



**Ash Development
Association of Australia**

Ash Development Association of Australia

Annual Membership Survey Results

January - December 2010

Prepared by
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Membership Survey Results: 2010

The Ash Development Association of Australia (ADAA) conducts an annual survey of production and sales of coal combustion products (CCPs). Information collected includes CCPs production and sales by members and non-members for each calendar year. This report provides results for the 2010 calendar year.

Information provided by members¹ and non-members² is collated and then aggregated into a national set of results and include CCP production levels, and nominated uses for all CCP products. For the calendar period January to December 2010, approximately 41% of all CCPs produced were effectively utilised³ within various civil and construction applications throughout Australasia.

The survey results include all generators⁴, marketers⁵ and users for the total production and resulting sales by each end use. Where required, data is supplemented with importation data and other secondary data⁶ sources for accuracy purposes.

The key results for the calendar period 2010 survey were:

- Approximately 14.1Mt (million tonnes) of CCPs were produced within Australasia. On a per capita basis⁷, this equates to about 640 kg/person.
- Some 5.8Mt or 41% of CCPs produced have been effectively utilised in various value-added products or to some beneficial end over the period. On a per capita basis, this equates to about 263kg/person recycled or reused.
- Approximately 1.9 Mt or 14% was used in high value-added applications such as cementitious applications or concrete manufacture.
- About 0.5 Mt or 4% was used in non-cementitious applications
- Some 3.4 Mt or 24% was used in projects offering some beneficial use (e.g. onsite mine site remediation, local haul roads etc.). These uses typically generate no economic return, that is, cost avoidance or recovery only.
- Surplus CCPs or 8.3 Mt are typically placed into onsite storage ponds awaiting some future opportunity for economic reuse.
- More than 30.9 Mt of CCPs [fly ash] have been used in cementitious applications or concrete manufacture from 1975 to 2010 [35 years]

¹ <http://www.adaa.asn.au/membership.htm>

² MacGen and Bluewater Power station

³ “Effective utilisation” is the sale or utilisation recoverable mineral resources into a valued added construction application that provides both commercial returns [revenue] return on investment or an economic profit [avoided expense], and use is consistent with the criteria of ecologically sustainable development (EDS) principles

⁴ Generator – means a company who generates coal powered electricity and produces CCPs as a by-product and has been admitted as a member. CCPs can be supplied to a processor, consumers or value adders.

⁵ Value adder – means a company who processes, mixes, blends, or otherwise incorporates CCPs to produce products for supply to consumers or other value adders. [A value adder typically incorporates owned intellectual property]

⁶ Company annual reports and other published data sources

⁷ Population estimate of 22,000,000

In summary the recovery and reuse of CCPs provide significant positive environmental impacts, including resource conservation and in this case, the reduction of greenhouse gas emissions from the processing of virgin resources.

The following table provides more detail for individual category sales of CCPs for the 2010 calendar year.

Table 1 - 2010 CCP Sales and Production Survey⁸

Ash Development Association of Australia						
2010 Membership Survey - CCP Production & Use Survey						
SECTION A. Fuel or Coal Used	Tonnes Consumed	Avg % Ash Content	Ash (Auto-Calc)			
Bituminous (Black Coal)	48,394,200	23.86%	11,450,056			
Sub-bituminous	6,980,475	14.12%	982,805			
Lignite (Brown Coal)	64,225,015	2.56%	1,643,857			
Total Coal Burned (Auto-calc)	119,579,690	11.77%	14,076,719			
SECTION B. CCPs Beneficial Use Calculations (Tonnes)	Fly Ash	Bottom Ash	Cenospheres	Combined 2010	Combined 2009	Combined 2008
1. Total Produced in 2010 (Jan-Dec)	12,248,670	1,809,258	18,305	14,076,233	13,755,682	14,638,323
2. Total 2010 Production not used [Stored]	9,126,956	1,224,662	14,082	10,365,700	9,053,178	12,246,852
4. Total of 2010 Production Used (Auto-Calc)	3,121,713	584,596	4,223	3,710,533	4,702,504	2,391,471
5. Amount removed or diverted from storage during 2010	2,073,353	28,630	0	2,101,983	2,037,200	2,192,625
6. Total of All Used in 2010 (Auto-Calc)*	5,195,066	613,226	4,223	5,812,516	4,702,504	4,584,096
SECTION C. CCP Use (Tonnes)	Fly Ash	Bottom Ash	Cenospheres	Combined (Auto-Calc)	Combined (Auto-Calc)	Combined (Auto-Calc)
C1. Cement/Concrete Products /Grout	1,667,354	218,414	4,223	1,889,991	1,571,495	1,757,379
C1. Cement/ Raw Feed for Clinker	0	0	0	0	0	0
C1. Mineral Fillers	0	0	0	0	0	30,000
Category 1	1,667,354	218,414	4,223	1,889,991	1,571,495	1,787,379
C2. Flowable Fill CLSM	0	35,000	0	35,000	22,180	215,000
C2. Structural Fills/Embankments	90,685	12,820	0	103,505	12,820	227,821
C2. Road Base/Sub-base	57,731	262,603	0	320,334	476,360	0
C2. Soil Modification/Stabilization	10,936	789	0	11,725	10,936	30,000
C2. Mineral Filler in Asphalt	8,787	0	0	8,787	8,787	7,209
C2. Agriculture	0	0	0	0	0	0
C2. Aggregate	0	5,708	0	5,708	708	0
Category 2	168,139	316,920	0	485,059	531,791	480,030
C3. Mining Applications (e.g. Backfill)	83,000	0	0	83,000	107,500	275
C3. Waste Stabilization/Solidification	6,443	3	0	6,446	6,443	8,991
C3. Miscellaneous/Other	0	1	0	1	0	0
Category 3	89,443	4	0	89,447	113,943	9,266
Total Use (C1, C2, C3)*(Auto-calc)	1,924,936	535,338	4,223	2,464,497	2,217,229	2,276,675
SECTION D. Summary Results	Fly Ash	Bottom Ash	Cenospheres	Combined (Auto-Calc)	Combined (Auto-Calc)	Combined (Auto-Calc)
7. Total of All Sold in 2010 (Auto-Calc)*	1,924,936	535,338	4,223	2,464,497	2,217,229	2,276,675
6. Total of All Beneficially Used in 2010 (Auto-Calc)*	5,195,066	613,226	4,223	5,812,516	4,254,429	4,469,300

Ash Development Association of Australia Inc
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⁸ Data presented in this table are aggregated based on member and non-member responses. Where appropriate for non-members estimates are given based on published public reports. Coverage of data represents all coal fired power stations.