.57	0.16	0.25	0.25	-	7.5	2994%
Adaro total metallurgical Coal Reserves: PT Lahai Coal, PT Maruwai Coal, Kestrel Coal Mine, Australia	133.2	77.8	55.4	112.0	46.6	65.4	21.3	19%

1) PT Maruwai Coal Resources and Reserves were estimated as as Sept. 30, 2019
2) Kestrel Coal Mine Coal Resources and Reserves were estimated as at Oct. 1, 2019.

1) Sumber Daya dan Cadangan Batu Bara PT Maruwai Coal - Lampunut Mine diestimasi pada tanggal 30 Sept 2019.
2) Sumber Daya dan Cadangan Batu Bara Kestrel Coal Mine diestimasi pada tanggal 1 Des 2018

Adaro Coal Resources Quantity¹
Kuantitas Sumber Daya Batu Bara Grup Adaro¹

Reported according to JORC Code 2012 Edition
Ditaporkan menurut JORC Code 2012 Edition

Operating Company/ Project Perusahaan	Locality Lokasi	Mining method Metode Penambangan	Coal Resources as estimated at Dec. 31, 2019 Perkiraan Sumber Daya Batu Bara per 31 Des 2019				Adaro ownership equity (%) Kepemilikan Saham Grup Adaro (%)	Adaro attributable total Measured, Indicated & Inferred (Mt) Porsi Terukur, Terkira & Tereka Grup Adaro (Mt)	Coal Resources as estimated at Dec. 31, 2018 Perkiraan Sumber Daya Batu Bara per 31 Des 2018				Adaro ownership equity (%) Kepemilikan Saham Grup Adaro (%)	Adaro attributable total Measured, Indicated & Inferred (Mt) Porsi Terukur, Terkira & Tereka Grup Adaro (Mt)	Calculated changes to Adaro's Coal Resources 2019 vs. 2018 Perubahan perhitungan 2019 vs 2018			
			Total Measured, Indicated & Inferred (Mt) Total Measured, Indicated & Inferred (Mt)	Measured (Mt) Terukur (Mt)	Indicated (Mt) Terkira (Mt)	Inferred (Mt) Tereka (Mt)			Total Measured, Indicated & Inferred (Mt) Total Terukur, Terkira & Tereka (Mt)	Measured (Mt) Terukur (Mt)	Indicated (Mt) Terkira (Mt)	Inferred (Mt) Tereka (Mt)			Changes to operating company total Measured, Indicated & Inferred (Mt) Perubahan Total Terukur, Terkira & Tereka Perusahaan (%)	Changes to operating company total Measured, Indicated & Inferred (%) Perubahan porsi Terukur, Terkira & Tereka Grup Adaro (Mt)	Changes to Adaro attributable total Measured, Indicated & Inferred (Mt) Perubahan porsi Terukur, Terkira & Tereka Grup Adaro (Mt)	Changes to Adaro attributable total Measured, Indicated & Inferred (%) Perubahan porsi Terukur, Terkira & Tereka Grup Adaro (%)
PT Adaro Indonesia ²	Tutupan	OC	1,435	1,169	204	62		1,270	2,851	1,560	593	698		2,523	-1,416	-50%	-1,253	-50%
	North Paringin	OC	219	178	31	11		194	469	291	86	92		415	-250	-53%	-221	-53%
	South Paringin	OC	No resources estimated in 2019 Belum ada perkiraan sumber daya di 2019				88.5%	-	104	21	39	44	88.5%	92	-104		-92	
	Wara I	OC	1,049	722	205	122		928	1,363	799	270	294		1,206	-314	-23%	-278	-23.0%
	Wara II	OC	315	264	45	6		279	397	355	26	16		351	-82	-21%	-73	-20.7%
	Total Adaro Indonesia	OC	3,019	2,333	484	201	88.5%	2,671	5,184	3,026	1,014	1,144	88.5%	4,587	-2,166	-42%	-1,916	-42%
IUPs at Balangan ³	PT Semesta Centramas (SCM)	OC	73.2	64.4	7	1		55	68	60.2	6	1	75%	50.7	6	8%	4	8%
	PT Paramitha Cipta Sarana (PCS)	OC	31	20	6	4	75%	23	51	36	14	1	75%	38	-20	-40%	-15	-40%
	PT Laskar Semesta Alam (LSA)	OC	144.7	114.3	27.0	3.4		108.5	142	93	42	7	75%	106	3	2%	2	2%
Total South Kalimantan			3,267	2,532	525	210	87%	2,857	5,445	3,215	1,077	1,153	88%	4,782	-2,177	-40%	-1,925	-40%
PT Bhakti Energi Persada ⁴	PT Bumi Kaliman Sejahtera	OC	555	243	288	24		500	1,402	526	683	193		1,261	-847	-60%	-761	-60%
	PT Bumi Murau Coal	OC	1,110	665	431	13		999	1,817	858	808	151		1,635	-707	-39%	-636	-39%
	PT Birawa Pandu Selaras	OC	23	16	6	1		21	186	75	62	48		167	-163	-87%	-146	-87%
	PT Khazana Bumi Kaliman	OC	177	128	44	6	10.2%	159	745	374	238	133	90%	671	-568	-76%	-512	-76%
	PT Persada Multi Bara	OC	949	546	380	23		854	2,696	1,307	1,186	202		2,426	-1,747	-65%	-1,572	-65%
	PT Telen Eco Coal	OC	454	373	78	3		408	1,093	712	223	157		984	-639	-58%	-576	-59%
	PT Tri Panuntun Persada	OC	4.3	3.3	0.7	0.2		4	19	14	4	1		17	-15	-78%	-13	-77%
Adaro MetCoal	PT Pari Coal	OC	No resources estimated in 2019 Belum ada perkiraan sumber daya di 2019				100%	N/A	No resources estimated in 2018 Belum ada perkiraan sumber daya di 2018				100%	N/A	No resources estimated in 2019/2018 Belum ada perkiraan sumber daya di 2019/2018			
Total East Kalimantan			3,272	1,975	1,228	70	10.2%	2,945	7,958	3,866	3,204	885	90%	7,161	-4,686	-59%	-4,216	-59%
	PT Juloi Coal Bumbun (metallurgical/thermal)	OC	110	23	34	52		110	200	28.2	79.4	92.1		200	-90	-45%	-90	-45%
	PT Juloi Coal Juloi Northwest (metallurgical/thermal)	OC	625	-	268	357		625	639	-	62.5	576.5		639	-14	-2%	-14	-2%
	PT Kalteng Coal Luon (metallurgical/thermal)	OC	12.8	5.9	3.4	3.5		13	259	37.6	53.5	168.0		259	-246	-95%	-246	-95%
	PT Lahai Coal Haju (metallurgical/thermal) 6	OC	11.3	10.32	0.81	0.17		11.3	12.4	11.4	0.8	0.2	100%	12.4	-1	-9%	-1	-9%
Adaro MetCoal Companies ⁵	PT Maruwai Coal - Lampunut (metallurgical) 7	OC	93.0	88.5	4.5	0.04	100%	93	100.1	94.3	5.8	0.1		100	-7	-7%	-7	-7%
	PT Maruwai Coal - Lampunut (thermal) 7	OC	9.0	8.7	0.3	0.01		9.0	9.5	-	-	9.5		9.5	-0	-5%	-0.5	-5%
	PT Ratah Coal	OC	No resources estimated in 2019 Belum ada perkiraan sumber daya di 2019						No resources estimated in 2018 Belum ada perkiraan sumber daya di 2018						No resources estimated in 2019/2018 Belum ada perkiraan sumber daya di 2019/2018			
	PT Sumber Barito Coal (metallurgical/thermal)8	OC	7.0	0.7	4.9	1.4		7.0	130.6	13.7	34.6	82.4		131	-124	-1	-124	-1
Total Central Kalimantan			868	137.6	316.5	414.2	100%	868	1,351	185.2	236.6	928.8	100%	1,351	-482	-36%	-482	-36%
PT Mustika Indah Permai 9	Lahat	OC	308.2	298.5	9.7	0.03	75%	231	287.5	277.7	9.6	0.2	75%	216	21	7%	16	7%
PT Bukit Enim Energi	Muara Enim	OC	No resources estimated in 2019 Belum ada perkiraan sumber daya di 2019				61%		No resources estimated in 2018 Belum ada perkiraan sumber daya di 2018				61%		No resources estimated in 2019/2018 Belum ada perkiraan sumber daya di 2019/2018			
Total South Sumatra		OC	308.2	298.47	9.68	0.03	75%	231	287.5	277.7	9.6	0.2	75%	216	21	7%	16	7%
Kestrel Coal Mine, Australia 10		UG	427.9	12	324.9	91.0	38%	164	430.7	18.8	321.9	90	38%	165	-3	-1%	-1	-1%
Total Central Queensland, Australia			427.9	12	324.9	91.0	38%	164	430.7	18.8	321.9	90	38%	165	-3	-1%	-1	-1%
Total Adaro coal resources		OC	8,144	4,955	2,404	785	87%	7,066	15,471	7,562	4,849	3,057	88%	13,674	-7,327	-47%	-6,608	-48%

1) Adaro's coal resources refer to resources generally suited to host open-pit mineable coal reserves unless noted otherwise. Resources are reported according to JORC 2012 Edition, with reference to the Australian Coal Guidelines 2014.

2) PT Adaro Indonesia's (AI) coal resources were estimated as at Dec. 31, 2019 by AI Geology Department, CPI is Yansen Palobo, a full time employee of Adaro Indonesia. The decrease in AI's attributable total coal resources is due to depletion based on 2019 production and changes in Adaro's resource estimation standards with the application of a pit optimisation routine using a uniform company approved coal price index assumption to define the resources' economic limits. Small differences are due to decimal place rounding. The CP was Joseph Crisostomo MAUSIMM, of PT Adaro Jasabara Indonesia.

3) The coal resources at PCS, SCM and LSA were estimated as at Dec. 31, 2019. The CP was Joseph Crisostomo MAUSIMM, of PT Adaro Jasabara Indonesia. Increase in SCM and LSA coal resources are due to updated geological model from new drilling and update of the coal resource pit applying a revised coal price assumption and production cost parameters. A decrease in PCS coal resource is due to results of resource pit optimisation after implementing buffers around public roads, rivers, villages and other public infrastructures, following existing provincial and national decrees pertaining to good mining practices in open pit mining.

4) The CP was Joseph Crisostomo MAUSIMM, of PT Adaro Jasabara Indonesia, and the coal resources were estimated as at Dec. 31, 2019. The decrease in BEP's attributable total coal resources is due to changes in Adaro's resource estimation standards with the application of a pit optimisation routine using a uniform company approved coal price index assumption to define the resources' economic limits.

5) The coal resources at Adaro MetCoal Companies (except PT Maruwai Coal) were estimated as at 31 December 2019. The CP was Joseph Crisostomo MAUSIMM, of PT Adaro Jasabara Indonesia.

6) A decrease in PT Lahai Coal coal resource is attributable to depletion based on 2019 production.

7) The PT Maruwai Coal - Lampunut Coal Resources were estimated as at Sept. 30, 2019. A decrease in PT Maruwai Coal metallurgical and thermal coal resources is attributable to the update of the coal resource pit applying a revised coal price assumption and production cost parameters.

8) A decrease in PT Juloi Coal, PT Kalteng Coal and PT Sumber Barito Coal metallurgical and thermal coal resources is attributable to changes in Adaro's resource estimation standards with the application of a pit optimisation routine using a uniform company approved coal price index assumption to define the resources' economic limits.

9) The resources were estimated in Dec. 31, 2019. The CP was Joseph Crisostomo MAUSIMM, of PT Adaro Jasabara Indonesia. The increase in MIP's coal resources is attributable to the update of the coal resource pit applying a revised coal price assumption and production cost parameters.

10) The Kestrel Coal Resources were estimated as at Oct. 1, 2019. Resources are reported according to the 2012 JORC Code. The Kestrel Coal Resources are inclusive of Coal Reserves. The CP was Christopher Speedy MAIG, a consultant working for Encompass Mining Services Pty Ltd. Kestrel is owned by Kestrel Coal Resources Pty Ltd (80%) and Mitsui Coal Australia (20%). Kestrel Coal Resources Pty Ltd is a joint venture company formed in March 2018 by Adaro Energy (48%) and EMR Capital Ltd (52%).

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6) A decrease in PT Lahai Coal coal resource is attributable to depletion based on 2019 production.

7) The PT Maruwai Coal - Lampunut Coal Resources were estimated as at Sept. 30, 2019. A decrease in PT Maruwai Coal metallurgical and thermal coal resources is attributable to the update of the coal resource pit applying a revised coal price assumption and production cost parameters.

8) A decrease in PT Juloi Coal, PT Kalteng Coal and PT Sumber Barito Coal metallurgical and thermal coal resources is attributable to changes in Adaro's resource estimation standards with the application of a pit optimisation routine using a uniform company approved coal price index assumption to define the resources' economic limits.

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Operating Company/Project Perusahaan	Locality Lokasi	Mining method Metode penambangan	Coal Reserves as estimated at Dec. 31, 2019 Perkiraan Cadangan Batu Bara per 31 Des 2019				Adaro ownership equity (%) Kepemilikan Saham Adaro (%)	Adaro attributable total proved & probable (Mt) Porsi Terbukti & Terkira Adaro (Mt)	Coal Reserves as estimated at Dec. 31, 2018 Perkiraan Cadangan Batu Bara per 31 Des 2018				Calculated changes to Adaro's Coal Reserves 2019 vs 2018 Perhitungan Cadangan Batu Bara Adaro 2019 vs 2018			
			Total proved & probable (Mt) Total Terbukti & Terkira (Mt)	Proved (Mt) Terbukti (Mt)	Probable (Mt) Terkira (Mt)				Total proved & probable (Mt) Total Terbukti & Terkira (Mt)	Proved (Mt) Terbukti (Mt)	Probable (Mt) Terkira (Mt)		Changes to operating company total proved & probable (%) Perubahan Porsi Terbukti & Terkira Perusahaan (%)	Changes to operating company total proved & probable (Mt) Perubahan Porsi Terbukti & Terkira Adaro (Mt)	Changes to Adaro attributable total proved & probable (%) Perubahan Porsi Terbukti & Terkira Adaro (%)	Changes to Adaro attributable total proved & probable (Mt) Perubahan Porsi Terbukti & Terkira Adaro (Mt)
PT Adaro Indonesia	Tutupan ^(1,2,4)	OC	524	498	26		464	602	511	91		533	-78	-13%	-69	-13%
	North Paringin ^(1,2,4)	OC	16	15	1		14	18	17	1		16	-2	-13%	-2	-13%
	South Paringin	OC	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019				88.5%		No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019				88.5%	N/A	No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/2018	
	Wara I ^(1,2,4)	OC	281	198	83		249	286	267	19		253	-5	-2%	-4	-2%
	Wara II	OC	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019					N/A	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019					N/A	No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/2018	
	Total Adaro Indonesia		821	711	110	88.5%	726	906	796	111	88.5%	802	-85	-9%	-76	-9%
IUPs at Balangan	PT Semesta Centramas (SCM) ^(1,3,5)	OC	39	36	2		29	41	38	2		30	-2	-5%	-2	-5%
	PT Paramitha Cipta Sarana (PCS) ^(1,3)	OC	12	9	3	75%	9	28	20	8	75%	21	-16	-56%	-12	-56%
	PT Laskar Semesta Alam (LSA) ^(1,3,5)	OC	84	69	16		63	87	72	16		66	-3	-3%	-2	-3%
	Total South Kalimantan		956	826	131	87%	827.9	1,062	926	137	86%	919	-106	-10%	-91	-10%
PT Bhakti Energi Persada	[at Muara Wahau]	OC	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019				N/A	N/A	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019				N/A	N/A	No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/2018	
	Total East Kalimantan		No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019				N/A	N/A	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019				N/A	N/A	No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/2018	
Adaro MetCoal Companies	PT Juloi Coal	N/A	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019					N/A	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019					N/A	No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/2018	
	PT Kalteng Coal		No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019					N/A	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019					N/A	No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/2018	
	PT Lahai Coal (Metallurgical) ^(1,6,7)	OC	1.6	1.6	0.01		1.6	2.61	2.61			2.6	-1.0	-37%	-1.0	-37%
	PT Lahai Coal (Thermal) ^(1,6,7)	OC	0.13	0.13	0.0		0.13	0.25	0.25			0.25	-0.1	-49%	-0.1	-49%
	PT Maruwai Coal Marketable (Metallurgical) ⁽⁸⁾	OC	76.1	72.3	3.7	100%	76.1	51.5	38	13	100%	51.5	24.6	48%	24.6	48%
	PT Maruwai Coal Marketable (Thermal) ⁽⁸⁾	OC	7.6	7.4	0.2		7.6					0.0	7.6	0%	7.6	0%
	PT Pari Coal	N/A	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019					N/A	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019					N/A	No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/2018	
	PT Ratah Coal		No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019					N/A	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019					N/A	No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/2018	
	PT Sumber Barito Coal		No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019					N/A	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019					N/A	No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/2018	
	Total Central Kalimantan		85.4	81.5	3.9	100%	77.84	54.11	40.81	13	100%	54.11	31	58%	24	44%
PT Mustika Indah Permai	Lahat(9)	OC	214	209	5	75%	160.3	254	246	8	75%	190.5	-40	-16%	-30	-16%
PT Bukit Enim Energi	Muara Enim	OC	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019				61%	N/A	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019				61%	-	No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/2018	
	Total South Sumatra		214	209	5	75%	160.3	254	246	8	75%	190.5	-40	-16%	-30	-16%
Kestrel Coal Mine Australia ¹⁰	Kestrel Marketable (Metallurgical)	UG	144.6	10.0	134.6	38%	55.5	151	15	136	38%	57.9	-6	-4%	-2	-4%
	Total Central Queensland, Australia		144.6	10.0	134.6		55.5	151	15	136	38%	57.9	-6	-4%	-2	-4%
	Total Adaro Coal Reserves		1,400	1,126	274	80%	1,122	1,521	1,228	294	80%	1,221	-121	-8%	-100	-8%

1). Approximate drill hole spacings used to classify reserves are as below:

Deposit	Proven Coal Reserves	Probable Coal Reserves
Tutupan	Maximum 500m spacing of geophysically logged, analysed, drillholes	Maximum 500m spacing of geophysically logged, analysed, drillholes
North Paringin	Maximum 500m spacing of geophysically logged, analysed, drillholes	Maximum 500m spacing of geophysically logged, analysed, drillholes
Wara I	Maximum 500m spacing of geophysically logged, analysed, drillholes	Maximum 500m spacing of geophysically logged, analysed, drillholes
SCM	Maximum 250m spacing of geophysically logged, analysed, drillholes	Maximum 250m spacing of geophysically logged, analysed, drillholes
LSA	Maximum 250m spacing of geophysically logged, analysed, drillholes	Maximum 250m spacing of geophysically logged, analysed, drillholes
PCS	Maximum 250m spacing of geophysically logged, analysed, drillholes	Maximum 250m spacing of geophysically logged, analysed, drillholes
PT Lahai Coal (Metallurgical, Thermal)	Maximum 250m spacing of geophysically logged, analysed, drillholes with =>85% recovery	Maximum 250m spacing of geophysically logged, analysed, drillholes with =>85% recovery
PT Maruwai Coal Marketable (Metallurgical, Thermal)	Maximum 500m spacing of geophysically logged, analysed, coreholes with =>85% recovery	Maximum 500m spacing of geophysically logged, analysed, coreholes with =>85% recovery
Kestrel Coal Mine Marketable (Metallurgical)	Maximum 600m spacing of geophysically logged, analysed, drillholes	Maximum 1160m spacing of geophysically logged, analysed, drillholes

2) Competent Person Reserves – Rifan Ahda, MAusIMM / CPI who is a full time employee of PT Adaro Jasabara Indonesia.

3) Competent Person Reserves – Rifan Ahda, MAusIMM / CPI who is a full time employee of PT Adaro Jasabara Indonesia.

4) Decrease in Adaro Indonesia Coal Reserves are due to updated Life of Mine plans and depletion based on 2019 production.

5) Decreases in SCM and LSA Coal Reserves are due to depletion based on 2019 production. A decrease in PCS Coal reserve is due to the implementation of buffers around public roads, rivers, villages and other public infrastructures in its pit design, following existing provincial and national decrees pertaining to good mining practices in open pit mining. The coal reserve in these restricted areas was excluded.

6) Competent Person Reserves is Herwin Syahputra, MAusIMM / CPI who is a full time employee of PT Adaro Jasa Bara Indonesia.

7) Decrease in PT Lahai Coal Haju Coal Reserves is due to depletion based on 2019 production.

8) Competent Person Reserves is Herwin Syahputra, MAusIMM / CPI who is a full time employee of PT Adaro Jasa Bara Indonesia. The increase in PT Maruwai Coal Lampunot coal reserve is due to updated Life of Mine pit design applying revised coal price and production cost parameters. The PT Maruwai Coal Reserves were estimated as at Sept. 30, 2019.

9) Competent Person Reserves is Johanes De Brebeuf, MAusIMM / CP who is a full time employee of PT Adaro Jasabara Indonesia. The decrease in MIP coal reserve is due to updated Life of Mine pit design applying revised coal price and production cost parameters and depletion based on 2019 production.

10) The Kestrel Coal Reserves were estimated as at Oct. 1, 2019. Reserves are reported according to the 2012 JORC Code. The Mineral Reserve estimate was prepared by Bruce Robertson, B.Eng (Mining), FAusIMM, CP, RPEQ, an employee of MEC Mining Pty Ltd. and a Qualified Person under the JORC Code (2012).

1). Perkiraan jarak lubang bor yang digunakan untuk mengklasifikasikan cadangan adalah sebagai berikut:

Cadangan Batu Bara Terbukti	Cadangan Batu Bara Terkira
500m to 1000m spacing of geophysically logged, analysed, drillholes	500m to 1000m spacing of geophysically logged, analysed, drillholes
500m to 750m spacing of geophysically logged, analysed, drillholes	500m to 750m spacing of geophysically logged, analysed, drillholes
500m to 1000m spacing of geophysically logged, analysed, drillholes	500m to 1000m spacing of geophysically logged, analysed, drillholes
250m to 500m spacing of geophysically logged, analysed, drillholes	250m to 500m spacing of geophysically logged, analysed, drillholes
250m to 500m spacing of geophysically logged, analysed, drillholes	250m to 500m spacing of geophysically logged, analysed, drillholes
250m to 500m spacing of geophysically logged, analysed, drillholes	250m to 500m spacing of geophysically logged, analysed, drillholes
250m to 500m spacing of geophysically logged, analysed, drillholes with =>85% recovery	250m to 500m spacing of geophysically logged, analysed, drillholes with =>85% recovery
500m to 750m spacing of geophysically logged, analysed, coreholes with =>85% recovery	500m to 750m spacing of geophysically logged, analysed, coreholes with =>85% recovery
600m to 1160m spacing of geophysically logged, analysed, drillholes	600m to 1160m spacing of geophysically logged, analysed, drillholes

2) Competent Person Reserves – Rifan Ahda, MAusIMM / CPI who is a full time employee of PT Adaro Jasabara Indonesia.

3) Competent Person Reserves – Rifan Ahda, MAusIMM / CPI who is a full time employee of PT Adaro Jasabara Indonesia.

4) Changes in Adaro Indonesia Coal Reserves are due to depletion based on 2019 production. All coal reserves were last estimated as as December 31, 2017.

5) Decreases in SCM and LSA Coal Reserves are due to depletion based on 2019 production. A decrease in PCS Coal reserve is due to the implementation of buffers around public roads, rivers, villages and other public infrastructures in its pit design, following existing provincial and national decrees pertaining to good mining practices in open pit mining. The coal reserve in these restricted areas was excluded.

6) Competent Person Reserves is Herwin Syahputra, MAusIMM / CPI who is a full time employee of PT Adaro Jasa Bara Indonesia.

7) Decrease in PT Lahai Coal Haju Coal Reserves is due to depletion based on 2019 production.

8) Competent Person Reserves is Herwin Syahputra, MAusIMM / CPI who is a full time employee of PT Adaro Jasa Bara Indonesia. The increase in PT Maruwai Coal Lampunot coal reserve is due to updated Life of Mine pit design applying revised coal price and production cost parameters. The PT Maruwai Coal Reserves were estimated as at Sept. 30, 2019.

9) Competent Person Reserves is Johanes De Brebeuf, MAusIMM / CP who is a full time employee of PT Adaro Jasabara Indonesia. The decrease in MIP coal reserve is due to updated Life of Mine pit design applying revised coal price and production cost parameters and depletion based on 2019 production.

10) The Kestrel Coal Reserves were estimated as at Oct. 1, 2019. Reserves are reported according to the 2012 JORC Code. The Mineral Reserve estimate was prepared by Bruce Robertson, B.Eng (Mining), FAusIMM, CP, RPEQ, an employee of MEC Mining Pty Ltd. and a Qualified Person under the JORC Code (2012).

Quality of Adaro's Thermal Coal Resources [Gross As Received Basis] | Kualitas Sumber Daya Batu Bara Termal Grup Adaro (GAR)

Reported according to JORC Code 2012 Edition | Dilaporkan menurut JORC Code 2012 Edition

Operating Company/Project Perusahaan	Locality Lokasi	Estimated as at Dec. 31, 2019 Sesuai perkiraan per 31 Des 2019					Estimated as at Dec. 31, 2018 Sesuai perkiraan per 31 Des 2018					Calculated changes to the quality of Coal Resources 2019 vs. 2018 Perubahan Kualitas Sumber Daya 2019 vs 2018				
		Total Moisture % Total Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Calorific Value Kcal/kg Nilai Kalori Kkal/Kg	Total Moisture % Total Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Calorific Value Kcal/kg Nilai Kalori Kkal/Kg	Total Moisture % Total Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Calorific Value Kcal/kg Nilai Kalori Kkal/Kg
PT Adaro Indonesia ¹	Tutupan	27.9	2.2	35.9	0.11	4,852	27.7	2.4	36.0	0.11	4,848	0.21	-0.19	-0.11	0.00	5
	North Paringin	28.3	3.1	34.0	0.22	4,843	28.6	3.7	33.5	0.25	4,758	-0.33	-0.64	0.53	-0.03	85
	South Paringin	-	-	-	-	-	30.2	3.3	32.8	0.26	4,668	No resources estimated in 2019 Belum ada perkiraan Sumber Daya di 2019				
	Wara I	38.7	3.0	30.6	0.21	3,998	38.8	3.5	30.4	0.28	3,953	-0.08	-0.52	0.17	-0.07	44
	Wara II	43.0	2.8	29.0	0.20	3,594	43.3	3.0	29.1	0.22	3,666	-0.28	-0.18	-0.07	-0.02	-72
	Total Adaro Indonesia (thermal)	33.3	2.6	33.2	0.2	4,423	31.9	2.9	33.7	0.18	4,510	1.33	-0.26	-0.52	-0.01	-87
IUPs at Balangan ²	PT Semesta Centramas	32.4	3.9	33.1	0.08	4,281	32.7	2.0	34.3	0.08	4,452	-0.30	1.85	-1.18	-0.00	-171
	PT Paramitha Cipta Sarana	31.4	6.4	32.2	0.08	4,166	31.0	3.5	33.9	0.08	4,359	0.35	2.89	-1.72	0.00	-193
	PT Laskar Semesta Alam	30.1	3.3	34.4	0.09	4,494	30.1	2.0	34.5	0.08	4,478	-0.00	1.37	-0.13	0.01	16
	Total South Kalimantan (thermal)	33.1	2.7	33.2	0.2	4,421	31.9	2.9	33.7	0.17	4,507	1.20	-0.14	-0.50	-0.02	-86
PT Bhakti Energi Persada	PT Bumi Kaliman Sejahtera	49.5	2.0	25.1	0.08	3,214	47.3	3.6	25.4	0.10	3,272	2.16	-1.61	-0.32	-0.02	-58
	PT Bumi Murau Coal	46.6	2.4	26.4	0.09	3,418	46.3	2.9	26.2	0.09	3,415	0.33	-0.49	0.19	-0.00	3
	PT Birawa Pandu Selaras	47.2	2.4	26.1	0.09	3,400	46.0	3.3	26.2	0.09	3,423	1.21	-0.92	-0.06	-0.00	-23
	PT Khazana Bumi Kaliman	48.5	2.6	25.4	0.08	3,272	47.0	3.5	25.7	0.10	3,329	1.47	-0.92	-0.26	-0.02	-57
	PT Persada Multi Baraw	49.2	2.0	25.2	0.08	3,229	47.8	2.8	25.5	0.10	3,297	1.39	-0.79	-0.29	-0.02	-68
	PT Telen Eco Coal	46.0	2.5	27.3	0.09	3,458	45.2	2.9	27.2	0.11	3,497	0.76	-0.45	0.07	-0.02	-39
	PT Tri Panuntun Persada	41.8	4.5	28.6	0.11	3,535	42.7	2.8	29.4	0.10	3,606	-0.85	1.74	-0.78	0.01	-71
	Total PT Bhakti Energi Persada (thermal)	47.9	2.2	25.9	0.08	3,326	46.9	3.1	25.9	0.10	3,354	0.97	-0.82	-0.02	-0.01	-27
	PT Pari Coal	Melak	No resources estimated in 2019 Belum ada perkiraan Sumber Daya di 2019					No resources estimated in 2019 Belum ada perkiraan Sumber Daya di 2019					No resources estimated in 2019/2018 Belum ada perkiraan Sumber Daya di 2019/2018			
Total East Kalimantan		47.9	2.2	25.9	0.1	3,326	46.9	3.1	25.9	0.10	3,354	1.0	-0.9	-0.0	-0.0	-28
Adaro MetCoal Companies	PT Maruwai Coal - Lampunut (thermal)	10.5	9.7	24.9	0.43	6,861	10.0	9.7	24.9	0.45	6,909	0.5	-0.0	-0.1	-0.0	-48
Total Central Kalimantan		10.5	9.7	24.9	0.43	6,861	10.0	9.7	24.9	0.45	6,909	0.5	-0.0	-0.1	-0.0	-48
PT Mustika Indah Permai ³	Lahat	34.2	5.4	31.2	0.39	4,304	34.1	5.1	31.2	0.46	4,342	0.1	0.3	0.0	-0.1	-38
PT Bukit Enim Energi	Muara Enim	No resources estimated in 2019 Belum ada perkiraan Sumber Daya di 2019					No resources estimated in 2019 Belum ada perkiraan Sumber Daya di 2019					No resources estimated in 2019/2018 Belum ada perkiraan Sumber Daya di 2019/2018				
Total South Sumatra (thermal)		34.2	5.4	31.2	0.39	4,304	34.1	5.1	31.2	0.46	4,342	0.1	0.3	0.0	-0.1	-38
Adaro total bituminous coal resources i.e. MC	PT Maruwai Coal - Lampunut (thermal)	10.5	9.7	24.9	0.43	6,861	10.0	9.7	24.9	0.45	6,909	0.5	-0.0	-0.1	-0.0	-48
Adaro total sub-bituminous coal resources i.e. AI, SCM, LSA, PCS, MIP		33.2	2.9	33.0	0.18	4,411	32.0	3.0	33.6	0.2	4,499	1.2	-0.0	-0.6	-0.0	-88
Adaro total low-rank coal resources i.e. BEP		47.9	2.2	25.9	0.08	3,326	46.9	3.1	25.9	0.1	3,354	1.0	-0.8	-0.0	-0.0	-27

1) PT Adaro Indonesia's coal quality samples have been analysed to ISO standards.

2) Coal quality samples from SCM, LSA and PCS have each been analysed to ISO standards. Changes in SCM and LSA calorific value are from new drill core sampling and analysis.

3) PT Mustika Indah Permai's coal quality samples have been analysed to ISO standards.

1) PT Adaro Indonesia's coal quality samples have been analysed to ISO standards.

2) Coal quality samples from SCM, LSA and PCS have each been analysed to ISO standards. Changes in SCM and LSA calorific value are from new drill core sampling and analysis.

3) PT Mustika Indah Permai's coal quality samples have been analysed to ISO standards.

Quality of Adaro's Thermal Coal Resources (Air Dried Basis) | Kualitas Sumber Daya Batu Bara Termal Grup Adaro (ADB)

Reported according to JORC Code 2012 Edition | Dilaporkan menurut JORC Code 2012 Edition

Operating Company/Project Perusahaan	Locality Lokal	Estimated as at Dec. 31, 2019 Sesuai perkiraan per 31 Des 2019					Estimated as at Dec. 31, 2018 Sesuai perkiraan per 31 Des 2018					Calculated changes to the quality of Coal Resources 2019 vs. 2018 Perubahan Kualitas Sumber Daya 2019 vs 2018				
		Moisture % Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Calorific Value Kcal/kg Nilai Kalori Kkal/Kg	Moisture % Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Calorific Value Kcal/kg Nilai Kalori Kkal/Kg	Moisture % Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Calorific Value Kcal/kg Nilai Kalori Kkal/Kg
		PT Adaro Indonesia 1	Tutupan	20.1	2.5	39.7	0.12	5,378	19.8	2.7	39.9	0.13	5,367	0.3	-0.2	-0.2
	North Paringin	19.8	3.4	38.1	0.25	5,419	20.4	4.1	37.7	0.26	5,343	-0.6	-0.7	0.4	-0.0	76
	South Paringin	-	-	-	-	-	19.1	3.9	38.1	0.31	5,408	No resources estimated in 2019 Belum ada perkiraan Sumber Daya di 2019				
	Wara I	24.0	3.7	37.9	0.26	4,956	24.0	4.4	37.8	0.34	4,907	0.1	-0.6	0.1	-0.1	49
	Wara II	19.3	4.0	41.1	0.28	5,092	19.1	4.4	41.5	0.30	5,230	0.2	-0.4	-0.4	-0.02	-137
	Total Adaro Indonesia (thermal)	21.4	3.1	39.1	0.20	5,204	20.9	3.4	39.2	0.21	5,234	0.5	-0.2	-0.1	-0.02	-30
IUPs at Balangan 2	PT Semesta Centramas	26.2	4.26	36.1	0.09	4,670	26.6	2.3	36.9	0.09	4,848	-0.4	1.9	-0.8	0.00	-178
	PT Paramitha Cipta Sarana	24.9	6.9	35.2	0.09	4,558	23.4	3.9	37.6	0.08	4,767	1.5	3.0	-2.4	0.01	-209
	PT Laskar Semesta Alam	24.7	3.6	37.0	0.1	4,839	23.6	2.1	38.4	0.09	4,887	1.1	1.5	-1.4	0.01	-48
	Total South Kalimantan (thermal)	21.6	3.2	38.9	0.19	5,170	21.0	3.3	39.2	0.21	5,216	0.6	-0.1	-0.2	-0.02	-46
PT Bhakti Energi Persada	PT Bumi Kaliman Sejahtera	14.4	3.4	42.5	0.14	5,444	14.3	5.9	41.4	0.17	5,328	0.1	-2.5	1.1	-0.03	116
	PT Bumi Murau Coal	14.3	3.9	42.3	0.14	5,486	14.0	4.6	41.9	0.15	5,474	0.3	-0.7	0.4	-0.01	12
	PT Birawa Pandu Selaras	13.9	3.9	42.6	0.14	5,543	13.5	5.3	41.9	0.15	5,488	0.4	-1.4	0.7	-0.01	55
	PT Khazana Bumi Kaliman	13.4	4.3	42.7	0.14	5,499	13.4	5.6	41.9	0.16	5,436	0.0	-1.3	0.8	-0.02	63
	PT Persada Multi Baraw	14.5	3.4	42.4	0.13	5,432	14.2	4.6	41.8	0.16	5,418	0.3	-1.2	0.6	-0.03	14
	PT Telen Eco Coal	14.9	3.9	42.9	0.15	5,444	13.5	4.6	42.9	0.17	5,517	1.4	-0.7	0.0	-0.02	-73
	PT Tri Panuntun Persada	13.9	6.7	42.4	0.16	5,235	13.6	4.2	44.4	0.16	5,441	0.3	2.5	-2.0	-0.00	-206
	Total PT Bhakti Energi Persada (thermal)	14.4	3.7	42.5	0.14	5,458	13.6	5.0	42.1	0.16	5,457	0.8	-1.3	0.4	-0.02	1
PT Pari Coal	Melak	No resources estimated in 2019 Belum ada perkiraan Sumber Daya di 2019					No resources estimated in 2018 Belum ada perkiraan Sumber Daya di 2018					No resources estimated in 2019/2018				
Total East Kalimantan	Total East Kalimantan	14.4	3.7	42.5	0.14	5,458	13.6	5.0	42.1	0.16	5,457	0.8	-1.3	0.4	-0.0	1
Adaro MetCoal Companies	PT Maruwai Coal - Lampunut (thermal)	2.0	10.6	27.2	0.47	7,510	2.0	10.5	27.1	0.5	7,525	0.0	0.0	NA	NA	-15
Total Central Kalimantan		2.0	10.6	27.2	0.47	7,510	2.0	10.5	27.1	0.5	7,525	0.0	0.0	NA	NA	-15
PT Mustika Indah Permai 3	Lahat	20.9	6.3	37.6	0.47	5,186	21.3	6.1	37.3	0.55	5,186	-0.4	0.2	0.3	-0.1	0
PT Bukit Enim Energi	Muara Enim	No resources estimated in 2019 Belum ada perkiraan Sumber Daya di 2019					No resources estimated in 2018 Belum ada perkiraan Sumber Daya di 2018					No resources estimated in 2019/2018 Belum ada perkiraan Sumber Daya di 2019/2018				
Total South Sumatra (thermal)		20.9	6.3	37.6	0.5	5,186	21.3	6.1	37.3	0.55	5,186	-0.4	0.2	0.3	-0.1	0
Adaro total bituminous coal resources i.e. MC		2.0	10.6	27.2	0.47	7,510	2.0	10.5	27.1	0.5	7,525	0.0	0.0	NA	NA	-15
Adaro total sub-bituminous coal resources i.e. AI, SCM, LSA, PCS, MIP		21.6	3.5	38.8	0.21	5,172	21.1	3.5	39.1	0.22	5,215	0.5	0.0	-0.3	-0.0	-43
Adaro total low-rank coal resources i.e. BEP		14.4	3.7	42.5	0.14	5,458	13.6	5	42.1	0.16	5,457	0.8	-1.3	0.4	-0.0	1

1) PT Adaro Indonesia's coal quality samples have been analysed to ISO standards.

2) Coal quality samples from SCM, LSA and PCS have each been analysed to ISO standards. Changes in SCM and LSA calorific value are from new drill core sampling and analysis.

3) PT Mustika Indah Permai's coal quality samples have been analysed to ISO standards. Elevated levels of sodium in ash averaging 3% were noted in the 2014 JORC Coal Reserves.

1) PT Adaro Indonesia's coal quality samples have been analysed to ISO standards.

2) Coal quality samples from SCM, LSA and PCS have each been analysed to ISO standards. Changes in SCM and LSA calorific value are from new drill core sampling and analysis.

3) PT Mustika Indah Permai's coal quality samples have been analysed to ISO standards. Elevated levels of sodium in ash averaging 3% were noted in the 2014 JORC Coal Reserves.

Adaro Coal Reserves Quality (Gross As Received Basis) ¹ Kualitas Sumber Daya Batu Bara Grup Adaro (ADB) ¹		Reported according to JORC Code 2012 Edition Dilaporkan menurut JORC Code 2012 Edition															
Operating Company/Project Perusahaan	Locality Lokasi	Estimated as at Dec. 31, 2019 Sesuai perkiraan per 31 Des 2019				Estimated as at Dec. 31, 2018 Diperkirakan pada 31 Desember 2018				Calculated changes to Coal Reserves quality 2019 vs 2018 Perubahan Kualitas Sumber Daya Batu Bara 2019 vs 2018							
		Total Moisture % Total Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Calorific Value Kcal/kg Nilai Kalori Kkal/Kg	Total Moisture % Total Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Calorific Value Kcal/kg Nilai Kalori Kkal/Kg	Total Moisture % Total Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Calorific Value Kcal/kg Nilai Kalori Kkal/Kg	
PT Adaro Indonesia	Tutupan	27.2	2.1	36.6	0.09	4,864	27.2	2.0	36.4	0.09	4,832	-0.1	0.1	0.2	0.00	32	
	North Paringin	25.7	2.3	35.6	0.18	5,121	26.3	2.9	35.2	0.19	5,040	-0.5	-0.6	0.4	-0.01	81	
	South Paringin	No reserves estimated in 2019 Belum ada perkiraan di 2019				No reserves estimated in 2018 Belum ada perkiraan di 2018				No reserves estimated in 2019/2018 Belum ada perkiraan di 2019/2018							
	Wara I	38.9	3.4	30.9	0.21	4,025	39.3	2.8	30.5	0.21	3,983	-0.3	0.6	0.4	0.00	42	
	Wara II	No reserves estimated in 2019 Belum ada perkiraan di 2019				No reserves estimated in 2018 Belum ada perkiraan di 2018				No reserves estimated in 2019/2018 Belum ada perkiraan di 2019/2018							
	Total Adaro Indonesia	31.2	2.6	34.6	0.13	4,581	31.02	2.26	34.5	0.13	4,568	0.2	0.3	0.1	0.00	13	
IUPs at Balangan	PT Semesta Centramas (SCM)	31.6	2.1	34.1	0.08	4,395	31.6	2.1	34.1	0.08	4,395	0.0	0.0	0.0	0.00	0	
	PT Paramitha Cipta Sarana (PCS)	31.7	1.8	33.9	0.07	4,420	31.1	3.7	33.7	0.07	4,341	0.6	-1.9	0.2	0.00	79	
	PT Laskar Semesta Alam (LSA)	31.6	1.7	35.2	0.08	4,571	31.6	1.7	35.2	0.08	4,571	0.0	0.0	0.0	0.00	0	
	Total Balangan Coal	31.6	1.8	34.8	0.08	4,507	31.1	2.2	34.5	0.12	4,484	0.5	-0.4	0.3	-0.04	23	
Total South Kalimantan		31.2	2.4	34.6	0.13	4,571	31.1	2.2	34.5	0.12	4,556	0.1	0.2	0.1	0.00	15	
PT Pari Coal	Melak	No reserves estimated in 2019 Belum ada perkiraan di 2019				No reserves estimated in 2018 Belum ada perkiraan di 2018				No reserves estimated in 2019/2018 Belum ada perkiraan di 2019/2018							
PT Bhakti Energi Persada	Muara Wahau	No reserves estimated in 2019 Belum ada perkiraan di 2019				No reserves estimated in 2018 Belum ada perkiraan di 2018				No reserves estimated in 2019/2018 Belum ada perkiraan di 2019/2018							
Total East Kalimantan		No reserves estimated in 2019 Belum ada perkiraan di 2019				No reserves estimated in 2018 Belum ada perkiraan di 2018				No reserves estimated in 2019/2018 Belum ada perkiraan di 2019/2018							
PT Lahai Coal (Thermal)		6.1	5.3	36.5	0.97	6042	6.2	6.0	36.4	0.85	6,550	-0.1	-0.7	0.1	0.1	-508	
PT Maruwai Coal (Thermal)		10.5	14.3	23.5	0.36	6,251	No thermal coal reserves declared previously Tidak ada cadangan batu bara termal yang dinyatakan sebelumnya										
Total Central Kalimantan		10.4	14.2	23.7	0.37	6,247	6.2	6.0	36.4	0.85	6,550	4.2	9.4	-8.9	-0.4	204	
PT Mustika Indah Permai	Lahat	34.1	5.2	31.2	0.47	4,269	34.1	5.7	31.1	0.40	4,292	0.0	-0.5	0.1	0.07	-23	
PT Bukit Enim Energi	Muara Enim	No reserves estimated in 2019 No reserves estimated in 2019				No reserves estimated in 2018 Belum ada perkiraan di 2018				No reserves estimated in 2019/2018 Belum ada perkiraan di 2019/2018							
Total South Sumatra		34.1	5.2	31.2	0.47	4,269	34.1	5.7	31.1	0.40	4,292	0.0	-0.5	0.1	0.07	-23	

1) Adaro mineable coal qualities are Run of Mine basis.

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Adaro Coal Reserves Quality (Air Dried Basis) ¹ Kualitas Cadangan Batu Bara Grup Adaro (Air Dried Basis) ¹		Reported according to JORC Code 2012 Edition Dilaporkan menurut JORC Code 2012 Edition											
Operating Company/Project Perusahaan	Locality Lokasi	Estimated as at Dec. 31, 2019 Sesuai perkiraan per 31 Des 2019				Estimated as at Dec. 31, 2018 Sesuai perkiraan per 31 Des 2019				Calculated changes to Coal Reserves quality 2019 vs 2018 Perubahan Kualitas Cadangan Batu Bara 2019 vs 2018			
		Moisture % Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Moisture % Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Moisture % Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %
Adaro MetCoal Companies	PT Juloi Coal	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019				No reserves estimated in 2018 Belum ada perkiraan Cadangan di 2018				No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/ 2018			
	PT Kalteng Coal	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019				No reserves estimated in 2018 Belum ada perkiraan Cadangan di 2018				No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/ 2018			
	PT Lahai Coal Marketable (Metallurgical)	2.8	5.8	37.9	1.1	2.9	7.0	36.3	1.0	-0.1	-1.2	1.6	0.07
	PT Maruwai Coal Marketable (Metallurgical)	1.3	4.0	28.4	0.5	NA	4.3	29.3	0.5	NA	-0.3	-0.9	-0.0
	PT Ratah Coal (Metallurgical)	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019				No reserves estimated in 2018 Belum ada perkiraan Cadangan di 2018				No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/ 2018			
	PT Sumber Barito Coal (Metallurgical)	No reserves estimated in 2019 Belum ada perkiraan Cadangan di 2019				No reserves estimated in 2018 Belum ada perkiraan Cadangan di 2018				No reserves estimated in 2019/2018 Belum ada perkiraan Cadangan di 2019/ 2018			
Total Central Kalimantan		1.4	4.0	28.6	0.5	NA	4.4	29.6	0.5	-	-0.4	-1.0	-0.02
Kestrel Coal Mine 2	Central Queensland, Australia	2.1	6.5	34.0	0.6	2.1	6.6	34.0	0.6	0.0	-0.1	0.0	-0.01

1) Coal qualities are for a potential product on an air-dried basis.

1) Coal qualities are for a potential product on an air-dried basis.

Quality of Adaro Metallurgical Coal Resources (Air Dried Basis)¹ | Kualitas Sumber Daya Batu Bara Metalurgi Grup Adaro (ADB)¹

Reported according to JORC Code 2012 Edition | Dilaporkan menurut JORC Code 2012 Edition

Operating Company/Project Perusahaan	Locality Lokasi	Coal quality estimated as at Dec. 31, 2019 Kualitas Batu Bara Sesuai Perkiraan per 31 Des 2019							Coal quality estimated as at Dec. 31, 2018 Kualitas Batu Bara Sesuai Perkiraan per 30 Des 2018					Calculated changes to the quality of Coal Resources 2019 vs. 2018 Perubahan Kualitas Sumber Daya Batu Bara 2019 vs 2018				
		Moisture % Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Yield % Hasil %	Moisture % Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Yield % Hasil %	Moisture % Kelembaban %	Ash % Abu %	Volatile Matter % Zat Terbang %	Total Sulphur % Total Sulfur %	Yield % Hasil %		
Adaro MetCoal	PT Juloi Coal Bumbun (metallurgical/thermal)	110	1.5	11.3	16.9	0.98	82.3	200	1.6	10.6	16.7	0.94	81.4	-0.1	0.7	0.2	0.0	0.9
	PT Juloi Coal Juloi Northwest (metallurgical/thermal)	625	1.20	11.7	25.5	0.55	84.6	639	1.1	11.5	25.0	0.53	84.2	0.1	0.1	0.5	0.0	0.3
	PT Kalteng Coal Luon (metallurgical/thermal; opencut)	13	1.5	9.7	18.0	0.71	82.1	259	1.4	16.3	16.7	1.00	69.0	0.1	-6.6	1.3	-0.3	13.1
	PT Lahai Coal Haju (metallurgical/thermal)	11.3	3.0	5.1	39.2	1.1	-	12	3.0	5.1	39.2	1.08	-	-0.0	-0.0	-0.0	0.01	0.0
	PT Maruwai Coal - Lampunut (metallurgical)	93	1.5	11.3	27.0	0.51	84.9	100	1.4	11.2	26.9	0.54	84.9	0.1	0.1	0.1	-0.0	0.0
	PT Ratah Coal	No resources estimated in 2019 Belum ada perkiraan sumber daya di 2019							No resources estimated in 2018 Belum ada perkiraan sumber daya di 2018					No resources estimated in 2019/2018 Belum ada perkiraan sumber daya di 2019/2018				
	PT Sumber Barito Coal (metallurgical/thermal; opencut)	7	1.9	10.2	17.0	0.68	80.7	131	1.4	16.3	16.6	1.08	68.1	0.5	-6.1	0.4	-0.4	12.6
Total Central Kalimantan		859	1.30	11.44	24.56	0.61	83.13	1,341	1.3	12.7	21.6	0.7	78.6	0.0	-1.26	2.95	-0.13	4.58
Kestrel Coal Mine 3	Central Queensland, Australia	431	2.74	16.9	31.3	0.76	72.8	431	NA	6.6	34.0	0.61	75.6	-	10.30	-2.68	0.15	-2.80

1) Coal qualities are for in-situ coal on an air-dried basis. Adaro MetCoal resource tonnages reported in-situ and subject to % Yield except PT Lahai Coal Haju.

2) Theoretical Yield from bore core analyses.

3) Kestrel Coal Mine coal qualities are for In situ coal qualities with a target 6.5% Ash (A Product) for the GC (German Creek) Seam. Kestrel resource tonnage reported in-situ and subject to % Yield.

1) Coal qualities are for in-situ coal on an air-dried basis. Adaro MetCoal resource tonnages reported in-situ and subject to % Yield except PT Lahai Coal Haju.

2) Theoretical Yield from bore core analyses.

3) Kestrel Coal Mine coal qualities are for In situ coal qualities with a target 6.5% Ash (A Product) for the GC (German Creek) Seam. Kestrel resource tonnage reported in-situ and subject to % Yield.