

▶▶▶ THE ADARO GROUP'S COAL RESOURCES AND RESERVES

SUMBER DAYA DAN CADANGAN BATU BARA GRUP ADARO

Adaro Group's (Equity Adjusted) Consolidated Coal Resources Konsolidasi Sumber Daya Batu Bara Grup Adaro (Disesuaikan per Ekuitas)

Group and Operating Companies Grup dan perusahaan	Resources estimated as at Dec. 31, 2020 ¹ Perkiraan Sumber Daya per 31 Des 2020			
	Total Resources Total Sumber Daya (Mt)	Measured Terukur (Mt)	Indicated Tertunjuk (Mt)	Inferred Tereka (Mt)
Adaro total sub-bituminous Coal Resources: PT Adaro Indonesia, PT Semesta Centramas, PT Paramitha Cipta Sarana, PT Laskar Semesta Alam, PT Mustika Indah Permai	3,356.8	2,593.1	546.3	217.3
Adaro total bituminous Coal Resources: PT Maruwai Coal	8.7	8.4	0.3	0.0
Adaro total metallurgical Coal Resources: Adaro MetCoal, Kestrel Coal Mine, Australia	1007,1	144,3	439,8	423,0
Adaro total low-rank Coal Resources: PT Bhakti Energi Persada	333.8	201.4	125.2	7.2

Adaro Group's (Equity Adjusted) Consolidated Coal Reserved Konsolidasi Cadangan Batu Bara Grup Adaro (Disesuaikan per Ekuitas)

Group and Operating Companies Grup dan perusahaan	Reserves estimated as at Dec. 31, 2020 ¹ Perkiraan Cadangan per 31 Des 2020		
	Total Reserves Total Cadangan (Mt)	Proved Terbukti (Mt)	Probable Terkira (Mt)
Adaro total sub-bituminous Coal Reserves: PT Adaro Indonesia, PT Semesta Centramas, PT Paramitha Cipta Sarana, PT Laskar Semesta Alam, PT Mustika Indah Permai	935.0	892.8	42.3
Adaro total bituminous Coal Reserves: PT Lahai Coal, PT Maruwai Coal	8.1	7.9	0.2
Adaro total metallurgical Coal Reserves: PT Lahai Coal, PT Maruwai Coal, Kestrel Coal Resources, Australia	139,9	87,5	52,4

1) Tonnage has been rounded, hence small differences may occur in the totals.

Resources estimated as at Dec. 31, 2019 ¹ Perkiraan Sumber Daya per 31 Des 2019			
Total Resources Total Sumber Daya (Mt)	Measured Terukur (Mt)	Indicated Tertunjuk (Mt)	Inferred Tereka (Mt)
3,088.0	2,437.0	466.0	185.0
9.0	8.7	0.3	0.0
1,024.0	133.0	441.0	449.0
334.0	201.0	125.0	7.0

Reserves estimated as at Dec. 31, 2019 ¹ Perkiraan Cadangan per 31 Des 2019		
Total Reserves Total Cadangan (Mt)	Proved Terbukti (Mt)	Probable Terkira (Mt)
988.0	872.0	116.0
7.7	7.6	0.2
133.2	77.8	55.4

Adaro Group's Coal Resources | Sumber Daya Batu Bara Grup Adaro
Reported according to JORC Code 2012 Edition | Dilaporkan sesuai Kode JORC Edisi 2012

Operating Company Project Perusahaan	Locality Lokasi	Mining method Metode penambangan	Adaro ownership equity Kepemilikan Saham Grup Adaro [%]	Coal Resources as estimated at Dec. 31, 2020 Perkiraan Su					
				Total Resources Total Sumber Daya (Mt)	Measured Terukur (Mt)	Indicated Tertunjuk (Mt)	Inferred Tereka (Mt)	Moisture Kelembaban % adb	Ash Abu % adb
PT Adaro Indonesia ²	North Tutupan	OC	88.5%	1,011.0	803.1	152.3	55.6	20.6	2.3
	South Tutupan	OC		699.8	544.7	117.8	37.3	20.0	2.7
	North Paringin	OC		213.7	172.1	30.6	11.0	19.8	3.4
	South Paringin	OC		45.2	14.3	24.5	6.3	20.0	3.3
	Wara I	OC		1,043.1	715.5	205.3	122.3	24.0	3.7
	Wara II	OC		314.8	264.2	44.7	6.0	19.3	4.0
Total Adaro Indonesia		OC		3,327.6	2,514.0	575.2	238.4	21.3	3.1
IUPs at Balangan ³	PT Semesta Centramas	OC	75%	70.4	62.4	7.0	1.0	32.8	2.5
	PT Paramitha Cipta Sarana	OC		31.0	20.0	6.0	4.0	24.9	6.9
	PT Laskar Semesta Alam	OC		141.9	111.5	27.0	3.4	30.3	2.2
Total Balangan Coal		OC	75%	243.3	193.9	40.0	8.4	30.3	2.9
PT Bhakti Energi Persada ⁴	PT Bumi Kaliman Sejahtera	OC	10.2%	555.0	243.0	288.0	24.0	14.4	3.4
	PT Bumi Murau Coal	OC		1,110.0	665.0	431.0	13.0	14.3	3.9
	PT Birawa Pandu Selaras	OC		23.0	16.0	6.0	1.0	13.9	3.9
	PT Khazana Bumi Kaliman	OC		177.0	128.0	44.0	6.0	13.4	4.3
	PT Persada Multi Bara	OC		949.0	546.0	380.0	23.0	14.5	3.4
	PT Telen Eco Coal	OC		454.0	373.0	78.0	3.0	14.9	3.9
	PT Tri Panuntun Persada	OC		4.3	3.3	0.7	0.2	13.9	6.7
Total Bhakti Energi Persada		OC	10.2%	3,272.3	1,974.3	1,227.7	70.2	14.4	3.7
Adaro MetCoal	PT Ratah Coal	OC	100%	No resources estimated in 2020 Belum ada per					
	PT Juloi Coal Bumbun (metallurgical/thermal) ⁵	OC		110.0	23.5	34.2	52.3	1.5	11.3
	PT Juloi Coal Juloi Northwest (metallurgical/thermal) ⁵	OC		625.1	-	268.4	356.7	1.2	11.7
	PT Kalteng Coal Luon (metallurgical/thermal) ⁵	OC		12.8	5.9	3.4	3.5	1.6	9.7
	PT Lahai Coal Haju (metallurgical/thermal) ⁶	OC		4.4	3.9	0.5	0.1	2.8	8.7
	PT Maruwai Coal - Lampunut (metallurgical) ⁷	OC		95.8	89.5	6.2	0.1	1.3	4.0
	PT Maruwai Coal - Lampunut (thermal) ⁷	OC		8.7	8.4	0.3	0.0	2.0	10.5
	PT Pari Coal	OC		No resources estimated in 2020 Belum ada per					
PT Sumber Barito Coal (metallurgical/thermal) ⁵	OC	7.0	0.7	4.9	1.4	1.9	10.4		
PT Mustika Indah Permai ⁸	Lahat	OC	75%	306.8	297.1	9.7	0.0	20.9	6.3
PT Bukit Enim Energi	Muara Enim	OC	61%	No resources estimated in 2020 Belum ada per					
Kestrel Coal Resources ⁹	Queensland, Australia	UG	34,6%	442.6	61.6	355.0	26.0	2.9	16.9

- 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. Coal qualities are reported on air dried in situ basis. Tonnage have been rounded, hence small differences may occur in the totals.
- PT Adaro Indonesia's (AI) coal resources were estimated as at Dec. 31, 2020 by AI Strategic Planning Department, Competent Person Indonesia (CPI) is Yansen Palobo, a full time employee of Adaro Indonesia. The decrease in North Paringin and Wara 1 block's attribute total coal resources is due to depletion based on topography end of year 2020. The increase in total of Adaro Indonesia's Coal resources is due to additional coal resources estimates in South Paringin and the updated of application of pit optimisation to define resources economic limit in Tutupan. The Competent Person (CP) was Hani Adi Graha MAusIMM, of PT Adaro Jasabara Indonesia.
- The coal resources at PCS, SCM and LSA were estimated as at Dec. 31, 2020. The CP was Dwiyoiko Trah Urip Taruno MAusIMM, of PT Adaro Jasabara Indonesia. Decrease in SCM and LSA coal resources are due to depletion base on 2020 production. No updated coal resources estimation in PCS during 2020.
- The CP was Hani Adi Graha MAusIMM, of PT Adaro Jasabara Indonesia, and the coal resources were estimated as at Dec. 31, 2019. No updated coal resources estimation during 2020.
- The coal resources in PT Juloi Coal, PT Sumber Barito Coal, and PT Kalteng Coal were estimated as at 31 December 2019, no coal resources estimated in 2020. The CP was Hani Adi Graha MAusIMM, of PT Adaro Jasabara Indonesia.

Sumber Daya Batu Bara per 31 Des 2020 ¹			Coal Resources as estimated at Dec. 31, 2019 Perkiraan Sumber Daya Batu Bara per 31 Des 2019 ¹					
Volatilitas Zat Terbang % adb	Total Sulphur Total Sulfur % adb	Calorific Value Nilai Kalori Kcal/kg adb	Total Resources Total Sumber Daya (Mt)	Moisture Kelembaban % adb	Ash Abu % adb	Volatilitas Zat Terbang % adb	Total Sulphur Total Sulfur % adb	Calorific Value Nilai Kalori Kcal/kg adb
39.9	0.10	5,286	1,435.0	20.1	2.5	39.7	0.12	5,378
39.6	0.14	5,459						
47.4	0.25	5,414	219.0	19.8	3.4	38.1	0.25	5,419
37.7	0.25	5,395						
37.9	0.26	4,956	1,049.0	24.0	3.7	37.9	0.26	4,956
41.1	0.28	5,094	315.0	19.3	4.0	41.1	0.28	5,092
39.8	0.19	5,210	3,019.0	21.4	3.1	39.1	0.20	5,204
36.7	0.09	4,764	73.2	26.2	4.3	36.1	0.09	4,670
35.2	0.09	4,558	31.0	24.9	6.9	35.2	0.09	4,558
37.6	0.09	4,925	144.7	24.7	3.6	37.0	0.10	4,839
37.0	0.09	4,832	248.9	25.2	4.2	36.5	0.10	4,754
42.5	0.14	5,444	555.0	14.4	3.4	42.5	0.14	5,444
42.3	0.14	5,486	1,110.0	14.3	3.9	42.3	0.14	5,486
42.6	0.14	5,543	23.0	13.9	3.9	42.6	0.14	5,543
42.7	0.14	5,499	177.0	13.4	4.3	42.7	0.14	5,499
42.4	0.13	5,432	949.0	14.5	3.4	42.4	0.13	5,432
42.9	0.15	5,444	454.0	14.9	3.9	42.9	0.15	5,444
42.4	0.16	5,235	4.3	13.9	6.7	42.4	0.16	5,235
42.5	0.14	5,458	3,272.3	14.4	3.7	42.5	0.14	5,458
Perkiraan sumber daya di 2020			No resources estimated in 2019 Belum ada perkiraan sumber daya di 2019					
16.9	0.98	-	110.0	1.5	11.3	16.9	0.98	-
25.5	0.55	-	625.1	1.2	11.7	25.5	0.55	-
18.0	0.70	-	12.8	1.6	9.7	18.0	0.70	-
37.9	1.35	-	11.3	3.0	5.1	39.2	1.10	-
28.4	0.50	-	93.0	1.5	11.3	27.0	0.51	-
27.2	0.47	7,509	9.0	2.0	10.6	27.2	0.47	7,510
Perkiraan sumber daya di 2020			No resources estimated in 2019 Belum ada perkiraan sumber daya di 2019					
17.0	0.70	-	7.0	1.9	10.2	17.0	0.68	-
37.6	0.46	5,185	308.2	20.9	6.3	37.6	0.47	5,186
Perkiraan sumber daya di 2020			No resources estimated in 2019 Belum ada perkiraan sumber daya di 2019					
38.0	0.80	-	427.9	2.7	16.9	38.0	0.80	-

6. A significant decrease in PT Lahai Coal resource is due to the use of pit optimisation to define the resources economic limit.

7. The PT Maruwai Coal - Lampun Coal Resources were estimated as at Dec. 31, 2020. An increase in PT Maruwai Coal metallurgical coal resources is attributable to the coal resource pit update applying a revised river realignment.

8. The resources were estimated in Dec. 31, 2020. The CP was Hani Adi Graha MAusIMM, of PT Adaro Jababara Indonesia. The decrease in MIP's coal resources is due to depletion base on 2020 production.

9. The Kestrel Coal Resources were estimated as at Oct. 1, 2020. The Kestrel Coal Resources are inclusive of Marketable Coal Reserves. The CP was Christopher Speedy, MAusIMM, MAIG RPGeo, an independent consultant engaged by Kestrel Coal Resources Pty Ltd. Overall increase of resources is attributable to limit adjustment and addition of indicated resource, that was previously categorised as sterilised ground. The coal qualities are for in-situ coal raw qualities for the GC (German Creek) Seam. Kestrel resource tonnage reported in-situ.

Adaro Group's Thermal Coal Reserves | Cadangan Batu Bara Termal Grup Adaro
Reported according to JORC Code 2012 Edition | Dilaporkan sesuai Kode JORC Edisi 2012

Operating Company Project Perusahaan	Locality Lokasi	Mining method Metode penambangan	Adaro ownership equity Kepemilikan Saham Grup Adaro (%)	Total Coal Reserves Total Cadangan Batu Bara (Mt)	Coal Res
PT Adaro Indonesia	North Tutupan ^{4,5}	OC	88.5%	395.6	
	South Tutupan ^{4,5}	OC		93.4	
	North Paringin ^{4,5}	OC		10.1	
	South Paringin	OC			
	Wara I ^{4,5}	OC		275.3	
	Wara II	OC			
Total Adaro Indonesia		OC		774.3	
IUPs at Balangan	PT Semesta Centramas ^{4,7}	OC	75%	42.5	
	PT Paramitha Cipta Sarana ⁴	OC		12.0	
	PT Laskar Semesta Alam ^{4,7}	OC		65.8	
Total Balangan Coal		OC		120.3	
PT Bhakti Energi Persada	Muara Wahau	OC	10.2%		
Adaro MetCoal	PT Pari Coal	OC	100%		
	PT Lahai Coal (Thermal) 8,9	OC		0.2	
	PT Maruwai Coal (Thermal) 10	OC		8.0	
PT Mustika Indah Permai ¹¹	Lahat	OC	75%	212.7	
PT Bukit Enim Energi	Muara Enim	OC	61%		

Adaro Group's Metallurgical Coal Reserves | Cadangan Batu Bara Metalurgi Grup Adaro

Reported according to JORC Code 2012 Edition | Dilaporkan sesuai Kode JORC Edisi 2012

Operating Company Project Perusahaan	Locality Lokasi	Mining method Metode penambangan	Adaro ownership equity Kepemilikan Saham Grup Adaro (%)	Total Coal Reserves Total Cadangan Batu Bara (Mt)	Coal Res
Adaro MetCoal	PT Juloi Coal	OC	100%		
	PT Kalteng Coal	OC			
	PT Lahai Coal 8,9	OC		2.4	
	PT Maruwai Coal 10	OC		78.6	
	PT Ratah Coal	OC			
	PT Sumber Barito Coal	OC			
Kestrel Coal Resources ¹²	Queensland, Australia	UG	34,6%	170.5	

1) Only drill hole with geophysically logged and quality analysed were used for reserves classification. Approximate drill hole spacings used to classify reserves are as below:

Deposit	Proved Coal Reserves	Proved and Probable Coal Reserves
Adaro Indonesia	250m to 500m spacing, 95% coal recovery	>500m to 1,000m spacing, 95% coal recovery
Balangan Coal	Maximum 250m spacing, 95% coal recovery	Maximum 500m spacing, 95% coal recovery
PT Lahai Coal (Metallurgical, Thermal)	Maximum 250m spacing, 85% coal recovery	Maximum 500m spacing, 85% coal recovery
PT Maruwai Coal (Metallurgical, Thermal)	Maximum 500m spacing, 85% coal recovery	Maximum 1,000m spacing, 85% coal recovery
PT Mustika Indah Permai	Maximum 500m spacing, 95% coal recovery	Maximum 1,000m spacing, 95% coal recovery

2) Adaro mineable coal qualities are Run of Mine basis. Tonnage have been rounded, hence small differences may occur in the totals.

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

4) Competent Person Reserves - Rara Nastiti, MAusIMM who is a full time employee of PT Adaro Jasabara Indonesia.

5) Decrease in Adaro Indonesia Coal Reserves is due to updated Life of Mine plans reported in JORC Reserves Statement as at Dec 31, 2019, depleted by 2020 production.

6) Competent Person Reserves - Rara Nastiti, MAusIMM who is a full time employee of PT Adaro Jasabara Indonesia.

7) Decrease in LSA Coal Reserves and increase in SCM Coal Reserves are due to updated Life of Mine plans and updated geology model reported in JORC Reserves Statement Dec 31, 2019, depleted by 2020 production.

8) Competent Person Reserves - Herwin Syahputra, MAusIMM / CPI who is a full time employee of PT Adaro Jasabara Indonesia.

9) Increase in PT Lahai Coal is due to updated Life of Mine pit design applying revised economic parameters.

10) Competent Person Reserves - Herwin Syahputra, MAusIMM / CPI who is a full time employee of PT Adaro Jasabara Indonesia. The increase in PT Maruwai Coal Lampun coal reserve is due to updated Life of Mine pit design applying revised economic and technical parameters.

11) Competent Person Reserves - Johannes De Brebeuf, MAusIMM / CPI who is a full time employee of PT Mustika Indah Permai. The decrease in MIP coal reserve is due to depletion based on 2020 production.

12) The Kestrel Coal Reserve were estimated as at Oct. 1, 2020. The CP was Geoffrey Watson, MSc, MAusIMM, CPI(Min), RPEQ, a full time employee of Kestrel Coal Resources Pty Ltd. Overall increase of coal reserve is attributable through the addition of the 700 District and additional LW500 panel. Other changes have occurred with the mine design, geological information and technical assumptions.

Reserves as estimated at Dec. 31, 2020 Perkiraan Cadangan Batu Bara per 31 Des 2020 ^{1,2}							Coal Reserves as estimated at Dec. 31, 2019 Perkiraan Cadangan per 31 Des 2019 ^{1,2}					
Proved Terbukti (Mt)	Probable Terkira (Mt)	Total Moisture Kelembaban % ar	Ash Abu % ar	Volatile Matter Zat Terbang % ar	Total Sulphur Total Sulfur % ar	Calorific Value Nilai Kalori Kcal/kg ar	Total Coal Reserves Total Cadangan Batu Bara (Mt)	Total Moisture Kelembaban % ar	Ash Abu % ar	Volatile Matter Zat Terbang % ar	Total Sulphur Total Sulfur % ar	Calorific Value Nilai Kalori Kcal/kg ar
377.6	18.0	27.1	1.9	36.7	0.09	4,831						
90.6	2.8	27.4	1.8	36.2	0.11	5,001	524.2	27.2	2.1	36.6	0.09	4,864
9.6	0.6	25.4	2.3	35.8	0.18	5,148	15.7	25.7	2.3	35.6	0.18	5,121
No reserves estimated in 2020 Belum ada perkiraan cadangan di 2020							No reserves estimated in 2019 Belum ada perkiraan cadangan di 2019					
261.5	13.8	39.0	3.7	30.6	0.21	3,987	281.2	38.9	3.4	30.9	0.21	4,025
No reserves estimated in 2020 Belum ada perkiraan cadangan di 2020							No reserves estimated in 2019 Belum ada perkiraan cadangan di 2019					
739.2	35.1	31.4	2.5	34.4	0.13	4,573	821.1	31.2	2.6	34.6	0.13	4,581
40.8	1.8	31.7	3.3	33.8	0.08	4,359	39.0	31.6	2.1	34.1	0.08	4,395
9.0	3.0	31.7	1.8	33.9	0.07	4,420	12.0	31.7	1.8	33.9	0.07	4,420
60.7	5.1	30.0	3.1	34.8	0.09	4,508	84.0	31.6	1.7	35.2	0.08	4,571
110.4	9.9	30.8	3.1	34.4	0.08	4,446	135.0	31.6	1.8	34.8	0.08	4,507
No reserves estimated in 2020 Belum ada perkiraan cadangan di 2020							No reserves estimated in 2019 Belum ada perkiraan cadangan di 2019					
No reserves estimated in 2020 Belum ada perkiraan cadangan di 2020							No reserves estimated in 2019 Belum ada perkiraan cadangan di 2019					
0.2	0.0	9.0	9.3	33.1	1.54	5,777	0.1	6.1	5.3	36.5	0.97	6,042
7.8	0.2	10.5	14.3	23.5	0.37	6,251	7.6	10.5	14.3	23.5	0.36	6,251
207.7	5.0	34.1	5.2	31.2	0.47	4,269	214.0	34.1	5.2	31.2	0.47	4,269
No reserves estimated in 2020 Belum ada perkiraan cadangan di 2020							No reserves estimated in 2019 Belum ada perkiraan cadangan di 2019					

Estimated Reserves as at Dec. 31, 2020 Perkiraan Cadangan per 31 Des 2020 ^{1,2,3}						Estimated Reserves as at Dec. 31, 2019 Perkiraan Cadangan per 31 Des 2019 ^{1,2,3}				
Proved Terbukti (Mt)	Probable Terkira (Mt)	Moisture Kelembaban % adb	Ash Abu % adb	Volatile Matter Zat Terbang % adb	Total Sulphur Total Sulfur % adb	Total Coal Reserves Total Cadangan Batu Bara (Mt)	Moisture Kelembaban % adb	Ash Abu % adb	Volatile Matter Zat Terbang % adb	Total Sulphur Total Sulfur % adb
No reserves estimated in 2020 Belum ada perkiraan cadangan di 2020						No reserves estimated in 2019 Belum ada perkiraan cadangan di 2019				
No reserves estimated in 2020 Belum ada perkiraan cadangan di 2020						No reserves estimated in 2019 Belum ada perkiraan cadangan di 2019				
2.3	0.0	2.8	7.0	35.7	1.03	1.6	2.8	5.8	37.9	1.10
73.4	5.2	1.3	4.0	28.4	0.50	76.1	1.3	4.0	28.4	0.50
No reserves estimated in 2020 Belum ada perkiraan cadangan di 2020						No reserves estimated in 2019 Belum ada perkiraan cadangan di 2019				
No reserves estimated in 2020 Belum ada perkiraan cadangan di 2020						No reserves estimated in 2019 Belum ada perkiraan cadangan di 2019				
34.2	136.3	2.8	6.5	38.0	0.60	144.6	2.1	6.5	34.0	0.60