

Waste Business Monitor

The only source of "real time" trend data analysing global waste plant developments

AcuComm

Waste > Renewables > Energy > Profit

ALL DATA CURRENT AT

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In this month's report...

The latest waste plant developments in February 2016

- Latest Monthly Projects by Facility Type and Feedstock
- Latest Monthly Capacity by Facility Type and Feedstock
- Latest Power Generation Projects Listed by Facility Type and Feedstock
- Latest Country Focus Top Ten Countries with number and value of projects listed
- Completion Date Focus

 **ISWA**
International Solid Waste Association

Essential for waste equipment manufacturers, operators and service companies

Welcome to Waste Business Monitor.

Welcome to your complimentary issue of AcuComm's Waste Business Monitor (WBM).

WBM provides an ongoing and comprehensive analysis of current projects in the global waste industry, enabling you to establish the level of activity in the different sectors of the waste industry around the world. The data in is taken from AcuComm's Business Database. This is a database of projects compiled and maintained by us on a daily basis. The information in it – and therefore in Waste Business Monitor – is not readily available from any other source.

WBM is organised in the following sections:

The first section examines new projects reported in the latest month. It looks at the overall number and value of these, and then divides them in two ways. Each project is allocated a principal facility type, such as anaerobic digestion, gasification plant or WtE incineration plant.

Secondly, each project is allocated a principal feedstock type, such as municipal solid waste, plant biomass or food for example. Then, the waste capacity and power generation capacity of each project is examined. After this, we look at which countries are most active, and when projects are reported as being likely to complete.

I hope Waste Business Monitor is useful to you. If you have any questions or queries, or if you have a project which you would like to see included in our Business Database – free of charge – then please do get in touch

Andy Crofts

Editor & Chief Analyst

andy.crofts@acucomm.net



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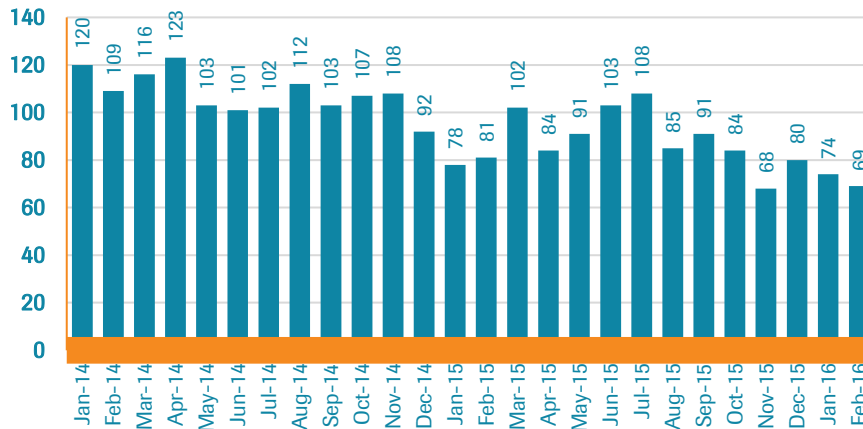
Projects This Month: February 2016

Overview

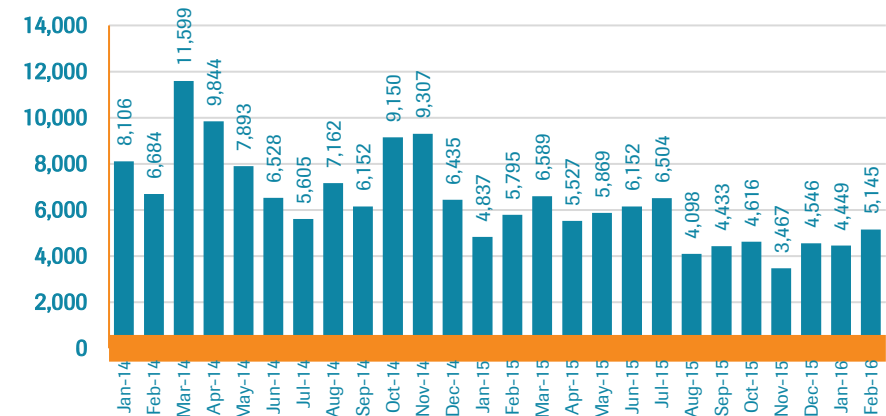
AcuComm reported on 69 new/updated waste projects in February 2016. This takes the annual number (since March 2015) to 1,039, and the total overall since January 2014 to 2,494. The database as a whole contains 3,893 active project investments.

Each new waste project represents on-going investment of an average of around US\$63 million.

Number of New Projects by Month



Estimated Total Value of New Projects (US\$m)



The total estimated value of these new projects is US\$5,145 million. This takes the total estimated value of projects reported since March 2015 to US\$61,395 million. The average estimated value of a waste project over this period is US\$59 million.



Incineration with energy recovery projects form the largest number in February 2016, accounting for 22 or 31.9% of the total. This was followed by biofuel and recycling projects (eight projects each, or 11.6%) and anaerobic digestion/biogas (six projects each, or 8.7%).



Biofuel is the leading facility type by estimated value, at US\$2,007 million, or 39.0% of the total. This was closely followed by incineration with energy recovery with US\$1,942 million, or 37.8% of the total.

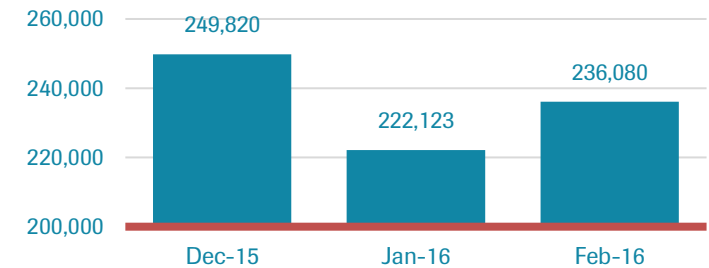
Quarterly Project Data Comparison

Key Indicators for December 2015 to February 2016

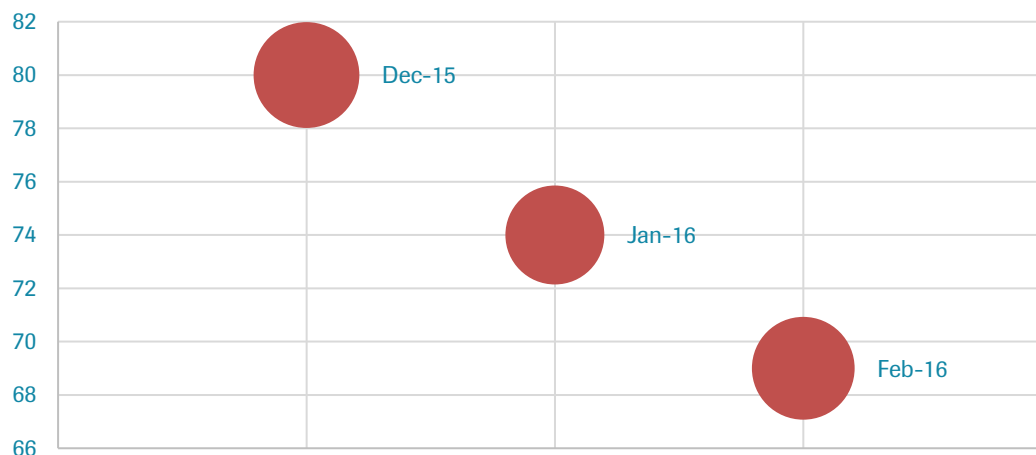
	Dec-15	Jan-16	Feb-16	Quarterly Total
Number of new projects	80	74	69	223
Total estimated value (US\$ millions)	4,546	4,449	5,145	14,140
Average value (US\$ millions)	57	60	75	63
Estimated waste capacity (tonnes)	19,985,567	16,437,138	16,289,543	52,712,248
Average annual capacity per project (tonnes)	249,820	222,123	236,080	236,378
Estimated power generation (MW)	1,220	987	993	3,200
Average MW per project	15	13	14	14

This page compares data on projects reported in the current month, compared with the previous two months. This provides a comparison of the most recent data, and also a quarterly total. The size of the circles in the bottom left graph represents the total estimated project values, as reported in the table on this page.

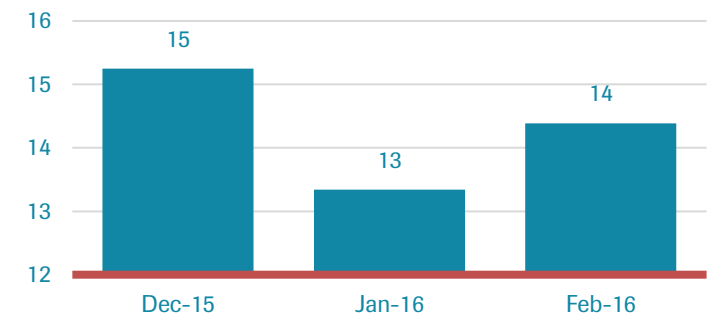
Average annual capacity per project (tonnes)



Projects by Number and Estimated US\$ Value



Average MW per project



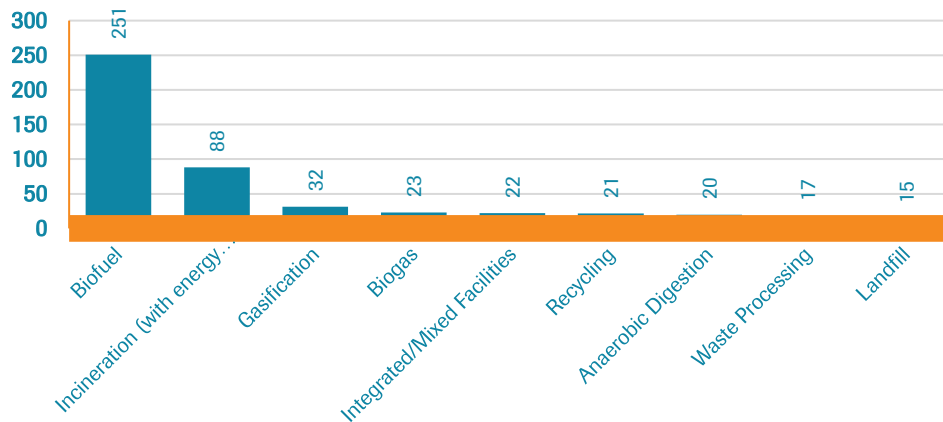
Latest Monthly Projects by Facility Type (February 2016)

	Projects	With Value (US\$m)	Reported Value (US\$m)	Total Estimated Value (US\$m)	Average value (US\$m)
Anaerobic Digestion	6	1	5	118	20
Biofuel	8	5	1,647	2,007	251
Biogas	6	1	2	137	23
Gasification	2	1	48	63	32
Incineration (energy recovery)	22	8	373	1,942	88
Incineration (no energy recovery)	0	0	0	0	-
Integrated Facilities (IWMF)	1	1	22	22	22
Landfill	5	1	0	73	15
MBT	0	0	0	0	-
Recycling	8	5	69	172	21
Waste Processing	5	3	14	85	17
Others	6	0	0	525	87
Total	69	26	2,181	5,145	75

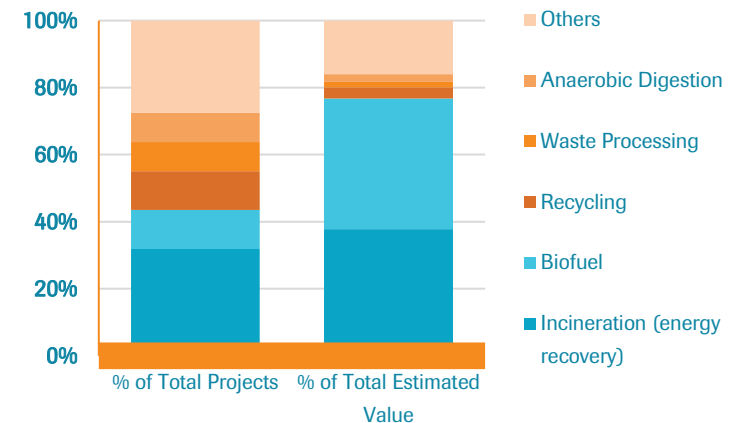
Latest Monthly Projects by Facility Type % of Total (February 2016)

	% of Total Projects	% of Total Estimated Value
Anaerobic Digestion	8.7	2.3
Biofuel	11.6	39.0
Biogas	8.7	2.7
Gasification	2.9	1.2
Incineration (energy recovery)	31.9	37.8
Incineration (no energy recovery)	0.0	0.0
Integrated Facilities (IWMF)	1.4	0.4
Landfill	7.2	1.4
MBT	0.0	0.0
Recycling	11.6	3.3
Waste Processing	7.2	1.7
Others	8.7	10.2
Total	100.0	100.0

Average Value of Projects, Feb 2016 (US\$m)



Projects By Facility Type, Feb 2016



In terms of waste feedstock type, MSW was the leading category in February 2016. MSW accounted for 18 projects (26.1% of the total) with an estimated value of US\$1,009 million (19.6% of the total).



Wood was the other principal feedstock in February 2016. This accounted for 16 projects, equal to US\$2,201 million or 42.8% of the estimated value.



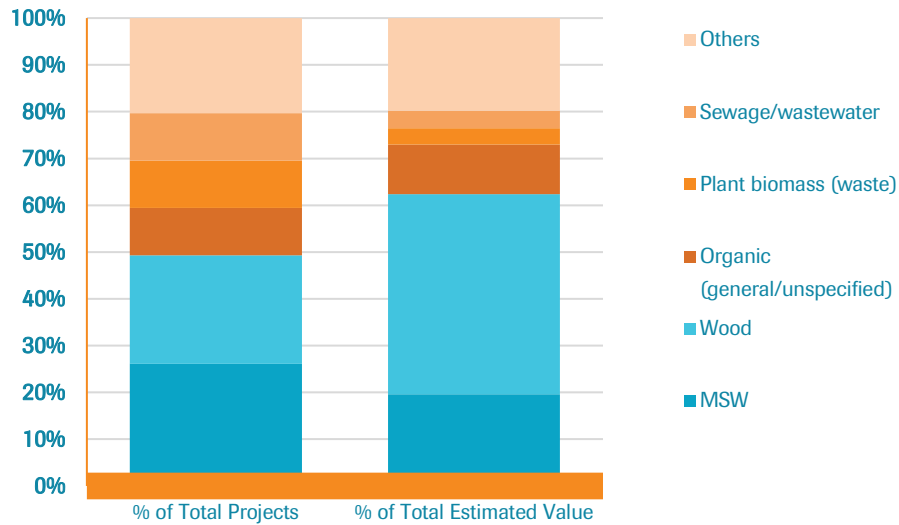
Latest Monthly Projects by Feedstock Type (February 2016)

	Projects	With Value (US\$m)	Reported Value (US\$m)	Total Estimated Value (US\$m)	Average value (US\$m)
Animal	2	0	0	28	14
Clinical	0	0	0	-	-
Construction/Demolition	1	0	0	25	25
e-Waste	0	0	0	-	-
Food	0	0	0	-	-
Gas	2	0	0	333	166
Glass	0	0	0	-	-
Hazardous	0	0	0	-	-
Heat	0	0	0	-	-
Industrial	1	1	0	0	0
Metals	3	1	56	139	46
MSW	18	8	141	1,009	56
Oil	0	0	0	-	-
Organic (general/unspecified)	7	1	75	544	78
Paper	0	0	0	-	-
Plant Biomass (non-waste)	4	2	228	487	122
Plant Biomass (waste)	7	2	25	181	26
Plastics	1	1	6	6	6
Radioactive	0	0	0	-	-
Rubber	0	0	0	-	-
Sewage/wastewater	7	2	10	192	27
Wood	16	8	1,640	2,201	138
Other	0	0	0	-	-
Total	69	26	2,181	5,145	75

Latest Monthly Projects by Feedstock Type (% of Total)

	% of Total Projects	% of Total Estimated Value
Animal	2.9	0.5
Clinical	-	-
Construction/Demolition	1.4	0.5
e-Waste	-	-
Food	-	-
Gas	2.9	6.5
Glass	-	-
Hazardous	-	-
Heat	-	-
Industrial	1.4	-
Metals	4.3	2.7
MSW	26.1	19.6
Oil	-	-
Organic (general/unspecified)	10.1	10.6
Paper	-	-
Plant Biomass (non-waste)	5.8	9.5
Plant Biomass (waste)	10.1	3.5
Plastics	1.4	0.1
Radioactive	-	-
Rubber	-	-
Sewage/wastewater	10.1	3.7
Wood	23.2	42.8
Other	-	-
Total	100.0	100.0

Projects By Feedstock Type, February 2016



General municipal waste accounts for a significant part of waste throughput, although it is by no means the only feedstock.



Latest Monthly Capacity

For the 69 projects listed in February 2016, AcuComm estimates total waste capacity to be 16.3 million tonnes. This is equal to an average of 243,128 tonnes per project, and an average of 760 tonnes per day per project.

WtE incineration was the largest facility type in terms of capacity, amounting to 6.7 million tonnes, or 41.1% of the total. This was followed by biofuel with 3.8 million tonnes (23.6%).



Incineration with energy recovery represented 41% of estimated new capacity in February 2016. The largest is a major new 350 MW biomass plant in Wales, UK, due to open in 2019.

Estimated Waste Capacity of Projects Listed by Facility Type (February 2016)

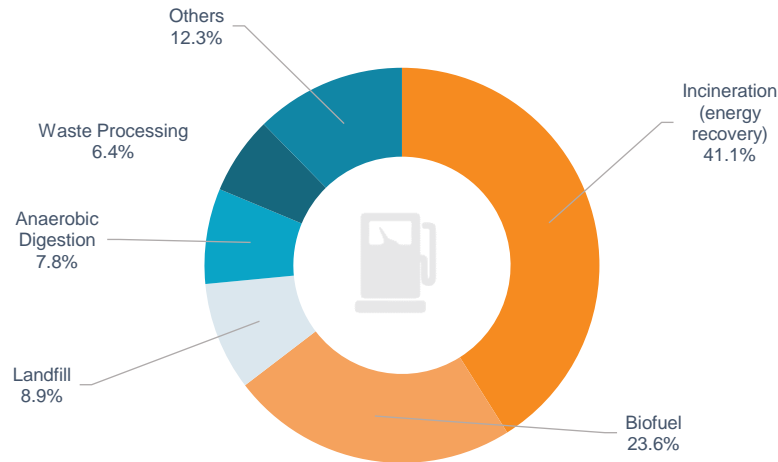
	Projects	Estimated Annual Capacity (tonnes)	Average Annual Capacity (tonnes)	Average Tonnes Per Day
Anaerobic Digestion	6	1,270,848	211,808	662
Biofuel	8	3,837,904	479,738	1,499
Biogas	6	147,432	24,572	77
Gasification	2	222,327	111,164	347
Incineration (energy recovery)	22	6,687,482	303,976	950
Incineration (no energy recovery)	0	0	-	-
Integrated Facilities (IWMF)	1	200,000	200,000	625
Landfill	5	1,445,801	289,160	904
MBT	0	0	-	-
Recycling	8	968,290	121,036	378
Waste Processing	5	1,037,826	207,565	649
Others	6	471,632	117,908	368
Total	69	16,289,543	243,128	760

Estimated Capacity by Facility Type, % of Total (February 2016)

	% of Total Reported Capacity
Anaerobic Digestion	7.8
Biofuel	23.6
Biogas	0.9
Gasification	1.4
Incineration (energy recovery)	41.1
Incineration (no energy recovery)	-
Integrated Facilities (IWMF)	1.2
Landfill	8.9
MBT	-
Recycling	5.9
Waste Processing	6.4
Others	2.9
Total	100.0



% Capacity by Facility Type, February 2016



A US\$100 million, 12 MW WtE facility has been proposed for the city of Davao in the Philippines. If approved, it will have capacity for 450 tonnes of MSW per day.

Click map for full details



MSW accounted for just under 4.9 million tonnes of capacity in February 2016, equal to 29.9% of the total, and an average of 844 tonnes per day. The other major feedstock categories were organic materials, plant biomass and wood.

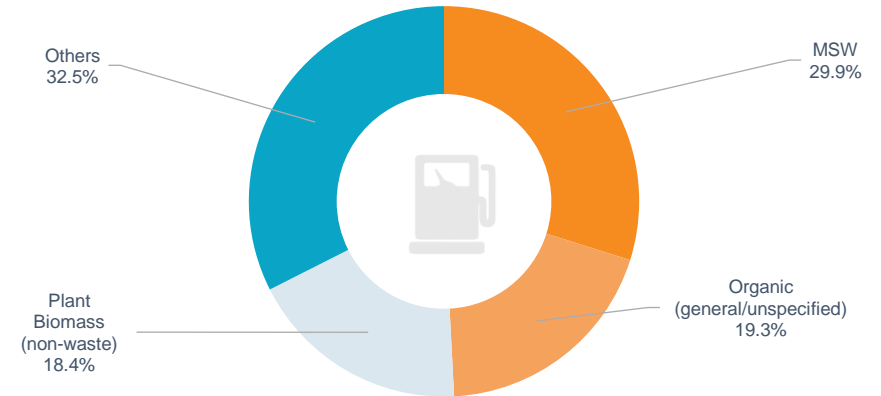
Latest Monthly Projects by Feedstock Type (February 2016)

	Projects	Annual Capacity (tonnes)	Average Annual Capacity (tonnes)	Average Tonnes Per Day
Animal	2	889,737	444,868	1,390
Clinical	0	0	-	-
Construction/Demolition	1	10,000	10,000	31
e-Waste	0	0	-	-
Food	0	0	-	-
Gas	2	0	-	-
Glass	0	0	-	-
Hazardous	0	0	-	-
Heat	0	0	-	-
Industrial	1	129,363	129,363	404
Metals	3	290,000	96,667	302
MSW	18	4,863,296	270,183	844
Oil	0	0	-	-
Organic (general/unspecified)	7	3,146,793	449,542	1,405
Paper	0	0	-	-
Plant Biomass (non-waste)	4	2,993,297	748,324	2,339
Plant Biomass (waste)	7	736,459	105,208	329
Plastics	1	27,368	27,368	86
Radioactive	0	0	-	-
Rubber	0	0	-	-
Sewage/wastewater	7	449,887	64,270	201
Wood	16	2,753,343	172,084	538
Other	0	0	-	-
Total	69	16,289,543	243,128	760

Reported Capacity by Feedstock, % of Total (February 2016)

	Capacity as % of Total
Animal	5.5
Clinical	-
Construction/Demolition	0.1
e-Waste	-
Food	-
Gas	-
Glass	-
Hazardous	-
Heat	-
Industrial	0.8
Metals	1.8
MSW	29.9
Oil	-
Organic (general/unspecified)	19.3
Paper	-
Plant Biomass (non-waste)	18.4
Plant Biomass (waste)	4.5
Plastics	0.2
Radioactive	-
Rubber	-
Sewage/wastewater	2.8
Wood	16.9
Other	-
Total	100.0

% Capacity by Feedstock, February 2016



Municipal Solid Waste accounted for 29.9% of waste capacity in projects covered in the Business Finder database in February 2016.



Latest Power Generation

In February 2016, estimated annual power generation amounted to 993 MW in total. 77.1% of this was from WtE incineration with most of the remainder coming from biofuel, worth 17.0% of the total.

Incineration amounted to 22 projects with total estimated generation of 765 MW, equal to 35 MW per plant. Biofuels amounted to eight projects, with total estimated output of 169 MW, or 21 MW per plant.



WtE incineration, whether standalone or as part of an integrated facility, continued to dominate the reported power generation of projects in February 2016.

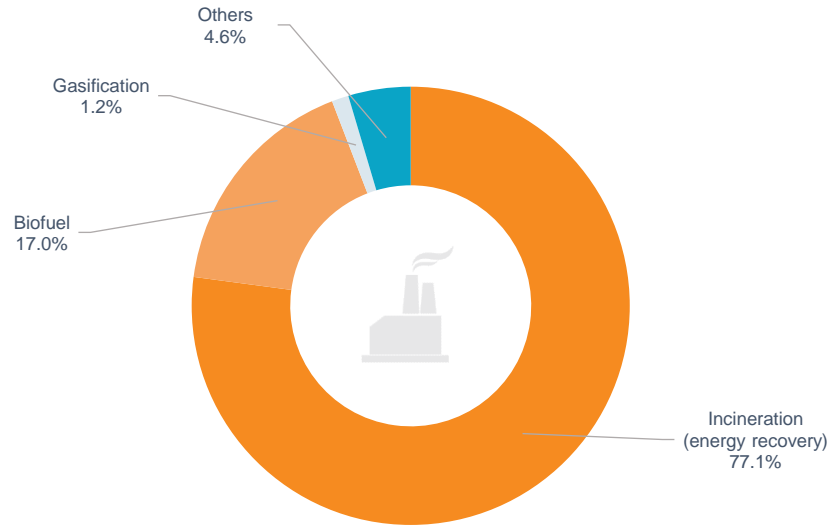
Estimated Power Generation of Projects Listed by Facility Type (February 2016)

	Projects	With Reported MW Generation	Estimated Annual MW Generation	Average MW Generation
Anaerobic Digestion	6	6	14	2
Biofuel	8	8	169	21
Biogas	6	6	18	3
Gasification	2	2	12	6
Incineration (energy recovery)	22	22	765	35
Incineration (no energy recovery)	0	0	0	-
Integrated Facilities (IWMF)	1	1	6	6
Landfill	5	0	0	-
MBT	0	0	0	-
Recycling	8	0	0	-
Waste Processing	5	0	0	-
Others	6	2	8	4
Total	69	47	993	21

Latest Estimated Power Generation by Facility Type, % of Total (February 2016)

	% of Total Projects
Anaerobic Digestion	1.4
Biofuel	17.0
Biogas	1.8
Gasification	1.2
Incineration (energy recovery)	77.1
Incineration (no energy recovery)	-
Integrated Facilities (IWMF)	0.6
Landfill	-
MBT	-
Recycling	-
Waste Processing	-
Others	0.8
Total	100.0

% MW Generation by Facility Type, Feb 2016



In February 2016, 77.1% of proposed power generation was through incineration, principally using wood, plant biomass, other organic materials and MSW as feedstocks.



Latest Estimated Power Generation of Projects Listed by Feedstock Type (February 2016)

	Projects	With Reported MW Generation	Estimated MW Generation	Average MW Generation
Animal	2	2	3	2
Clinical	0	0	0	-
Construction/Demolition	1	0	0	-
e-Waste	0	0	0	-
Food	0	0	0	-
Gas	2	2	8	4
Glass	0	0	0	-
Hazardous	0	0	0	-
Heat	0	0	0	-
Industrial	1	1	0	0
Metals	3	0	0	-
MSW	18	7	159	23
Oil	0	0	0	-
Organic (general/unspecified)	7	7	414	59
Paper	0	0	0	-
Plant Biomass (non-waste)	4	4	145	36
Plant Biomass (waste)	7	5	21	4
Plastics	1	0	0	-
Radioactive	0	0	0	-
Rubber	0	0	0	-
Sewage/wastewater	7	5	16	3
Wood	16	14	227	16
Other	0	0	0	-
Total	69	47	993	21

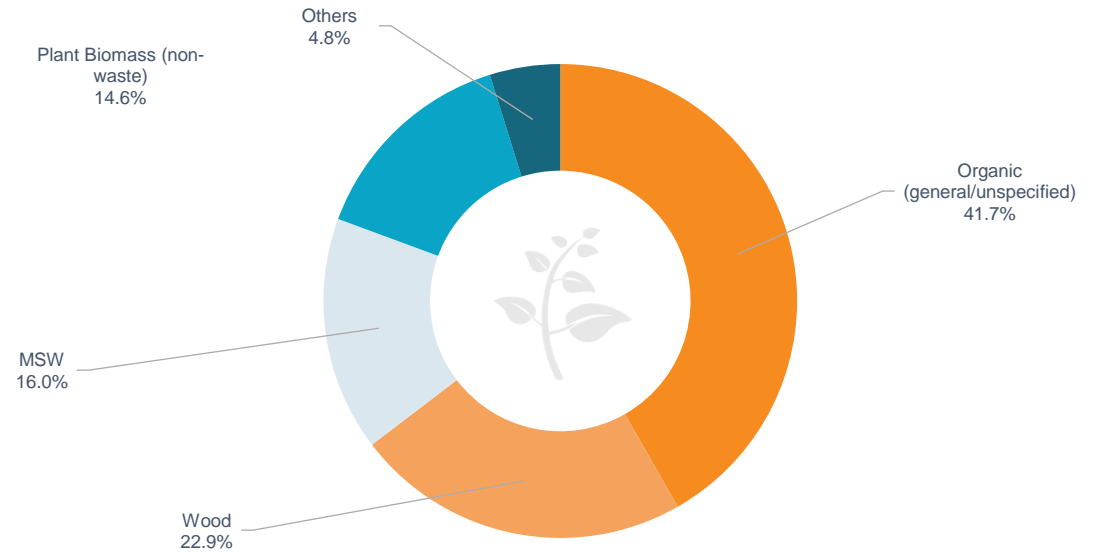
Latest Estimated Power Generation by Feedstock Type, % of Total (February 2016)

	MW Generation as % of Total
Animal	0.3
Clinical	-
Construction/Demolition	-
e-Waste	-
Food	-
Gas	0.8
Glass	-
Hazardous	-
Heat	-
Industrial	0.0
Metals	-
MSW	16.0
Oil	-
Organic (general/unspecified)	41.7
Paper	-
Plant Biomass (non-waste)	14.6
Plant Biomass (waste)	2.1
Plastics	-
Radioactive	-
Rubber	-
Sewage/wastewater	1.6
Wood	22.9
Other	-
Total	100.0

Biomass and wood-based materials - whether waste products or grown specially - are increasingly being used as a fuel for providing domestic power for heat and light.



% MW Generation by Feedstock Type, February 2016



Latest Country Focus

The USA was the leading country in February 2016 in terms of new projects reported, with 19 in total. This was followed by the UK with nine and Germany/India with five each.

In terms of estimated value, Finland was the leader, with US\$1,258 million or 24.5% of the total. This was followed by the USA with US\$1,084 million or 21.1%, and the UK with US\$706 million or 13.7%.



Significant waste investments occur not only in developed markets, but across the developing world.

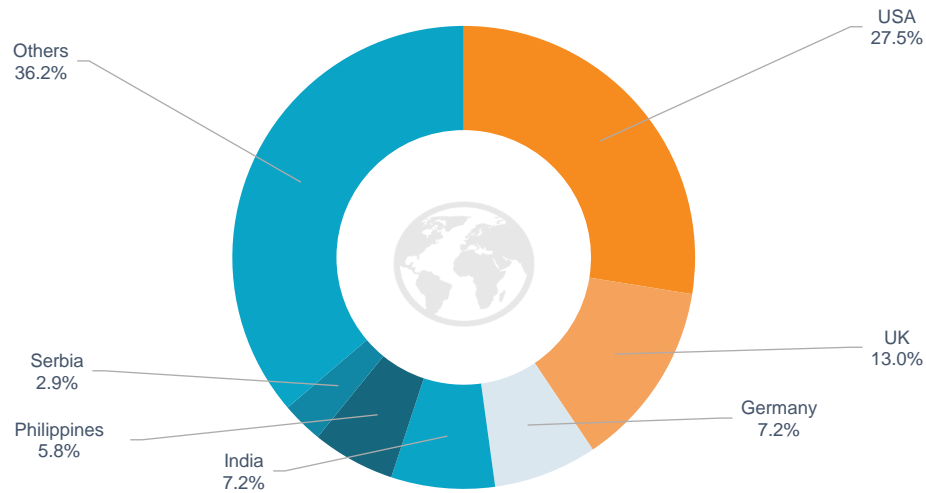
Top Ten Countries (number of projects listed), February 2016

	Projects	% of Total
USA	19	27.5
UK	9	13.0
Germany	5	7.2
India	5	7.2
Philippines	4	5.8
Serbia	2	2.9
China	2	2.9
Russia	2	2.9
Finland	2	2.9
Canada	2	2.9
Subtotal	52	75.4
Others	17	24.6
Total	69	100.0

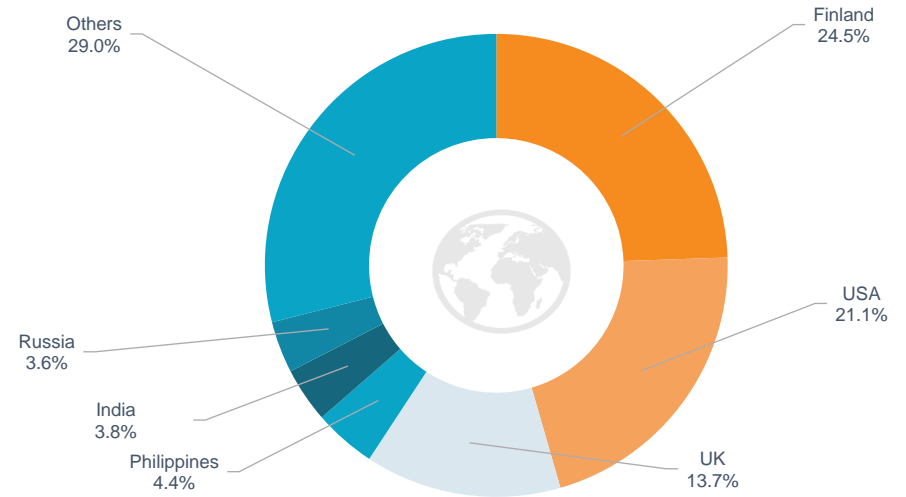
Top Ten Countries (estimated value of projects listed), February 2016

	US\$ millions	% of Total
Finland	1,258	24.5
USA	1,084	21.1
UK	706	13.7
Philippines	224	4.4
India	197	3.8
Russia	186	3.6
China	178	3.5
Romania	151	2.9
Afghanistan	151	2.9
Germany	140	2.7
Subtotal	4,276	83.1
Others	869	16.9
Total	5,145	100.0

Leading Countries, Number of Projects, February 2016



Leading Countries, Value of Projects, February 2016



Operational Date Focus

Of the 69 projects reported on in February 2016, three are already in operation, valued at US\$173 million. A further 23 are estimated to become operational in 2016, worth a total of US\$1,024 million. For 2017, 15 projects are expected to become operational, worth US\$764 million.



Once work starts, the average project takes around 18 months to become operational. Most, however have on-going operational requirements for much longer.

Projects by Estimated Operational Date (February 2016)

	Number of Projects	Value (US\$ millions)
Already operational	12	613
Q4-2015	0	-
Q1-2016	0	-
Q2-2016	4	86
Q3-2016	5	366
Q4-2016	5	132
Q1-2017	1	1
Q2-2017	4	43
Q3-2017	4	408
Q4-2017	6	312
Q1-2018	1	170
Q2-2018	7	159
Q3-2018	6	461
Q4-2018	3	121
2019+	11	2,275

Estimated Value of Investments by Operational Date, 2016-2019 (US\$ millions)

