

RESEARCH NOTE 3

September 2012

Geographical analysis of solar systems under the Renewable Energy Target

This Research Note has been prepared by Green Energy Markets for the REC Agents Association and analyses the installation of solar PV and solar water heater (SWH) systems that have claimed Renewable Energy Certificates (RECs) under the Renewable Energy Target (RET). This analysis utilises data published by the Clean Energy Regulator on the number of solar systems that have been installed and claimed RECs by postcode.

Four million Australians now have solar on the roofs of their homes and businesses, supported by the RET. Most solar systems are in outer metropolitan and regional communities. This analysis shatters the myth that the RET amounts to upper and middle class welfare.

Key findings:

- most solar systems (53%) were installed in regional and rural communities with only 43% installed in the major capital cities;
- the level of solar penetration amounted to 13% in the major capital cities of Australia (representing 58% of households) and was 21% outside of the major capital cities (60% higher penetration);
- of the systems installed in capital cities, those suburbs with the highest penetration (number of systems installed in suburb divided by the number of dwellings in that suburb) were typically in the outer metropolitan mortgage belt;
- there was a slight inverse relationship between average incomes and solar penetration levels;
- the suburbs with the highest income levels did not correspond to those with highest penetration, the opposite was more likely;
- The suburbs with the highest penetration of solar systems in each states tended to be either regional or outer metropolitan; and
- The six suburbs in Australia with the largest number of solar systems are¹:
 - Coodanup, WA, near Mandurah, 70 km south of Perth - 9,463 systems (30% of houses)
 - Abbotsford, Qld, near Bundaberg, 310 km north of Brisbane – 9,029 systems (26% of houses)
 - Booral, Qld, near Maryborough, 236 km north of Brisbane – 8,823 systems (34% of houses)
 - Cocoroc, Vic, near Werribee, 38 km west of Melbourne – 8,426 systems (29% of houses)
 - Hoppers Crossing, Vic, near Werribee, 24 km west of Melbourne – 8,138 systems (34% of houses)
 - Bentley, NSW, near Ballina, 595 km north of Sydney – 7,673 systems (39% of dwellings)

Sections covered by this Research Note

This Research Note analyses the following key attributes of solar installations:

1. Solar system penetration and income levels by postcode
2. Urban classification and solar system penetration
3. Top 20 suburbs in each state by solar PV and SWH system penetration

¹ A number of houses may have both Solar PV and SWH systems installed so the penetration rate may be slightly lower.

1. Solar system penetration and income levels by postcode

It has been often stated that the RET in so far as it supported solar amounted to upper and middle class welfare. Using data on the installation of solar systems by postcode we sought to put the spotlight on this contention.

At a suburb level there was no correlation at all between income levels and solar penetration. In fact the opposite was the case with a higher penetration of solar systems in lower income suburbs (refer to Figure 1). The slope of the line indicates an inverse relationship between system penetration and income levels.

The key determinants of solar penetration on a suburb basis are more likely to be things such as (i) level of home ownership, (ii) level of detached and semi-detached dwellings (ie. available roof space) and (iii) level of new home and renovation activity².

Figure 1 – Solar system penetration by postcode compared to income levels

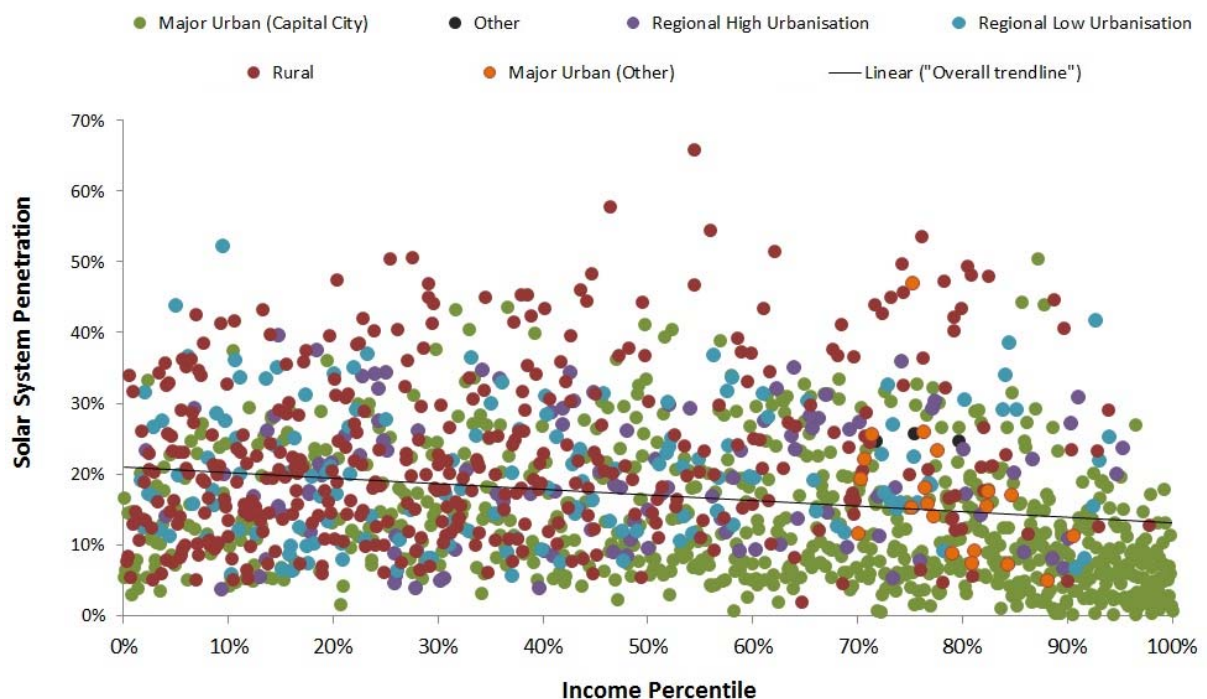


Figure 1 plots each postcode we have available data for on a scatter plot. Its place on the scatter plot is determined by the income percentile and solar system penetration associated with the postcode. A third parameter is the relevant urban classification of each postcode—this is represented by the colour of the marker. A rich capital city postcode with low solar penetration will be green and at the bottom right of the graph, while a poor rural postcode with high solar penetration will be red and at the top left. The methodology for this analysis is explained below.

² A number of builders offer attractive solar packages and in many states building regulations support a low greenhouse hot water systems to be installed

Solar Penetration

To estimate solar system penetration for each Australian postcode (as used in Figure 1) we used total systems installed at each postcode divided by total number of dwellings at each postcode. Statistics on dwellings were available from the Australian Bureau of Statistics (ABS) and the latest 2011 census data.

Traditionally analysis of system penetration focusses on total systems installed divided by the available market for solar installations. The available market for solar installations is considerably less than total dwelling numbers and, with a few exceptions, is often confined to owner-occupied semi-detached or detached houses. For example, the total number of dwellings in Australia (as per 2011 census data) is 9.14 million, yet only 51.2 percent of total dwellings (4.68 million) are available for solar installations (likely to be higher for reasons explained in following paragraph).

We have used total dwellings, as opposed to owner-occupied semi-detached or detached houses because we believe the census data, for reasons out of the control of the ABS, fails to paint an accurate picture of the quantity of owner-occupied semi-detached or detached houses. This is because 15.9 percent (1.45 million) of census dwelling numbers are attributed to 'not stated' and 'not applicable' dwelling types. For whatever reason (unattended holiday homes for example) a portion of these are likely to be owner-occupied semi-detached or detached houses and therefore if we used 4.68 million as an estimate of owner-occupied semi-detached or detached houses we would probably overstate penetration figures. Further we do not know what portion of the 1.45 million 'not stated' and 'not applicable' dwellings are conducive to solar installations or whether this 'portion' is consistent across all postcodes. It is worth noting that because we used total dwellings for each postcode we have probably understated solar penetration.

Each quarter the Clean Energy Regulator releases installation figures for Small Generation Units (SGUs) and Solar Water Heaters (SWH). These figures are at the postcode level and to achieve penetration rates for each postcode we simply took the total number of installations (solar PV, SWH and Air Source Heat Pump) and divided them by the total number of dwellings at each postcode. Using this approach may in some cases act to overstate penetration levels. This is because we have treated each installation (whether solar PV or solar hot water) as a separate installation at a different dwelling. In some cases a dwelling may have both solar PV and solar hot water installed but there is no way of knowing which dwellings have more than one solar installation.

Not all solar PV and SWH systems installed will create RECs, a small proportion may either (i) not meet requirements or (ii) may not bother creating certificates due to complexities in creation³.

Income measurements

Using average income for each postcode is one way we can characterise each postcode. The Australian Tax Office (ATO) releases a summary of tax returns for each financial year; this publication includes average taxable income for each postcode in each state. We used financial information from the most recent ATO publication: '*Taxation Statistics 2009–10*'.

Ordering or ranking average income provides insight into how a particular postcode fits within the broader average taxable incomes of all postcodes. For each average taxable income we calculated its percentile – the 100th percentile was an average taxable income of \$182,254 and \$39,998 was the 0.07% percentile.

³ Solar systems installed in new homes have more complexity in certificate creation

2. Solar system penetration and urban classification

Urban Classification

In the 'Taxation Statistics 2009–10' publication the ATO classifies the urban environment in which each postcode lies. We have adopted the urban classification definition used by the ATO. Each postcode, according to specific criteria, falls into one of the six categories included in Table 1.

Table 1 - Solar system penetration and income statistics by urban classification

	ATO Classification	ATO criteria
1	Major urban (Capital city)	Postcodes in capital city urban centres
2	Other Urban (we have used Major urban (other))	Postcodes in urban centres with population greater than 50,000 persons (excluding capital cities)
3	Regional-high urbanisation	Postcodes in urban centres with population between 10,000 and 50,000 persons
4	Regional-low urbanisation	Postcodes in urban centres with population between 3,000 and 10,000 persons
5	Rural	All other postcodes (includes urban centres with population less than 3,000 persons and all other sparsely settled areas)
6	Other	Postcodes listed by Australia Post as valid but not in use, special PO boxes and other special mailing postcodes

We assigned system installation quantities to each of the six urban classifications used by the ATO. For each postcode that had available system installation data (from the CER) and associated urban classification (as per the ATO definition) we aggregated system installation figures up to the level of urban classification.

Table 2 - Solar system penetration and income statistics by urban classification

Urban Classification	Number of systems	% share of total systems	Number of dwellings	% share of total dwellings	Average penetration	Average Income (per dwelling)
Major Urban (Capital City)	662,240	46.7%	5,068,447	57.9%	13.1%	\$ 69,491
Major Urban (Other)	191,523	13.5%	1,111,786	12.7%	17.2%	\$ 52,008
Regional High Urbanisation	221,416	15.6%	1,067,421	12.2%	20.7%	\$ 48,776
Regional Low Urbanisation	120,404	8.5%	581,306	6.6%	20.7%	\$ 42,985
Rural	221,584	15.6%	913,519	10.4%	24.3%	\$ 43,119
Other	1,311	0.1%	5,262	0.1%	24.9%	\$ 54,079
Total Australia	1,418,478	100.0%	8,747,741	100.0%	16.2%	\$ 60,216

Due to the inadequacy of some of the postcode data we used only 1,500 (50 percent) of the total 2,988 postcodes (postcodes for SGU, SWH and ASHP). The inadequacy of most of the postcode data came from two sources:

- Some postcodes were either no longer in use or were used under special circumstances. While this meant installation data was available, data from other sources (income, urban classification and/or dwelling data sources for example) was not available;

- Certain postcodes had a combination of low dwelling and high installations figures, this created questionable penetration levels. To address this issue we restricted the postcodes to those with >1,000 dwellings.

System penetration for each postcode (and ultimately for each urban classification) was calculated using dwelling numbers from the 2011 census (ABS).

We did not use average taxable income per person for analysis in this table but rather total taxable income for the postcode (ATO) divided by total number dwellings in the postcode (ABS).

We took the total number of systems and divided it by the total number of dwellings to achieve an average penetration for each urban classification.

It is important to note that while only 50 percent of the postcodes were used in this analysis, the 1,500 used constituted:

1. 1,418,478 systems which is 94.7 percent of the total (1,497,686 systems);
2. 8,747,741 dwellings which is 95.7 percent of the total (9,137,471 dwellings);

3. Top 20 suburbs in each state

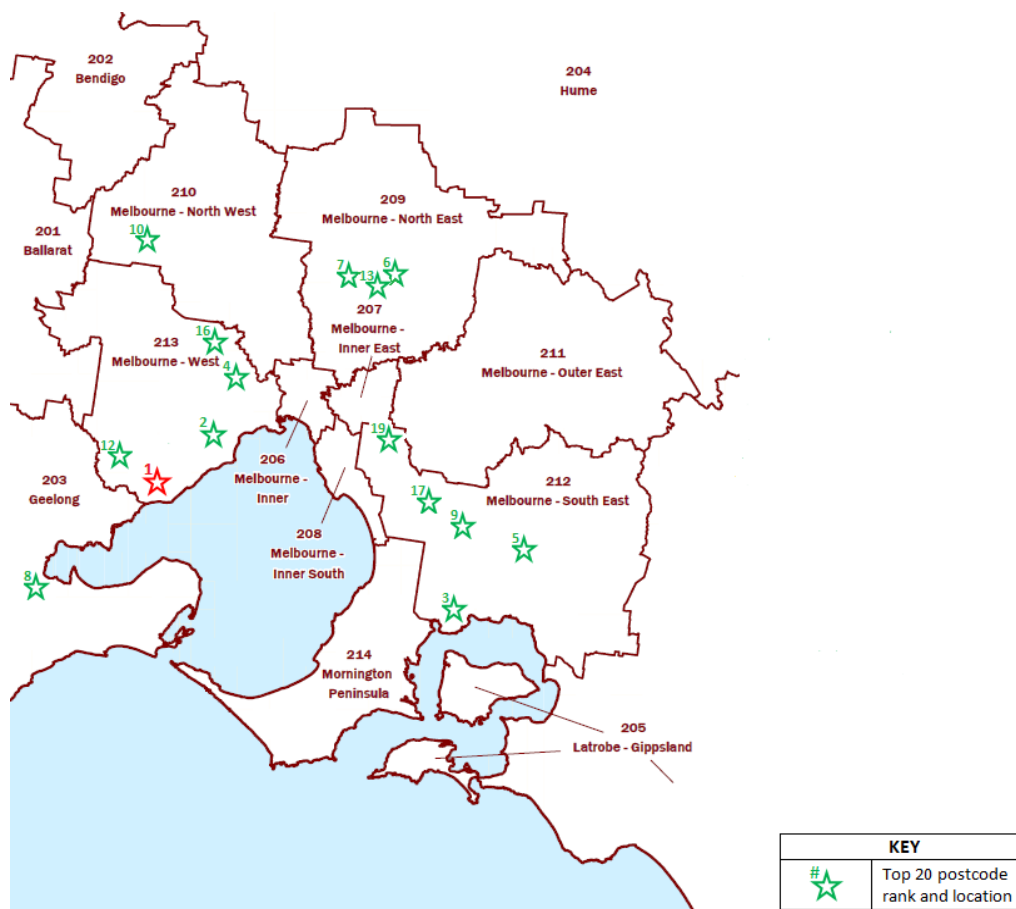
As part of our analysis we specifically identified those suburbs in each state with the highest level of system installations. In the case of Victoria, NSW and Queensland we also include a geographical summary. The analysis is included in the following attachments:

- Attachment 1 – Geographical distribution of solar systems in Victoria
- Attachment 2 – Geographical distribution of solar systems in NSW
- Attachment 3 – Geographical distribution of solar systems in Queensland
- Attachment 4 – Top 20 solar PV and SWH suburbs by state

Key findings of this analysis were:

- The 20 suburbs with the largest number of solar systems in Victoria accounted for 27% of total installations in the state;
- The suburbs in Victoria with the largest number of systems (and highest penetration) tended to be in outer metropolitan areas
- The 20 suburbs with the largest number of solar systems in NSW accounted for 22% of total installations in the state;
- Unlike in Victoria, the suburbs in NSW with the largest number of systems (and highest penetration) tended to be in regional areas;
- The 20 suburbs with the largest number of solar systems in Queensland accounted for 27% of total installations in the state; and
- The suburbs Queensland with the largest number of systems (and highest penetration) tended to be split between outer metropolitan areas and regional areas.

Attachment 1 – Geographical distribution of solar systems in Victoria



Rank	Postcode	Suburb	Distance from CBD (km)	Total installations	Penetration (%)
1	3030	Cocoroc	38.4	8,426	29.0
2	3029	Hoppers Crossing	24.3	8,138	33.6
3	3977	Cannons Creek	54.0	6,170	25.1
4	3023	Burnside	19.2	5,306	28.3
5	3810	Pakenham	54.4	4,426	32.2
6	3754	Doreen	27.7	4,309	65.8
7	3064	Craigieburn	24.1	3,936	23.4
8	3216	Belmont	67.7	3,053	13.9
9	3806	Berwick	41.4	2,777	17.1
10	3337	Kurunjang	35.8	2,772	22.7
11	3551	Arnold (Bendigo region off map)	159.0	2,715	30.3
12	3024	Mambourin	38.8	2,490	37.5
13	3076	Epping	19.9	2,364	25.8
14	3500	Mildura (Nth West region off map)	475.8	2,361	16.9
15	3350	Alfredton (Ballarat region off map)	106.6	2,322	9.7
16	3037	Delahey	20.1	2,312	15.2
17	3805	Fountain Gate	37.7	2,182	12.2
18	3550	Bendigo (Bendigo region off map)	132.2	2,152	11.9
19	3150	Brandon Park	19.9	2,006	9.2
20	3630	Branditt (Shepparton region off map)	166.3	1,948	15.5

Total top 20 (29.2% of total installations)

72,165

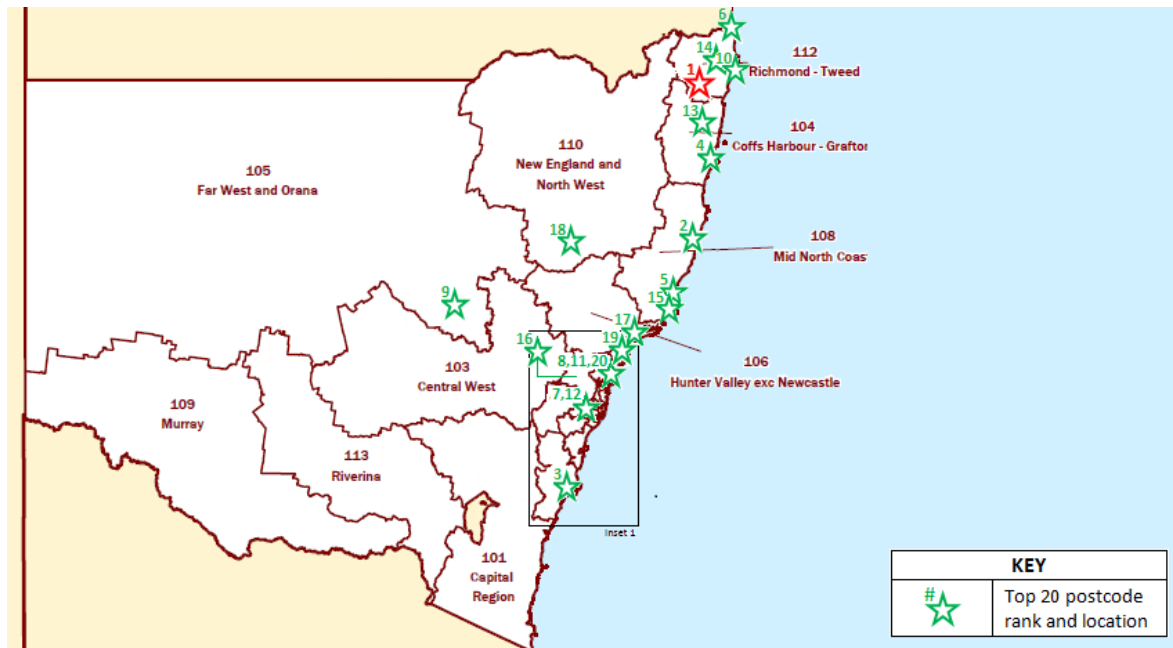
Total other (70.8% of total installations)

199,124

Total

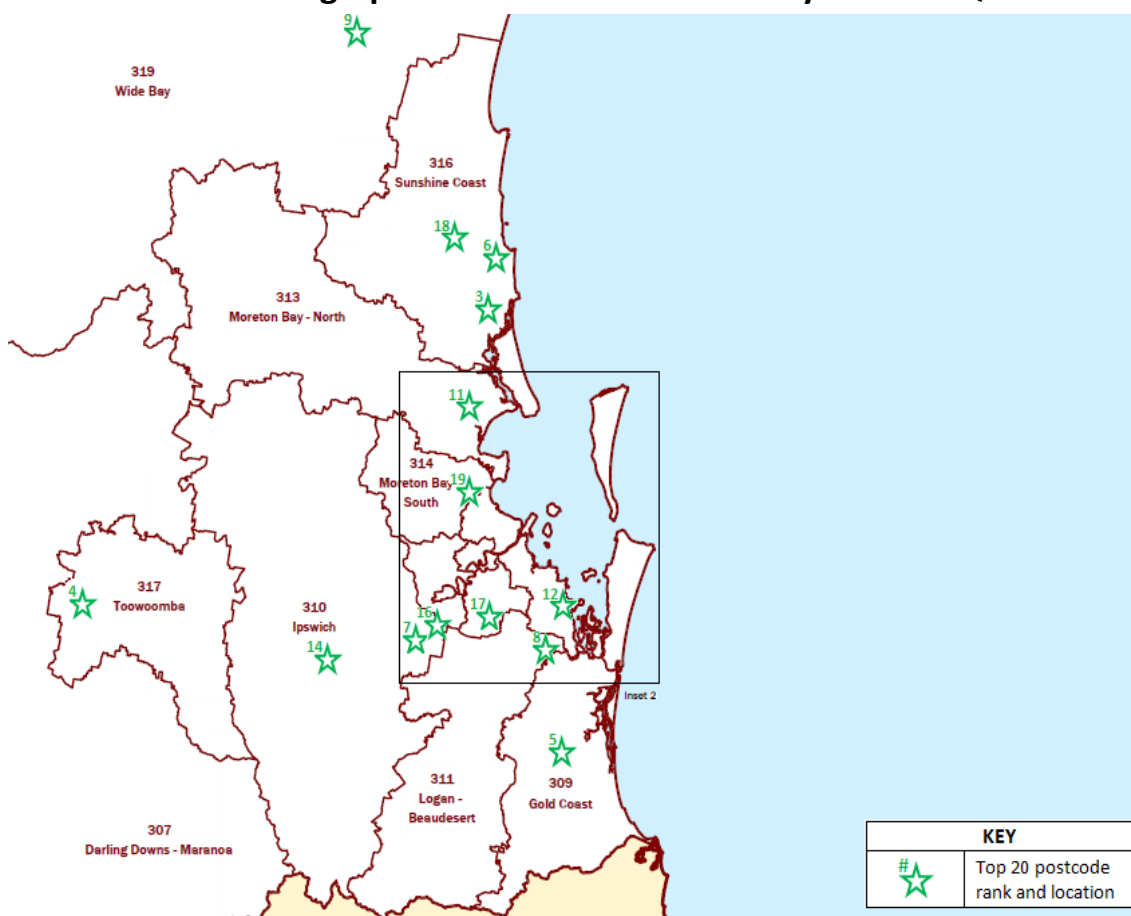
271,289

Attachment 2 – Geographical distribution of solar systems in NSW



Rank	Postcode	Suburb	Distance from CBD (km)	Total installations	Penetration (%)
1	2480	Bentley	595.2	7,673	38.8
2	2444	Blackmans Point	317.2	7,047	34.4
3	2540	Bamarang	131.1	6,117	25.6
4	2450	Boambee	430.7	5,750	33.6
5	2430	Black Head	236.4	5,198	34.5
6	2486	Banora Point	668.4	5,148	37.6
7	2560	Airds	42.1	4,685	18
8	2259	Alison	69.2	4,671	21.6
9	2830	Ballimore	284.9	4,522	28.9
10	2478	Ballina	600.4	4,425	34.7
11	2250	Bucketty	85.2	4,302	15.8
12	2170	Casula	29.4	3,776	11.5
13	2460	Alice	552.8	3,510	28.3
14	2484	Back Creek	644.7	3,317	41.7
15	2428	Blueys Beach	211.1	3,246	23.4
16	2153	Baulkham Hills	23.5	2,997	16.5
17	2324	Balickera	146.7	2,935	27.2
18	2340	Appleby	326.2	2,918	15.0
19	2283	Arcadia Vale	97.2	2,894	29.0
20	2261	Bateau Bay	59.6	2,833	11.8
Total top 20		<i>(21.6% of total installations)</i>		87,964	
Total other		<i>(78.4% of total installations)</i>		318,384	
Total				406,348	

Attachment 3 – Geographical distribution of solar systems in Queensland



Rank	Postcode	Suburb	Distance from CBD (km)	Total installations	Penetration (%)
1	4670	ABBOTSFORD (Wide Bay region off map)	306.6	9,029	26.2
2	4655	BOORAL (Wide Bay region off map)	236.3	8,823	34.0
3	4551	AROONA	75.6	7,498	32.0
4	4350	ATHOL	126.3	6,692	15.4
5	4211	ADVANCETOWN	71.3	5,872	27.0
6	4556	BUDERIM	87.5	5,369	33.8
7	4305	BASIN POCKET	29.7	5,354	23.0
8	4207	ALBERTON	34.9	5,282	28.9
9	4570	AMAMOOR	129.3	5,262	30.1
10	4680	BARNEY POINT (Fitzroy region off map)	437.9	4,910	23.7
11	4510	BEACHMERE	37.3	4,835	28.2
12	4165	MOUNT COTTON	29.0	4,720	38.9
13	4740	ALEXANDRA (Mackay region off map)	807.4	4,497	14.2
14	4306	AMBERLEY	37.6	4,430	39.2
15	4870	AEROGLEN (Cairns region off map)	1,396.8	4,339	14.0
16	4300	AUGUSTINE HEIGHTS	25.2	4,310	26.7
17	4109	MACGREGOR	11.1	4,261	32.5
18	4560	BLI BLI	95.5	4,127	34.3
19	4500	BRAY PARK	20.5	4,015	29.6
20	4650	ALDERSHOT	225.5	3,782	25.6
Total top 20 (26.5% of total installations)				107,407	
Total other (73.5% of total installations)				297,920	
Total				405,327	

Attachment 4 – Top 20 solar PV and SWH suburbs by state

Highlights

- Total Solar PV systems installed and creating Renewable Energy Certificates (RECs) as at June 30, 2012 was 753,844 and total SWH systems were 743,842. This means almost 1.5 million solar systems have been installed so far in Australia.
- Solar PV, SWH, and Total Solar PV and SWH in the top 20 postcodes represented 8.63%, 10.65%, and 8.98% of total installations in Australia respectively.
- 50% of the top 20 postcodes for Solar PV are in QLD; for SWH NSW, VIC and QLD each share 30% of the top 20; and for total Solar PV and SWH QLD has 45% of the top 20 postcodes with NSW and VIC each with 20%.

Notes

- Installation figures for Solar Water Heater (SWH) units also include installation figures for Air Source Heat Pumps (ASHP) units.
- SGU/SWH installations by postcode data were obtained from the Clean Energy Regulator's website (<http://ret.cleanenergyregulator.gov.au/REC-Registry/Data-reports>).

1. Australia Solar PV

Rank	Postcode	Locality	State	Installations
1	6210	COODANUP	WA	5,210
2	4670	ABBOTSFORD	QLD	4,562
3	4655	BOORAL	QLD	4,403
4	4551	AROONA	QLD	4,355
5	2830	BALLIMORE	NSW	3,371
6	6155	CANNING VALE	WA	3,280
7	4350	ATHOL	QLD	3,273
8	6065	ASHBY	WA	3,132
9	4211	ADVANCETOWN	QLD	3,110
10	4556	BUDERIM	QLD	2,989
11	4305	BASIN POCKET	QLD	2,959
12	4570	AMAMMOOR	QLD	2,951
13	4207	ALBERTON	QLD	2,866
14	2480	BENTLEY	NSW	2,808
15	5159	ABERFOYLE PARK	SA	2,753
16	5162	MORPHETT VALE	SA	2,688
17	6164	ATWELL	WA	2,665
18	4109	MACGREGOR	QLD	2,650
19	3029	HOPPERS CROSSING	VIC	2,564
20	6163	BIBRA LAKE	WA	2,467
Total top 20				65,056
Total other				688,788
Total				753,844

1. Australia SWH + ASHP

Rank	Postcode	Locality	State	Installations
1	3030	COCOROC	VIC	6,037
2	3029	HOPPERS CROSSING	VIC	5,574
3	2444	BLACKMANS POINT	NSW	4,908
4	2480	BENTLEY	NSW	4,865
5	4670	ABBOTSFORD	QLD	4,467
6	4655	BOORAL	QLD	4,420
7	2450	BOAMBEE	NSW	4,387
8	6210	COODANUP	WA	4,253
9	2540	BAMARANG	NSW	4,246
10	3977	CANNONS CREEK	VIC	3,983
11	3754	DOREEN	VIC	3,806
12	2430	BLACK HEAD	NSW	3,693
13	3023	BURNSIDE	VIC	3,494
14	3810	PAKENHAM	VIC	3,455
15	4350	ATHOL	QLD	3,419
16	4551	AROONA	QLD	3,143
17	6065	ASHBY	WA	2,817
18	4680	BARNEY POINT	QLD	2,806
19	4211	ADVANCETOWN	QLD	2,762
20	2478	BALLINA	NSW	2,702
Total top 20				79,237
Total other				664,605
Total				743,842

1. Australia TOTAL

Rank	Postcode	Locality	State	Installations
1	6210	COODANUP	WA	9,463
2	4670	ABBOTSFORD	QLD	9,029
3	4655	BOORAL	QLD	8,823
4	3030	COCOROC	VIC	8,426
5	3029	HOPPERS CROSSING	VIC	8,138
6	2480	BENTLEY	NSW	7,673
7	4551	AROONA	QLD	7,498
8	2444	BLACKMANS POINT	NSW	7,047
9	4350	ATHOL	QLD	6,692
10	3977	CANNONS CREEK	VIC	6,170
11	2540	BAMARANG	NSW	6,117
12	6065	ASHBY	WA	5,949
13	4211	ADVANCETOWN	QLD	5,872
14	2450	BOAMBEE	NSW	5,750
15	4556	BUDERIM	QLD	5,369
16	4305	BASIN POCKET	QLD	5,354
17	6155	CANNING VALE	WA	5,327
18	3023	BURNSIDE	VIC	5,306
19	4207	ALBERTON	QLD	5,282
20	4570	AMAMMOOR	QLD	5,262
Total top 20				134,547
Total other				1,363,139
Total				1,497,686

The REC Agents Association represents the interests of Registered Agents under the Renewable Energy Scheme. Please refer to our website:

www.recagents.asn.au

2. NSW Solar PV

Rank	Postcode	Locality	State	Installations
1	2830	BALLIMORE	NSW	3,371
2	2480	BENTLEY	NSW	2,808
3	2486	BANORA POINT	NSW	2,465
4	2170	CASULA	NSW	2,398
5	2560	AIRDS	NSW	2,272
6	2259	ALISON	NSW	2,228
7	2250	BUCKETTY	NSW	2,207
8	2444	BLACKMANS POINT	NSW	2,139
9	2540	BAMARANG	NSW	1,871
10	2153	BAULKHAM HILLS	NSW	1,840
11	2880	BROKEN HILL	NSW	1,830
12	2478	BALLINA	NSW	1,723
13	2155	BEAUMONT HILLS	NSW	1,652
14	2148	ARNDELL PARK	NSW	1,619
15	2145	CONSTITUTION HILL	NSW	1,597
16	2430	BLACK HEAD	NSW	1,505
17	2176	ABBOTSBURY	NSW	1,500
18	2450	BOAMBEE	NSW	1,363
19	2640	ALBURY	NSW	1,317
20	2484	BACK CREEK	NSW	1,280
Total top 20				38,985
Total other				146,607
Total				185,592

3. VIC Solar PV

Rank	Postcode	Locality	State	Installations
1	3029	HOPPERS CROSSING	VIC	2,564
2	3030	COCOROC	VIC	2,389
3	3977	CANNONS CREEK	VIC	2,187
4	3023	BURNSIDE	VIC	1,812
5	3805	FOUNTAIN GATE	VIC	1,558
6	3150	BRANDON PARK	VIC	1,456
7	3216	BELMONT	VIC	1,455
8	3064	CRAIGIEBURN	VIC	1,399
9	3199	FRANKSTON	VIC	1,273
10	3806	BERWICK	VIC	1,194
11	3550	BENDIGO	VIC	1,181
12	3037	DELAHEY	VIC	1,176
13	3551	ARNOLD	VIC	1,112
14	3178	ROWVILLE	VIC	1,110
15	3020	ALBION	VIC	1,098
16	3021	ALBANVALE	VIC	979
17	3156	FERNTREE GULLY	VIC	972
18	3810	PAKENHAM	VIC	971
19	3337	KURUNJANG	VIC	967
20	3350	ALFREDTON	VIC	952
Total top 20				27,805
Total other				99,873
Total				127,678

2. NSW SWH + ASHP

Rank	Postcode	Locality	State	Installations
1	2444	BLACKMANS POINT	NSW	4,908
2	2480	BENTLEY	NSW	4,865
3	2450	BOAMBEE	NSW	4,387
4	2540	BAMARANG	NSW	4,246
5	2430	BLACK HEAD	NSW	3,693
6	2478	BALLINA	NSW	2,702
7	2486	BANORA POINT	NSW	2,683
8	2259	ALISON	NSW	2,443
9	2560	AIRDS	NSW	2,413
10	2460	ALICE	NSW	2,304
11	2428	BLUEYS BEACH	NSW	2,151
12	2250	BUCKETTY	NSW	2,095
13	2283	ARCADIA VALE	NSW	2,062
14	2484	BACK CREEK	NSW	2,037
15	2541	BANGALEE	NSW	1,968
16	2440	ALDAVILLA	NSW	1,906
17	2340	APPLEBY	NSW	1,875
18	2324	BALICKERA	NSW	1,810
19	2539	BAWLEY POINT	NSW	1,726
20	2290	BENNETTS GREEN	NSW	1,610
Total top 20				53,884
Total other				166,872
Total				220,756

3. VIC SWH + ASHP

Rank	Postcode	Locality	State	Installations
1	3030	COCOROC	VIC	6,037
2	3029	HOPPERS CROSSING	VIC	5,574
3	3977	CANNONS CREEK	VIC	3,983
4	3754	DOREEN	VIC	3,806
5	3023	BURNSIDE	VIC	3,494
6	3810	PAKENHAM	VIC	3,455
7	3064	CRAIGIEBURN	VIC	2,537
8	3024	MAMBOURIN	VIC	1,840
9	3500	MILDURA	VIC	1,824
10	3337	KURUNJANG	VIC	1,805
11	3551	ARNOLD	VIC	1,603
12	3216	BELMONT	VIC	1,598
13	3806	BERWICK	VIC	1,583
14	3076	EPPING	VIC	1,572
15	3752	MORANG SOUTH	VIC	1,502
16	3350	ALFREDTON	VIC	1,370
17	3585	CASTLE DONNINGTON	VIC	1,315
18	3975	LYNBROOK	VIC	1,177
19	3037	DELAHEY	VIC	1,136
20	3875	BAIRNSDALE	VIC	1,097
Total top 20				48,308
Total other				95,303
Total				143,611

2. NSW TOTAL

Rank	Postcode	Locality	State	Installations
1	2480	BENTLEY	NSW	7,673
2	2444	BLACKMANS POINT	NSW	7,047
3	2540	BAMARANG	NSW	6,117
4	2450	BOAMBEE	NSW	5,750
5	2430	BLACK HEAD	NSW	5,198
6	2486	BANORA POINT	NSW	5,148
7	2560	AIRDS	NSW	4,685
8	2259	ALISON	NSW	4,671
9	2830	BALLIMORE	NSW	4,522
10	2478	BALLINA	NSW	4,425
11	2250	BUCKETTY	NSW	4,302
12	2170	CASULA	NSW	3,776
13	2460	ALICE	NSW	3,510
14	2484	BACK CREEK	NSW	3,317
15	2428	BLUEYS BEACH	NSW	3,246
16	2153	BAULKHAM HILLS	NSW	2,997
17	2324	BALICKERA	NSW	2,935
18	2340	APPLEBY	NSW	2,918
19	2283	ARCADIA VALE	NSW	2,894
20	2261	BATEAU BAY	NSW	2,833
Total top 20				87,964
Total other				318,384
Total				406,348

3. VIC TOTAL

Rank	Postcode	Locality	State	Installations
1	3030	COCOROC	VIC	8,426
2	3029	HOPPERS CROSSING	VIC	8,138
3	3977	CANNONS CREEK	VIC	6,170
4	3023	BURNSIDE	VIC	5,306
5	3810	PAKENHAM	VIC	4,426
6	3754	DOREEN	VIC	4,309
7	3064	CRAIGIEBURN	VIC	3,936
8	3216	BELMONT	VIC	3,053
9	3806	BERWICK	VIC	2,777
10	3337	KURUNJANG	VIC	2,772
11	3551	ARNOLD	VIC	2,715
12	3024	MAMBOURIN	VIC	2,490
13	3076	EPPING	VIC	2,364
14	3500	MILDURA	VIC	2,361
15	3350	ALFREDTON	VIC	2,322
16	3037	DELAHEY	VIC	2,312
17	3805	FOUNTAIN GATE	VIC	2,182
18	3550	BENDIGO	VIC	2,152
19	3150	BRANDON PARK	VIC	2,006
20	3630	BRANDITT	VIC	1,948
Total top 20				72,165
Total other				199,124
Total				271,289

4. QLD Solar PV

Rank	Postcode	Locality	State	Installations
1	4670	ABBOTSFORD	QLD	4,562
2	4655	BOORAL	QLD	4,403
3	4551	AROONA	QLD	4,355
4	4350	ATHOL	QLD	3,273
5	4211	ADVANCETOWN	QLD	3,110
6	4556	BUDERIM	QLD	2,989
7	4305	BASIN POCKET	QLD	2,959
8	4570	AMAMOOR	QLD	2,951
9	4207	ALBERTON	QLD	2,866
10	4109	MACGREGOR	QLD	2,650
11	4165	MOUNT COTTON	QLD	2,443
12	4306	AMBERLEY	QLD	2,417
13	4510	BEACHMERE	QLD	2,262
14	4300	AUGUSTINE HEIGHTS	QLD	2,216
15	4214	ARUNDEL	QLD	2,167
16	4680	BARNEY POINT	QLD	2,104
17	4560	BLI BLI	QLD	2,057
18	4500	BRAY PARK	QLD	2,021
19	4740	ALEXANDRA	QLD	1,958
20	4507	BANKSIA BEACH	QLD	1,938
Total top 20				55,701
Total other				153,516
Total				209,217

5. SA Solar PV

Rank	Postcode	Locality	State	Installations
1	5159	ABERFOYLE PARK	SA	2,753
2	5162	MORPHETT VALE	SA	2,688
3	5158	HALLETT COVE	SA	2,164
4	5211	BACK VALLEY	SA	2,159
5	5108	PARALOWIE	SA	2,115
6	5114	ANDREWS FARM	SA	2,032
7	5109	BRAHMA LODGE	SA	1,466
8	5125	GOLDEN GROVE	SA	1,440
9	5118	BIBARINGA	SA	1,370
10	5214	CURRENCY CREEK	SA	1,323
11	5253	AVOCA DELL	SA	1,293
12	5092	MODBURY	SA	1,212
13	5169	MOANA	SA	1,171
14	5095	MAWSON LAKES	SA	1,170
15	5173	ALDINGA	SA	1,129
16	5098	INGLE FARM	SA	1,100
17	5022	GRANGE	SA	1,078
18	5163	HACKHAM	SA	1,065
19	5107	GREEN FIELDS	SA	1,064
20	5097	REDWOOD PARK	SA	1,034
Total top 20				30,826
Total other				76,718
Total				107,544

4. QLD SWH + ASHP

Rank	Postcode	Locality	State	Installations
1	4670	ABBOTSFORD	QLD	4,467
2	4655	BOORAL	QLD	4,420
3	4350	ATHOL	QLD	3,419
4	4551	AROONA	QLD	3,143
5	4680	BARNEY POINT	QLD	2,806
6	4211	ADVANCETOWN	QLD	2,762
7	4870	AEROGLEN	QLD	2,615
8	4510	BEACHMERE	QLD	2,573
9	4740	ALEXANDRA	QLD	2,539
10	4207	ALBERTON	QLD	2,416
11	4305	BASIN POCKET	QLD	2,395
12	4556	BUDERIM	QLD	2,380
13	4570	AMAMOOR	QLD	2,311
14	4165	MOUNT COTTON	QLD	2,277
15	4701	BERSERKER	QLD	2,154
16	4300	AUGUSTINE HEIGHTS	QLD	2,094
17	4818	BEACH HOLM	QLD	2,081
18	4560	BLI BLI	QLD	2,070
19	4306	AMBERLEY	QLD	2,013
20	4500	BRAY PARK	QLD	1,994
Total top 20				52,929
Total other				143,181
Total				196,110

5. SA SWH + ASHP

Rank	Postcode	Locality	State	Installations
1	5095	MAWSON LAKES	SA	1,570
2	5211	BACK VALLEY	SA	1,097
3	5173	ALDINGA	SA	946
4	5118	BIBARINGA	SA	872
5	5700	BLANCHE HARBOR	SA	849
6	5051	BLACKWOOD	SA	764
7	5114	ANDREWS FARM	SA	764
8	5251	BUGLE RANGES	SA	662
9	5159	ABERFOYLE PARK	SA	649
10	5113	DAVOREN PARK	SA	630
11	5214	CURRENCY CREEK	SA	629
12	5600	CULTANA	SA	618
13	5108	PARALOWIE	SA	597
14	5253	AVOCA DELL	SA	580
15	5112	ELIZABETH	SA	578
16	5162	MORPHETT VALE	SA	539
17	5255	ANGAS PLAINS	SA	464
18	5290	MOUNT GAMBIER	SA	455
19	5171	BLEWITT SPRINGS	SA	450
20	5608	WHYALLA NORRIE	SA	446
Total top 20				14,159
Total other				30,553
Total				44,712

4. QLD TOTAL

Rank	Postcode	Locality	State	Installations
1	4670	ABBOTSFORD	QLD	9,029
2	4655	BOORAL	QLD	8,823
3	4551	AROONA	QLD	7,498
4	4350	ATHOL	QLD	6,692
5	4211	ADVANCETOWN	QLD	5,872
6	4556	BUDERIM	QLD	5,369
7	4305	BASIN POCKET	QLD	5,354
8	4207	ALBERTON	QLD	5,282
9	4570	AMAMOOR	QLD	5,262
10	4680	BARNEY POINT	QLD	4,910
11	4510	BEACHMERE	QLD	4,835
12	4165	MOUNT COTTON	QLD	4,720
13	4740	ALEXANDRA	QLD	4,497
14	4306	AMBERLEY	QLD	4,430
15	4870	AEROGLEN	QLD	4,339
16	4300	AUGUSTINE HEIGHTS	QLD	4,310
17	4109	MACGREGOR	QLD	4,261
18	4560	BLI BLI	QLD	4,127
19	4500	BRAY PARK	QLD	4,015
20	4650	ALDERSHOT	QLD	3,782
Total top 20				107,407
Total other				297,920
Total				405,327

5. SA TOTAL

Rank	Postcode	Locality	State	Installations
1	5159	ABERFOYLE PARK	SA	3,402
2	5211	BACK VALLEY	SA	3,256
3	5162	MORPHETT VALE	SA	3,227
4	5114	ANDREWS FARM	SA	2,796
5	5095	MAWSON LAKES	SA	2,740
6	5108	PARALOWIE	SA	2,712
7	5158	HALLETT COVE	SA	2,590
8	5118	BIBARINGA	SA	2,242
9	5173	ALDINGA	SA	2,075
10	5214	CURRENCY CREEK	SA	1,952
11	5253	AVOCA DELL	SA	1,873
12	5109	BRAHMA LODGE	SA	1,768
13	5251	BUGLE RANGES	SA	1,689
14	5051	BLACKWOOD	SA	1,653
15	5700	BLANCHE HARBOR	SA	1,620
16	5125	GOLDEN GROVE	SA	1,591
17	5112	ELIZABETH	SA	1,555
18	5169	MOANA	SA	1,474
19	5092	MODBURY	SA	1,427
20	5098	INGLE FARM	SA	1,369
Total top 20				43,011
Total other				109,245
Total				152,256

6. TAS Solar PV

Rank	Postcode	Locality	State	Installations
1	7250	BLACKSTONE HEIGHTS	TAS	630
2	7018	BELLERIVE	TAS	325
3	7310	ABERDEEN	TAS	277
4	7011	AUSTINS FERRY	TAS	226
5	7054	BARRETTA	TAS	223
6	7030	APSLEY	TAS	208
7	7000	BATHURST STREET PO	TAS	205
8	7050	ALBION HEIGHTS	TAS	200
9	7173	CARLTON	TAS	199
10	7008	LENAH VALLEY	TAS	197
11	7004	BATTERY POINT	TAS	194
12	7005	DYNNYRNE	TAS	191
13	7010	DOWSING POINT	TAS	184
14	7109	CRABTREE	TAS	181
15	7009	DERWENT PARK	TAS	179
16	7015	GEILSTON BAY	TAS	178
17	7248	INVERMAY	TAS	146
18	7249	KINGS MEADOWS	TAS	145
19	7315	ABBOTSHAM	TAS	145
20	7140	BLACK HILLS	TAS	142
Tottal top 20				4,375
Total other				3,506
Total				7,881

7. WA Solar PV

Rank	Postcode	Locality	State	Installations
1	6210	COODANUP	WA	5,210
2	6155	CANNING VALE	WA	3,280
3	6065	ASHBY	WA	3,132
4	6164	ATWELL	WA	2,665
5	6163	BIBRA LAKE	WA	2,467
6	6169	SAFETY BAY	WA	2,298
7	6112	ARMADALE	WA	2,193
8	6027	BELDON	WA	2,130
9	6030	CLARKSON	WA	1,973
10	6230	BUNBURY	WA	1,967
11	6110	GOSNELLS	WA	1,897
12	6056	BASKERVILLE	WA	1,811
13	6107	BECKENHAM	WA	1,805
14	6280	ABBA RIVER	WA	1,604
15	6025	CRAIGIE	WA	1,599
16	6168	COOLOONGUP	WA	1,578
17	6069	AVELEY	WA	1,570
18	6026	KINGSLEY	WA	1,488
19	6018	CHURCHLANDS	WA	1,459
20	6108	THORNLIIE	WA	1,459
Tottal top 20				43,585
Total other				61,068
Total				104,653

6. TAS SWH + ASHP

Rank	Postcode	Locality	State	Installations
1	7250	BLACKSTONE HEIGHTS	TAS	693
2	7310	ABERDEEN	TAS	283
3	7018	BELLERIVE	TAS	254
4	7050	ALBION HEIGHTS	TAS	240
5	7320	ACTON	TAS	233
6	7315	ABBOTSHAM	TAS	225
7	7054	BARRETTA	TAS	224
8	7000	BATHURST STREET PO	TAS	201
9	7004	BATTERY POINT	TAS	197
10	7005	DYNNYRNE	TAS	191
11	7109	CRABTREE	TAS	184
12	7304	BRANDUM	TAS	163
13	7008	LENAH VALLEY	TAS	150
14	7277	BRIDGENORTH	TAS	149
15	7248	INVERMAY	TAS	139
16	7307	BAKERS BEACH	TAS	138
17	7170	ACTON PARK	TAS	137
18	7255	BLUE ROCKS	TAS	136
19	7316	CAMENA	TAS	133
20	7330	ALCOMIE	TAS	132
Total top 20				4,202
Total other				3,537
Total				7,739

7. WA SWH + ASHP

Rank	Postcode	Locality	State	Installations
1	6210	COODANUP	WA	4,253
2	6065	ASHBY	WA	2,817
3	6164	ATWELL	WA	2,591
4	6112	ARMADALE	WA	2,466
5	6076	BICKLEY	WA	2,411
6	6530	BEACHLANDS	WA	2,384
7	6163	BIBRA LAKE	WA	2,107
8	6155	CANNING VALE	WA	2,047
9	6056	BASKERVILLE	WA	2,028
10	6027	BELDON	WA	1,740
11	6280	ABBA RIVER	WA	1,721
12	6330	ALBANY	WA	1,707
13	6107	BECKENHAM	WA	1,675
14	6111	ASHENDON	WA	1,598
15	6025	CRAIGIE	WA	1,586
16	6169	SAFETY BAY	WA	1,515
17	6069	AVELEY	WA	1,509
18	6167	ANKETELL	WA	1,462
19	6110	GOSNELLS	WA	1,456
20	6714	ANTONYMYRE	WA	1,409
Total top 20				40,482
Total other				70,361
Total				110,843

6. TAS TOTAL

Rank	Postcode	Locality	State	Installations
1	7250	BLACKSTONE HEIGHTS	TAS	1,323
2	7018	BELLERIVE	TAS	579
3	7310	ABERDEEN	TAS	560
4	7054	BARRETTA	TAS	447
5	7050	ALBION HEIGHTS	TAS	440
6	7000	BATHURST STREET PO	TAS	406
7	7004	BATTERY POINT	TAS	391
8	7005	DYNNYRNE	TAS	382
9	7315	ABBOTSHAM	TAS	370
10	7109	CRABTREE	TAS	365
11	7008	LENAH VALLEY	TAS	347
12	7011	AUSTINS FERRY	TAS	339
13	7030	APSLEY	TAS	314
14	7010	DOWSING POINT	TAS	307
15	7320	ACTON	TAS	300
16	7015	GEILSTON BAY	TAS	291
17	7248	INVERMAY	TAS	285
18	7173	CARLTON	TAS	281
19	7009	DERWENT PARK	TAS	277
20	7304	BRANDUM	TAS	273
Total top 20				8,277
Total other				7,343
Total				15,620

7. WA TOTAL

Rank	Postcode	Locality	State	Installations
1	6210	COODANUP	WA	9,463
2	6065	ASHBY	WA	5,949
3	6155	CANNING VALE	WA	5,327
4	6164	ATWELL	WA	5,256
5	6112	ARMADALE	WA	4,659
6	6163	BIBRA LAKE	WA	4,574
7	6027	BELDON	WA	3,870
8	6056	BASKERVILLE	WA	3,839
9	6169	SAFETY BAY	WA	3,813
10	6076	BICKLEY	WA	3,757
11	6530	BEACHLANDS	WA	3,626
12	6107	BECKENHAM	WA	3,480
13	6110	GOSNELLS	WA	3,353
14	6280	ABBA RIVER	WA	3,325
15	6030	CLARKSON	WA	3,293
16	6230	BUNBURY	WA	3,255
17	6025	CRAIGIE	WA	3,185
18	6069	AVELEY	WA	3,079
19	6168	COOLOONGUP	WA	2,802
20	6111	ASHENDON	WA	2,797
Total top 20				82,702
Total other				132,794
Total				215,496

8. NT Solar PV

Rank	Postcode	Locality	State	Installations
1	0870	ALICE SPRINGS	NT	399
2	0810	ALAWA	NT	230
3	0830	ARCHER	NT	156
4	0812	ANULA	NT	131
5	0832	BAKEWELL	NT	89
6	0836	GIRRAWEEEN	NT	82
7	0822	ACACIA HILLS	NT	68
8	0872	AHERRENCE	NT	63
9	0835	COOLALINGA	NT	52
10	0871	ALICE SPRINGS	NT	44
11	0850	COSSACK	NT	40
12	0820	BAGOT	NT	34
13	0852	ARNOLD	NT	30
14	0861	BRUNCHILLY	NT	14
15	0851	KATHERINE	NT	13
16	0881	NHULUNBUY	NT	12
17	0838	BERRY SPRINGS	NT	12
18	0800	DARWIN	NT	10
19	0845	BATCHELOR	NT	9
20	0846	ADELAIDE RIVER	NT	8
Total top 20				1,496
Total other				55
Total				1,551

9. ACT Solar PV

Rank	Postcode	Locality	State	Installations
1	2615	CHARNWOOD	ACT	1,347
2	2905	BONYTHON	ACT	870
3	2913	FRANKLIN	ACT	853
4	2617	BELCONNEN	ACT	839
5	2602	AINSLIE	ACT	815
6	2614	ARANDA	ACT	660
7	2904	FADDEN	ACT	647
8	2902	KAMBAH	ACT	583
9	2906	BANKS	ACT	479
10	2914	AMAROO	ACT	444
11	2607	FARRER	ACT	420
12	2605	CURTIN	ACT	368
13	2903	ERINDALE CENTRE	ACT	316
14	2606	CHIFLEY	ACT	207
15	2600	BARTON	ACT	181
16	2612	BRADDON	ACT	174
17	2603	FORREST	ACT	158
18	2604	CAUSEWAY	ACT	128
19	2912	GUNGAHLIN	ACT	91
20	2618	HALL	ACT	63
Total top 20				9,643
Total other				85
Total				9,728

8. NT SWH + ASHP

Rank	Postcode	Locality	State	Installations
1	0870	ALICE SPRINGS	NT	2,189
2	0810	ALAWA	NT	1,814
3	0830	ARCHER	NT	1,723
4	0812	ANULA	NT	1,469
5	0832	BAKEWELL	NT	906
6	0820	BAGOT	NT	760
7	0822	ACACIA HILLS	NT	537
8	0836	GIRRAWEEEN	NT	529
9	0872	AHERRENCE	NT	391
10	0835	COOLALINGA	NT	377
11	0850	COSSACK	NT	358
12	0885	ALYANGULA	NT	245
13	0880	GAPUWIYAK	NT	155
14	0852	ARNOLD	NT	120
15	0871	ALICE SPRINGS	NT	98
16	0828	BERRIMAH	NT	95
17	0800	DARWIN	NT	86
18	0851	KATHERINE	NT	77
19	0860	TENNANT CREEK	NT	69
20	0881	NHULUNBUY	NT	51
Total top 20				12,049
Total other				487
Total				12,536

9. ACT SWH + ASHP

Rank	Postcode	Locality	State	Installations
1	2615	CHARNWOOD	ACT	1,798
2	2602	AINSLIE	ACT	785
3	0000	OTHER	ACT	680
4	2617	BELCONNEN	ACT	543
5	2905	BONYTHON	ACT	519
6	2614	ARANDA	ACT	518
7	2902	KAMBAH	ACT	404
8	2605	CURTIN	ACT	280
9	2904	FADDEN	ACT	262
10	2607	FARRER	ACT	259
11	2903	ERINDALE CENTRE	ACT	241
12	2606	CHIFLEY	ACT	162
13	2604	CAUSEWAY	ACT	151
14	2913	FRANKLIN	ACT	148
15	2612	BRADDON	ACT	148
16	2603	FORREST	ACT	137
17	2914	AMAROO	ACT	131
18	2906	BANKS	ACT	129
19	2600	BARTON	ACT	111
20	2618	HALL	ACT	59
Total top 20				7,465
Total other				70
Total				7,535

8. NT TOTAL

Rank	Postcode	Locality	State	Installations
1	0870	ALICE SPRINGS	NT	2,588
2	0810	ALAWA	NT	2,044
3	0830	ARCHER	NT	1,879
4	0812	ANULA	NT	1,600
5	0832	BAKEWELL	NT	995
6	0820	BAGOT	NT	794
7	0836	GIRRAWEEEN	NT	611
8	0822	ACACIA HILLS	NT	605
9	0872	AHERRENCE	NT	454
10	0835	COOLALINGA	NT	429
11	0850	COSSACK	NT	398
12	0885	ALYANGULA	NT	245
13	0880	GAPUWIYAK	NT	162
14	0852	ARNOLD	NT	150
15	0871	ALICE SPRINGS	NT	142
16	0828	BERRIMAH	NT	98
17	0800	DARWIN	NT	96
18	0851	KATHERINE	NT	90
19	0860	TENNANT CREEK	NT	73
20	0881	NHULUNBUY	NT	63
Total top 20				13,516
Total other				571
Total				14,087

9. ACT TOTAL

Rank	Postcode	Locality	State	Installations
1	2615	CHARNWOOD	ACT	3,145
2	2602	AINSLIE	ACT	1,600
3	2905	BONYTHON	ACT	1,389
4	2617	BELCONNEN	ACT	1,382
5	2614	ARANDA	ACT	1,178
6	2913	FRANKLIN	ACT	1,001
7	2902	KAMBAH	ACT	987
8	2904	FADDEN	ACT	909
9	0000	OTHER	ACT	684
10	2607	FARRER	ACT	679
11	2605	CURTIN	ACT	648
12	2906	BANKS	ACT	608
13	2914	AMAROO	ACT	575
14	2903	ERINDALE CENTRE	ACT	557
15	2606	CHIFLEY	ACT	369
16	2612	BRADDON	ACT	322
17	2603	FORREST	ACT	295
18	2600	BARTON	ACT	292
19	2604	CAUSEWAY	ACT	279
20	2618	HALL	ACT	122
Total top 20				17,021
Total other				242
Total				17,263