Waste Investment Review 2020

A complimentary summary of newly-announced waste and waste-related investments during 2020.

Prepared January 2021

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Opportunities in Waste • Bioenergy • Recycling

Summary

During 2020, AcuComm identified **999 major new investments** in the global waste and waste-related sectors. That's nearly three new investments per day.

These represented a total estimated value of US$68.7 billion, or US$69 million each on average. These account for an estimated annual feedstock capacity of 202 million tonnes, equal to 202,260 tonnes each on average, or 632 tonnes per day (using a 320-day year).

An estimated 482 investments involved the generation of electrical power and/or heat in some form, equal to 48% of the total. The total estimated power/heat generated from these projects is 10,777 MW, or 22 MW each on average.

Summary of new waste investment activity in 2019-2020

	2019	2020
New Investments	917	999
Total Estimated Value (US$ billion)	55	69
Average Value (US$ million)	60	69
Estimated Annual Tonnage (millions)	195	202
Tonnes Per Day	664	632
Number of power/heat generating projects	529	482
Estimated total MW	12,635	10,777
Average MW	24	22

Source: AcuComm database, January 2021. Click here to explore the full dataset.

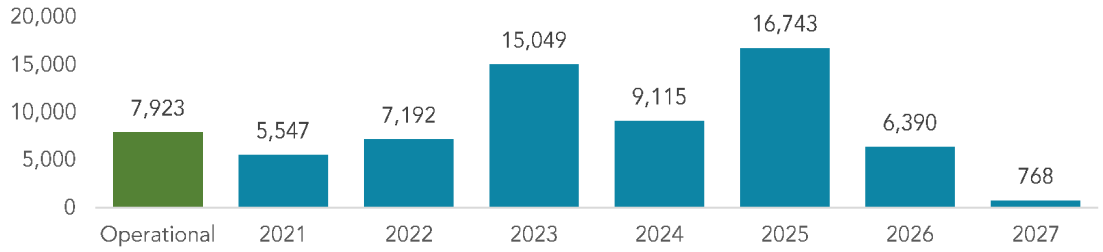
The data is taken from AcuComm's proprietary Business Database. This is a database of projects compiled and maintained by us on a daily basis. The information in it is not readily available from any other source. Our analytics use a combination of reported and modelled data. We collect many thousands of points of data regarding investment values, project capacity, power output and likely timescales. This enables us to build models for determining these values on an industry-wide and industry-specific scale. As a result, we are able to provide comprehensive analytic data which remains firmly grounded in 'real world' information.

Lifecycle stages

Naturally, much of this new investment is in facilities which have yet to become operational. Currently only around 11% by value and 13% by tonnage are currently operational. This figure falls to 8% when looking at power/heat generation; this is to be expected as larger power generating facilities take longer to plan and build.

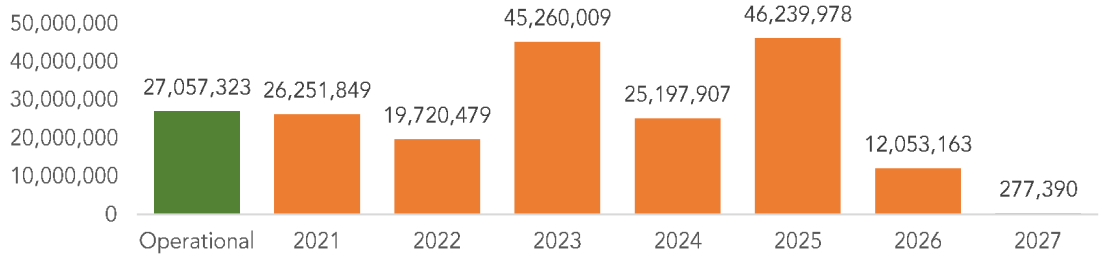
The number of completions will rise steadily until 2025, when the value of newly-operational plants will peak at US$16.7 billion. It falls thereafter, but the pipeline will refill as more new investments are announced in 2021 and beyond. Likewise, the additional tonnage capacity will rise steadily, peaking at 46.2 million tonnes in 2025. Additional MW capacity will peak at 2,422 MW in the same year.

Estimated Date of Operation by Value (US$m)



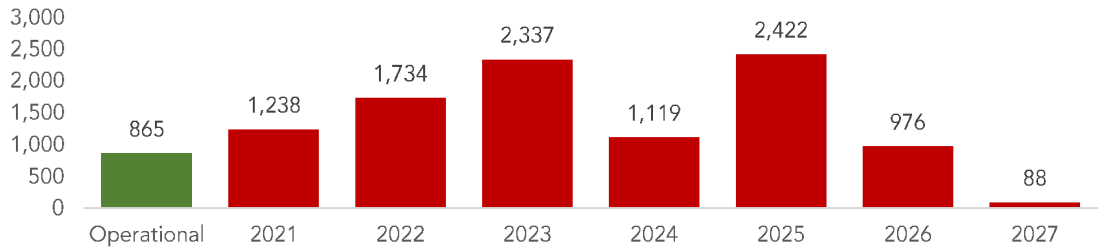
Source: AcuComm database, January 2021. Click here to explore the full dataset.

Estimated Date of Operation by Capacity (tonnes)



Source: AcuComm database, January 2021. Click here to explore the full dataset.

Estimated Date of Operation by Power (MW)



Source: AcuComm database, January 2021. Click here to explore the full dataset.

Investments by facility type

At AcuComm we have devised our own methodology for categorising waste investments. Each is given a 'best fit' facility type. A summary of the 999 investments recorded in 2020 is given in the table below. The largest number of facilities principally comprise incineration of waste or biomass, with associated energy recovery in the form of electricity or heat. There were 244 of these in 2020, worth US$33.8 billion or 49% of the total value. In terms of capacity, they represent estimated annual tonnage of just under 79.2 million, equal to 38.0% of the total. Unsurprisingly, these plants account for 9,138 MW, equal to 84.8% of proposed power/heat generation.

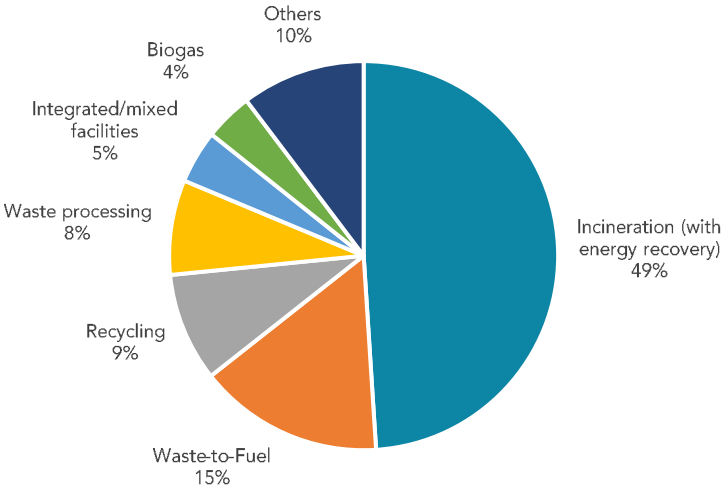
Recycling projects were the second most numerous in 2020, with 202 new investments. These naturally tend to be far smaller than WtE plants, and their overall value is correspondingly lower at US$6.2 billion. Waste-to-Fuel projects, which tend to be larger, had the second highest value in 2020, at US$10.6 billion.

Summary of 2020 investments by facility type

	Number	Value (US$m)	Annual Tonnage	Power (MW)
Anaerobic Digestion	62	1,649	4,489,587	143
Biogas	119	2,755	10,216,750	532
Gasification	16	1,589	1,128,136	244
Incineration (with energy recovery)	244	33,841	79,151,435	9,138
Incineration (without energy recovery)	12	280	544,645	0
Integrated/mixed facilities	17	3,047	4,579,298	473
Landfill	60	1,519	19,370,926	111
MBT	10	273	1,630,718	0
Recycling	202	6,244	25,670,885	9
Waste processing	161	5,450	22,930,913	6
Waste-to-Fuel	72	10,641	28,201,693	35
Other	24	1,438	4,143,114	86
Total	**999**	**68,726**	**202,058,100**	**10,777**

Source: AcuComm database, January 2021. Click here to explore the full dataset.

Value of New Investments in 2020 (US$m)



Source: AcuComm database, January 2021. Click here to explore the full dataset.

Average values can vary widely, depending on the project type. Leaving aside integrated facilities (which typically involve several different plants), the largest in terms of value in 2020 were biofuel/waste-to-fuel, worth US$148 million on average, and WtE incineration plants, worth US$139 million on average. Most other project types are far smaller than this. Recycling, for example, amounts to US$31 million on average.

The largest capacity is for waste-to-fuel projects, at 1,224 tonnes per day (TPD). This is followed by WtE incineration plants, which averaged 1,014 TPD. Most other facilities tend to be far smaller, typically below 400 TPD.

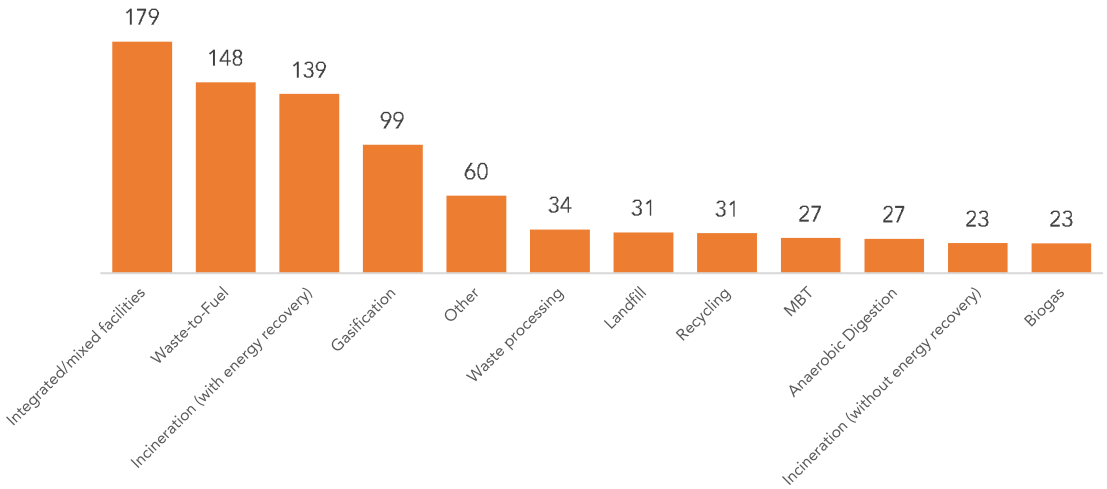
Power/heat generation is naturally largest in purpose-built incineration plants, at an average of 37 MW each.

Average values in 2020 by facility type

	Average Value (US$m)	Average Capacity (TPD)	Average Power (MW)
Anaerobic Digestion	27	226	2
Biogas	23	268	5
Gasification	99	220	16
Incineration (with energy recovery)	139	1,014	37
Incineration (without energy recovery)	23	142	n/a
Integrated/mixed facilities	179	842	28
Landfill	25	1,009	2
MBT	27	510	n/a
Recycling	31	397	5
Waste processing	34	445	6
Waste-to-Fuel	148	1,224	18
Other	60	539	10
Total	**69**	**632**	**22**

Source: AcuComm database, January 2021. Click here to explore the full dataset.

Average Values by Facility Type (US$m)



Source: AcuComm database, January 2021. Click here to explore the full dataset.

Investments by waste/feedstock type

We also categorise investments by their most likely feedstock type. All 999 new investments in 2020 are summarised below.

The largest feedstock category in 2020 was general municipal solid waste (MSW). There were 285 such investments, worth a combined US$30.9 billion, equal to 44.8% of the total value. MSW accounted for 45.0% of the total estimated tonnage capacity and 47.4% of additional power/heat generation capacity.

The second major feedstock category was wood, with 99 investments worth US$6.5 billion. This may comprise waste wood or specially-grown wood for use in biomass facilities.

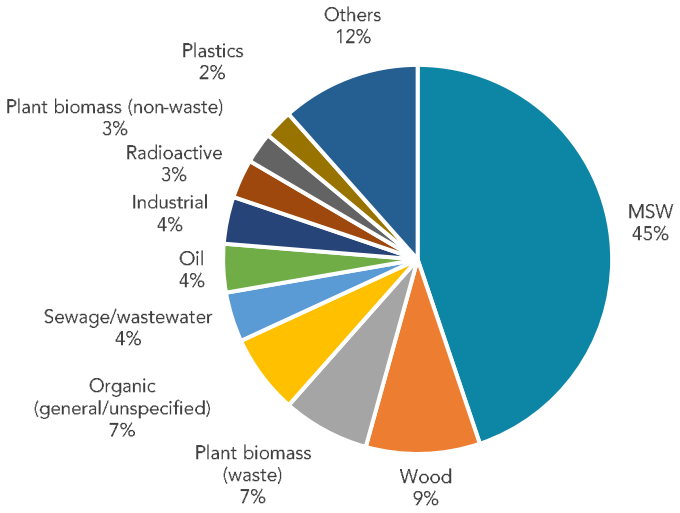
Projects involving more specific feedstocks tend to be smaller in size if not importance. There were 65 plastics projects in 2020, worth just under US$1.7 billion.

Summary of 2020 investments by feedstock type

	Number	Value (US$m)	Annual Tonnage	Power (MW)
Animal	67	1,500	9,049,554	257
Clinical	14	207	167,623	4
Construction/Demolition	28	381	8,777,267	0
e-Waste	9	114	456,425	0
Food	29	681	1,641,678	64
Gas	27	883	4,506,519	287
Glass	5	113	813,672	0
Hazardous	36	1,663	2,095,331	27
Heat	12	364	1,081,587	50
Industrial	36	2,702	8,316,019	296
Metals	19	672	3,337,885	0
MSW	285	30,598	87,607,568	5,111
Oil	22	2,782	5,636,335	30
Organic (general/unspecified)	81	4,562	11,134,943	892
Paper	10	611	1,430,710	0
Plant biomass (non-waste)	10	1,788	10,376,189	80
Plant biomass (waste)	54	4,994	18,887,914	1,268
Plastics	65	1,669	2,968,335	0
Radioactive	4	2,237	127,126	0
Rubber	10	325	413,755	0
Sewage/wastewater	58	2,856	7,657,563	123
Wood	99	6,551	13,328,844	2,273
Other	19	473	2,245,257	15
Total	**999**	**68,726**	**202,058,100**	**10,777**

Source: AcuComm database, January 2021. Click here to explore the full dataset.

Value of New Investments in 2020 (US$m)



Source: AcuComm database, January 2021. Click here to explore the full dataset.

Average values by feedstock type

	Average Value (US$m)	Average Capacity (TPD)	Average Power (MW)
Animal	22	422	4
Clinical	15	37	2
Construction/Demolition	14	980	n/a
e-Waste	13	158	n/a
Food	23	177	3
Gas	33	522	12
Glass	23	509	n/a
Hazardous	46	182	9
Heat	30	282	6
Industrial	75	722	33
Metals	35	549	n/a
MSW	107	961	38
Oil	126	801	30
Organic (general/unspecified)	56	430	15
Paper	61	447	n/a
Plant biomass (non-waste)	179	3,243	27
Plant biomass (waste)	92	1,093	29
Plastics	26	143	n/a
Radioactive	559	99	n/a
Rubber	32	129	n/a
Sewage/wastewater	49	413	3
Wood	66	421	31
Other	25	369	1
Total	**69**	**632**	**22**

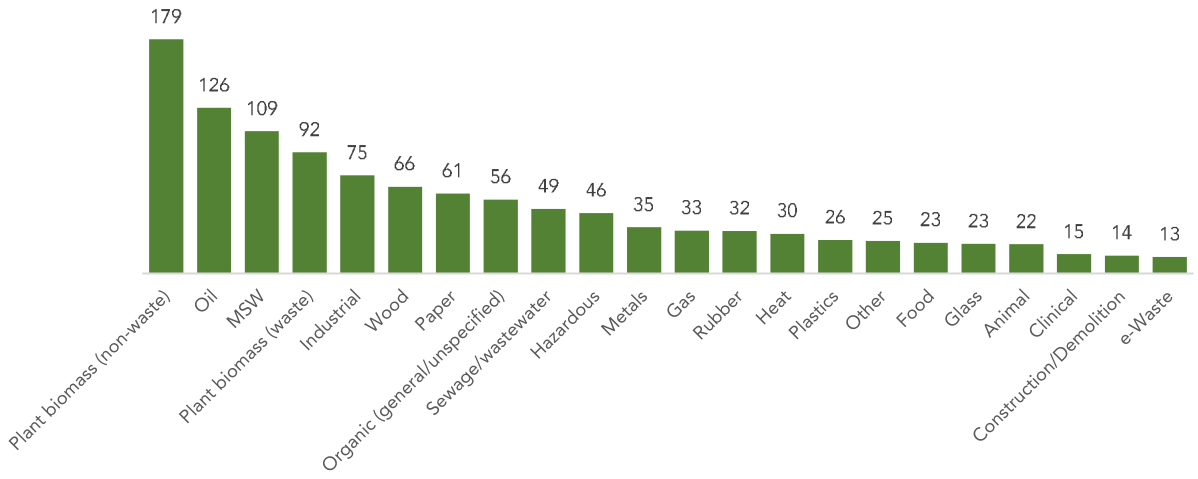
Source: AcuComm database, January 2021. Click here to explore the full dataset.

The table above shows the average values for different investments according to feedstock type. In terms of value, specialist sectors such as radioactive waste, oil or specialist biomass refineries have very high averages. The average for an MSW project in 2020 was US$109 million. Projects dealing with specific waste sectors typically have lower averages; US$26 million each for plastics facilities, for example.

The highest daily throughput capacity is found for dedicated biomass facilities, at 3,243 tonnes per day. MSW in contrast is 961 TPD on average. Again, the more specialised the facility, the lower the daily throughput, down to 143 TPD for plastics and 37 TPD for clinical waste.

The largest amounts of power/heat are generated from MSW (38 MW on average), wood (31 MW) and biomass (28 MW).

Average Values by Feedstock Type (US$m)



Source: AcuComm database, January 2021. Click here to explore the full dataset.

Regional investment

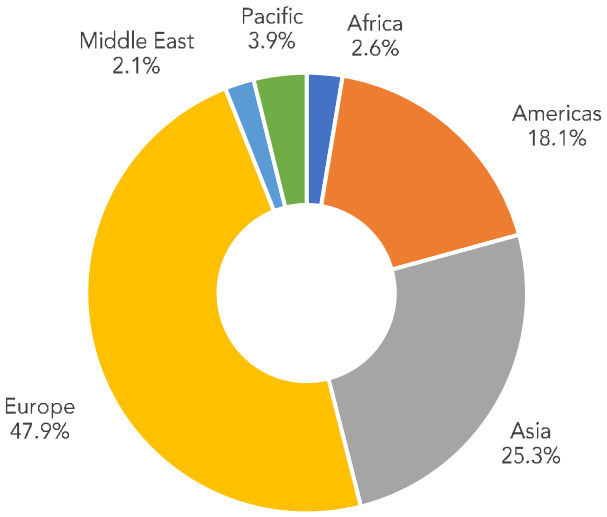
2020 saw major investment announcements in 90 countries. The map below shows their location, where known.

Map of new waste sector investments, 2020

Source: AcuComm database, January 2021. Click here to explore the full dataset.

Europe was the leading world region by value, accounting for US$32.8 billion or 47.9% of all new investment during 2020. This was followed by Asia with US$17.3 billion (25.3%) and the Americas with US$12.4 billion (18.1%).

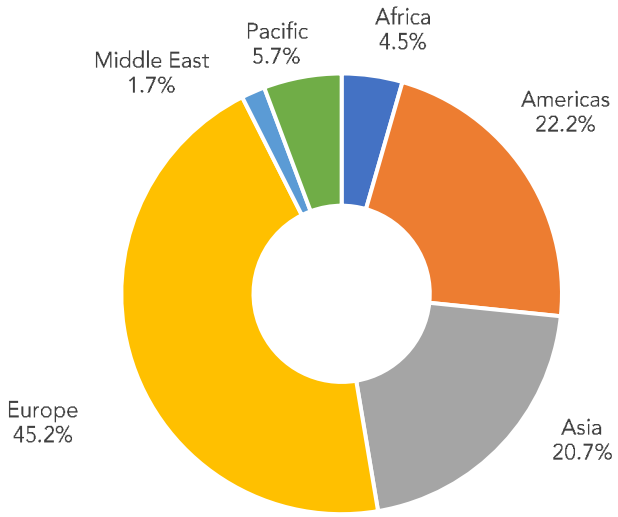
New Investment in 2020 by Region (US$m)



Source: AcuComm database, January 2021. Percentages are calculated using a total of 992 projects, as seven projects have an unknown region. Click here to explore the full dataset.

In terms of tonnage capacity, the picture was broadly similar. Europe accounted for 91.1 million tonnes, equal to 45.2% of the total. This was followed by the Americas with 44.6 million tonnes (22.2%) and Asia with 41.6 million (20.7%).

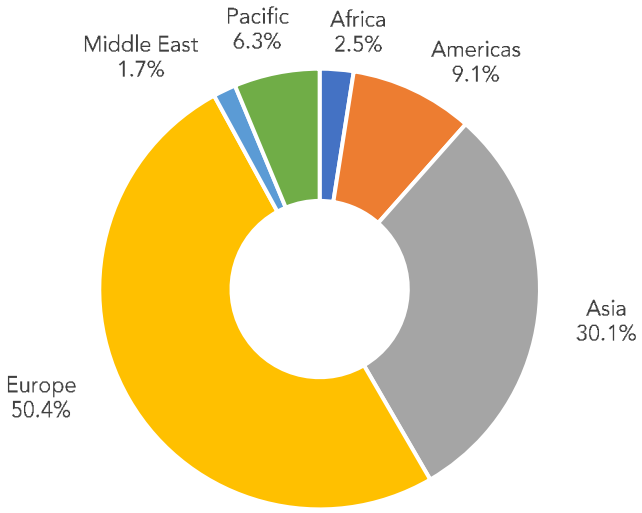
New Investment in 2020 by Region (Tonnes)



Source: AcuComm database, January 2021. Percentages are calculated using a total of 992 projects, as seven projects have an unknown region. Click here to explore the full dataset.

Europe headed the list in terms of power/heat generation, accounting for an estimated 5,422 MW of new generation, equal to 50.4% of the total. Asia was second with 3,235 MW (30.1%) and the Americas a more distant third with 975 MW (9.1%).

New Investment in 2020 by Region (MW)



Source: AcuComm database, January 2021. Percentages are calculated using a total of 992 projects, as seven projects have an unknown region. Click here to explore the full dataset.

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Countries

In 2020, the ten leading countries accounted for 71% of all new investment worldwide. Russia headed the field with US$8,635 million, or 12.6% of the global total. The Russian government announced a major 25-plant expansion of its WtE capacity in May 2020. This was followed by the USA with US$8,330 million or 12.1%, and Japan with US$8,124 million or 11.8%. The UK was in fourth place with US$6,131 million or 8.9% of the global total. China, the leader in 2019 with US$9,321 million, dropped to fifth place in 2020.

Top ten countries in 2020 by US$m value

	US$m	%
Russia	8,635	12.6
USA	8,330	12.1
Japan	8,124	11.8
UK	6,131	8.9
China	4,891	7.1
Germany	3,616	5.3
Canada	3,176	4.6
Australia	2,522	3.7
Sweden	1,725	2.5
France	1,672	2.4
Others	*19,904*	*29.0*
World Total	**68,726**	**100.0**

Source: AcuComm database, January 2021. Click here to explore the full dataset.

In terms of annual estimated tonnage, the top ten countries accounted for just over 67% of all new investment. The USA headed the field with 32.8 million tonnes, equal to 16.2% of the total. This was followed by Russia with 19.3 million tonnes or 9.5%. China and the UK were in third and fourth places, with 14.7 million tonnes (7.3%) and 13.6 million tonnes (6.8%) respectively.

Top ten countries in 2020 by annual tonnage

	Tonnes	%
USA	32,819,152	16.2
Russia	19,286,872	9.5
China	14,746,453	7.3
UK	13,639,787	6.8
Japan	13,540,332	6.7
Australia	11,051,033	5.5
Canada	8,820,188	4.4
Germany	7,640,282	3.8
Poland	7,059,924	3.5
Spain	5,277,269	2.6
Others	*68,176,807*	*33.7*
World Total	**202,058,100**	**100.0**

Source: AcuComm database, January 2021. Click here to explore the full dataset.

When looking at new power/heat generation capacity, the top ten countries accounted for just over 68% of the 2020 total. Russia headed the field with 1,720 MW, equal to 16.0% of the total. Japan was in second place with 1,387 MW (12.9%) and China was third with 1,148 MW (10.6%).

Top ten countries in 2020 by power/heat generation

	MW	%
Russia	1,720	16.0
Japan	1,387	12.9
China	1,148	10.6
UK	755	7.0
Australia	633	5.9
Finland	466	4.3
USA	460	4.3
Germany	278	2.6
Sweden	256	2.4
Canada	247	2.3
Others	*3,427*	*31.8*
World Total	**10,777**	**100.0**

Source: AcuComm database, January 2021. Click here to explore the full dataset.

Average investment size

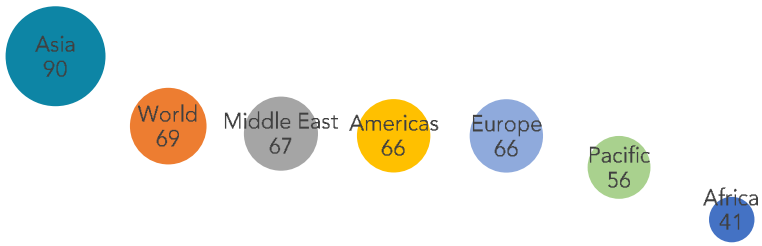
Investment values naturally vary widely according to the nature of each project. But some general trends can be spotted. Average values are above average in Asia, where there is a focus on larger WtE projects, particularly in China and Japan. They are also above average in Africa where there are a small number of big projected investments. This can also be seen in the capacity figures, where Asian projects tend to be significantly larger than those elsewhere. In contrast, projects in Europe and North America are often smaller in scale and more specialised.

Average investment sizes by region, 2020

	Value (US$m)	Capacity (tonnes per day)	Power/Heat Generation (MW)
Africa	41	637	24
Americas	66	743	14
Asia	90	676	23
Europe	66	572	22
Middle East	67	496	36
Pacific	56	766	42
World	**69**	**632**	**22**

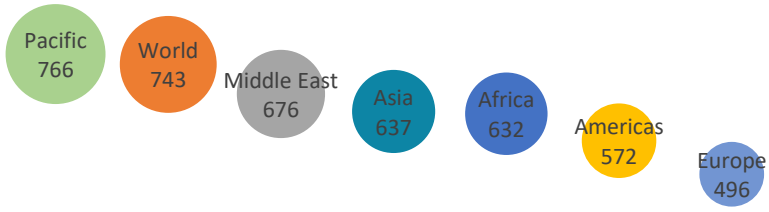
Source: AcuComm database, January 2021. Click here to explore the full dataset.

Average Investments by Region (US$m)



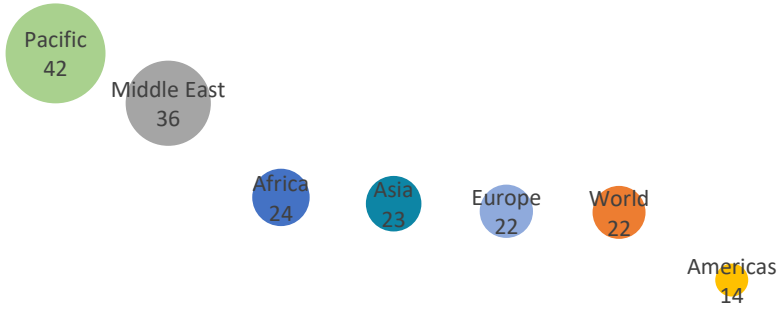
Source: AcuComm database, January 2021. Click here to explore the full dataset.

Average Investments by Region (TPD)



Source: AcuComm database, January 2021. Click here to explore the full dataset.

Average Investments by Region (MW)



Source: AcuComm database, January 2021. Click here to explore the full dataset.

Leading new investments in 2020

This final section lists the leading projects around the world, according to estimated value, capacity and power/heat generation. They reflect only a small proportion of the 999 investments covered by AcuComm during 2020. The full AcuComm database goes back to 2013 and currently has around 8,000 active projects and investments worldwide. Our team of researchers adds to the database daily, providing updates on the status of existing investments as well as new ones.

Online PDF readers can click the project names below to explore the full data, including company details and contact information for each.

Top ten investments in 2020 by estimated value (US$m)

Name	Location	Value (US$m)	Operational Date
Development of 25 WtE facilities.	Various, Russia	8,114	2023
Construction of an ethanol plant.	Prince George, British Columbia, Canada	1,571	2023
Construction of a A$2 billion biomass plant.	Katunga, Victoria, Australia	1,539	2022
Development of a renewable fuel complex.	Baton Rouge, LA, USA	1,250	2025
Construction of a renewable energy park including gasification and AD plants.	Peterhead, Aberdeenshire, UK	1,094	2024
Construction of a WtE facility.	Fukuyama City, Hiroshima Prefecture, Japan	759	2024
Construction of a 486 tpd WtE facility.	Futtsu, Chiba Prefecture, Japan	723	2027
Construction of a biofuels plant.	Varennes, Québec, Canada	687	2025
Construction of a biochemicals refinery.	Leuna, Germany	667	2022
Development of biofuel, recycling and bioplastics plants on former oil refinery site.	Grandpuits, Seine-et-Marne, France	607	2025

Source: AcuComm database, January 2021. Click the project name, or click here to explore the full dataset.

Top ten investments in 2020 by estimated annual capacity (tonnes)

Name	Location	Tonnage	Operational Date
Development of 25 WtE facilities.	Various, Russia	16,988,502	2023
Development of a renewable fuel complex.	Baton Rouge, LA, USA	7,804,946	2025
Construction of a A$2 billion biomass plant.	Katunga, Victoria, Australia	5,779,454	2022
Construction of an ethanol plant.	Prince George, British Columbia, Canada	5,728,633	2023
Construction of an effluent waste treatment plant.	Turów, Poland	5,110,000	2021
Completion of a waste gas boiler plant.	Terneuzen, Netherlands	2,671,800	2020
Construction of a recycling plant for C&D waste.	Oberglatt, Switzerland	1,752,000	2021
Construction of a municipal waste landfill.	Boggs Township, PA, USA	1,655,613	2024
Construction of a landfill and recycling centre.	Cumberland County, VA, USA	1,415,209	2025
Development of an 11-hectare landfill expansion.	Casablanca, Morocco	1,320,000	2024

Source: AcuComm database, January 2021. Click the project name, or click here to explore the full dataset.

Top ten investments in 2020 by estimated power/heat generation (MW)

Name	Location	MW	Operational Date
Development of 25 WtE facilities.	Various, Russia	1,593	2023
Construction of a A$2 billion biomass plant.	Katunga, Victoria, Australia	576	2022
Development of a biomass power plant.	Vuosaari, Helsinki, Finland	220	2022
Construction of a renewable energy park including gasification and AD plants.	Peterhead, Aberdeenshire, UK	200	2024
Development of a biomass-fuelled boiler plant.	Rya, Sweden	140	2022
Redevelopment of a 16.6 MW WtE facility.	Sapporo City, Hokkaido Prefecture, Japan	115	2025
Construction of a 112 MW biomass plant.	Iwaki, Fukushima Prefecture, Japan	112	2022
Construction of a new combustion line.	Parona, Italy	110	2025
Construction of biomass and heat recovery boilers at a pulp mill.	Paso de los Toros, Uruguay	110	2022
Conversion of a coal-fired power plant to biomass.	Bois-Rouge, Reunion, Réunion	108	2023

Source: AcuComm database, January 2021. Click the project name, or click here to explore the full dataset.

Thankyou for reading!

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