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Report on the Landfill Allowances Scheme (LAS) Wales 2017/18

Final results

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Executive Summary

This report covers the thirteenth full year, 1st April 2017 to 31st March 2018, of the Landfill Allowances Scheme (LAS) in Wales¹. The results presented in this report are final. The purpose of the scheme is to ensure diversion of biodegradable municipal waste (BMW) from landfill. Welsh Government sets limits on the amount of BMW waste that local authorities in Wales can landfill.

Data Limitations

A data quality issue has been identified with the formula for estimating the proportion of biodegradable waste in tonnages landfilled. Annex 1 provides important summary information that requires consideration alongside the annual results.

Compliance headlines

Welsh local authorities sent 105,728² tonnes of BMW to landfill in 2017/18 compared to an overall Wales allowance of 370,000 tonnes. This was 71 per cent less (264,272 tonnes) than the allowance. Twenty-one local authorities achieved their individual allocated allowance.

Wales has reduced the amount of BMW sent to landfill by 88 per cent (745,761 tonnes³) since the first full year of the scheme in 2005/06. Reducing the amount of BMW waste going to landfill helps to cut greenhouse gas emissions, preventing the production and release of methane into the air from landfill sites. This is important, as methane is twenty five times more powerful than carbon dioxide as a greenhouse gas.

Looking at individual local authority performance for 2017/18, Caerphilly, Cardiff, Denbighshire, Flintshire, Isle of Anglesey, Merthyr Tydfil, Monmouthshire, Rhondda Cynon Taf, Vale of Glamorgan and Wrexham used less than 10 per cent of their allowances, while Ceredigion and Swansea used over 70 per cent of their allowance.

Pembrokeshire used over 100 per cent of their allowance and therefore exceeded their Landfill Allowance allocation.

As a whole, local authorities have continued to make good progress in diverting BMW from landfill. However, meeting the future targets up to 2020 will be particularly challenging for those local authorities that exceeded or were close to exceeding their 2017/18 individual allowances.

¹ The Landfill Allowance Scheme refers only to local authority collected municipal waste

² Out of a total of 1,549,684 tonnes of municipal solid waste arising by Welsh local authorities

³ 851,489 tonnes of BMW was sent to landfill in 2005/06

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1 Background

The Landfill Allowances Scheme (LAS) Wales⁴ was established through the Landfill Allowances Scheme (Wales) Regulations 2004. The purpose of the scheme is to ensure diversion of biodegradable municipal waste (BMW) from landfill. Reducing the amount of BMW waste going to landfill helps to cut greenhouse gas emissions, preventing the production and release of methane into the air from landfill sites. Methane is twenty five times more powerful than carbon dioxide as a greenhouse gas.

Welsh Government sets limits on the amount of BMW waste that local authorities in Wales can landfill. Natural Resources Wales is the Monitoring Authority for the scheme and has the duty to report performance against individual local authorities' annual allowance allocations and the collective total for Wales. Natural Resources Wales is responsible for reconciling the allowances available to each local authority with the amount of BMW that they have sent to landfill. Natural Resources Wales calculate the amount of BMW sent to landfill using a mass balance approach⁵.

The LAS Regulations also state that the amount of biodegradable waste local authorities collect should be sixty one per cent of the total collected municipal waste. The Welsh Government has since reviewed the biodegradability of municipal waste and concluded that this figure is still appropriate.

Within five months of the end of the scheme year, Natural Resources Wales must determine the amount of BMW sent to landfill by each local authority. Natural Resources Wales provides the Welsh Government with the annual reconciled data on 1st September each year. The Welsh Local Government Association (WLGA) and local authorities are consulted on the data and the final report is published on the Natural Resources Wales website, which acts as the Landfill Allowances register.

Any local authority that exceeds its allowance allocation is reported to the Welsh Government and is liable to financial penalties. The Welsh Government must establish and maintain a penalties register containing details of any such liabilities.

More information relating to the allocation of allowances can be found in the Welsh Government document entitled 'The Landfill Allowance Scheme: Allocation of Allowances 2009-2020'⁶.

⁴ The Landfill Allowances Scheme refers only to local authority collected municipal waste

⁵ The glossary has a brief description of the mass balance approach

⁶http://gov.wales/topics/environmentcountryside/epq/waste_recycling/disposal/landfill/allowances/?lang=en

2 Validation – Monitoring Authority

The LAS scheme year runs from April 1st to March 31st. Natural Resources Wales use a two stage quarterly process to audit the data after submission into WasteDataFlow⁷ (WDF). Stage one is a desktop audit of all the data submitted by local authorities. Stage two is a validation of WDF using landfill site returns. In 2012 Natural Resources Wales also began quarterly validation of end destination data for the statutory local authority recovery targets. This consists of a desktop audit based on the quantity of material reported as recovered each scheme year.

2.1 Comparison of WDF and Landfill Site Returns

Table 1 shows the figures for the amount of landfilled municipal waste validated by Natural Resources Wales in 2017/18. The results show the original and final discrepancy percentages between the two datasets before and after the validation. In 2017/18 there was a 1.4 per cent (or 2,418 tonnes) discrepancy between the figures after validation. This is more than the discrepancy of 0.9 per cent in 2016/17. The overall final discrepancy is well within the 10 per cent discrepancy target set by the Welsh Government. This is also a big improvement compared to the original discrepancies in each quarter of the year before validation.

Of the 169,999 tonnes validated by Natural Resources Wales, 160,047 tonnes were sent to landfills in Wales and 6,725 tonnes were sent to landfills in England. The remainder has been landfilled after energy from waste treatment outside of the UK. This waste has zero per cent biodegradability.

After undertaking 88 checks for the local authorities throughout the scheme year, there are four that remain over a 10 per cent or 100 tonne discrepancy. The causes of discrepancies between the two datasets include:

- landfills report site returns using The List of Waste (or European Waste Catalogues), whilst local authorities report by material type in WDF. These different reporting systems cause issues when comparing and also when distinguishing municipal waste as defined under the LAS Regulations;
- private contractors may take non-local authority collected municipal waste and non-municipal waste to landfill in the same vehicles they use to collect local authority collected municipal waste. It is therefore difficult to accurately calculate the amount of local authority collected municipal waste received at the landfill site; or
- issues with stockpiling and/or apportioning municipal waste from a landfill site that is used by several local authorities.

⁷ Data entry and submission is reported via an online reporting tool (WasteDataFlow) and is split into a series of levels, from 0 (data entry) to 40 (Welsh Government). A local authority submits data to Natural Resources Wales for validation at Level 30.

Table 1. Comparison of WDF and landfill site returns data showing amount of municipal waste sent to landfill in Wales in 2017/18 and discrepancies between the two data sets before and after validation

Quarter	2017-18 Site Returns - MSW sent to landfill (tonnes)		2017-18 WDF - MSW sent to landfill (tonnes)*		2017-18 % Discrepancy between the two data sets	
	Original	Final	Original	Final	Original	Final
1	37,491	40,273	40,899	40,616	-8.3%	-0.8%
2	45,950	47,406	47,404	47,954	-3.1%	-1.1%
3	44,274	44,174	44,940	44,246	-1.5%	-0.2%
4	37,462	35,728	37,620	37,183	0.4%	-3.9%
Total	165,177	167,581	170,862	169,999	-3.3%	-1.4%

** This is the total amount of Municipal Solid Waste (MSW) reported in WDF as sent to landfill that is checked against site returns. This figure will be slightly less than the total landfill figure, as some landfill waste is not validated due to apportioned rejects and rejects after several treatment processes where landfills cannot be identified or local authority portions are not clear.*

3 Local Authority Compliance

Annex 1 provides important summary information about the identified limitation of the current formula for estimating the proportion of biodegradable waste in landfilled tonnages. It is advised that the information detailed in Annex 1 is considered alongside the annual results below.

The overall results from the 2017/18 monitoring year are shown in Annex 2 on the following pages.

The annual results show that twenty-one local authorities achieved their LAS allowance obligations during 2017/18. A total of 105,728 tonnes of BMW from Wales was sent to landfill compared to the total Wales allowance of 370,000 tonnes. This means that local authorities in Wales collectively landfilled 71 per cent (264,272 tonnes) less BMW than the 2017/18 allowance.

The results show that nineteen local authorities have considerable headroom to meet their future obligations as they used no more than 70 per cent of their allocated allowances. Caerphilly, Cardiff, Denbighshire, Flintshire, Isle of Anglesey, Merthyr Tydfil, Monmouthshire, Rhondda Cynon Taf, Vale of Glamorgan and Wrexham all used less than 10 per cent of their allocated allowance. Blaenau Gwent, Bridgend, Neath Port Talbot, Newport, Powys and Torfaen used less than 50 per cent of their allocated allowance. Carmarthenshire, Conwy and Gwynedd used less than 70 per

cent of their allocated allowance. Ceredigion and Swansea used over 70 per cent of their allowance. Pembrokeshire used over 100 per cent of their allowance and therefore exceeded their Landfill Allowance allocation.

Annex 4 shows a geographical representation of LAS performance for Wales. Reasons for changes in the utilisation of allowances vary between years and by local authorities. Generally, changes can be attributed to:

- changes in waste collection service provision;
- changes in waste management practices and new/alternative technologies – diversion of residual waste to incineration with energy recovery has had a significant affect on local authority performance for LAS in recent years;
- public participation levels in recycling schemes;
- unforeseen circumstances (e.g. extreme weather, contingency planning).

Annex 1 – Limitations of data

Limitation

It has been identified that the formula for calculating the biodegradable content of residual municipal waste is not adjusting for all wood tonnages that are separately collected from mixed residual waste sources. This is because the formula is only adjusting for those wood tonnages reported as sent to recycling destinations but not those sent to incineration destinations.

Although the wood tonnages sent for incineration are not being diverted for recycling, they are being diverted from mixed residual waste sources that are subsequently landfilled.

Wood is a 100 per cent biodegradable material so the formula is overestimating the proportion of biodegradable waste remaining in the final tonnages sent to landfill through not factoring in this diversion fully.

Impact

The formula has been consistently applied throughout the years of the LAS Scheme so the amount of biodegradable municipal waste landfilled for a few local authorities is likely to have been overestimated where separately collected wood waste was reported as incinerated in some historic scheme years. However, the impact to statistics is likely to be minor for these years.

The impact is more significant for the 2017-18 scheme year following recent improvements in the accuracy of local authority reported end destinations for wood waste, particularly for Pembrokeshire whom exceeded their allowance.

Table 2 provides an example of the scale of the impact in LAS performance for Pembrokeshire with additional diverted wood tonnages manually included in the LAS formula for 2017-18.

Improvements

The mass balance formula will be fully reviewed prior to publication of the 2018-19 scheme year results to ensure recent complexities in waste management and reporting are considered and identified limitations are addressed where feasible.

Previously published landfill allowances register data will be revised where applicable following the review.

Table 2 - LAS performance for Pembrokeshire County Council following manual adjustments for additional wood diversion 2017-18

Pembrokeshire County Council	Reconciled 2017-18	Manually adjusted for wood 2017-18
Total Collected Municipal Waste	69,534	69,534
BMW%	61%	61%
Total Biodegradable Municipal Waste	42,416	42,416
Total Collected Municipal Waste Diverted	38,959	40,424
Biodegradable Content of Diverted Waste	23,399	24,865
Total Residual Waste	30,575	29,110
Biodegradable Content of Residual Waste	19,017	17,551
Residual Biodegradable Percentage	62%	60%
Directly Landfilled Municipal Waste	22,984	22,984
Landfill After Thermal Treatment	58	58
Landfill After MBT	674	674
MBT Reduction Factor	1	1
Landfilled after Other Treatment	346	346
Rejected Diverted	1,864	1,864
Biodegradable Municipal Waste Landfilled	16,070	15,587
Over allowance (tonnes)	722	239
Over allowance (%)	104.7%	101.6%

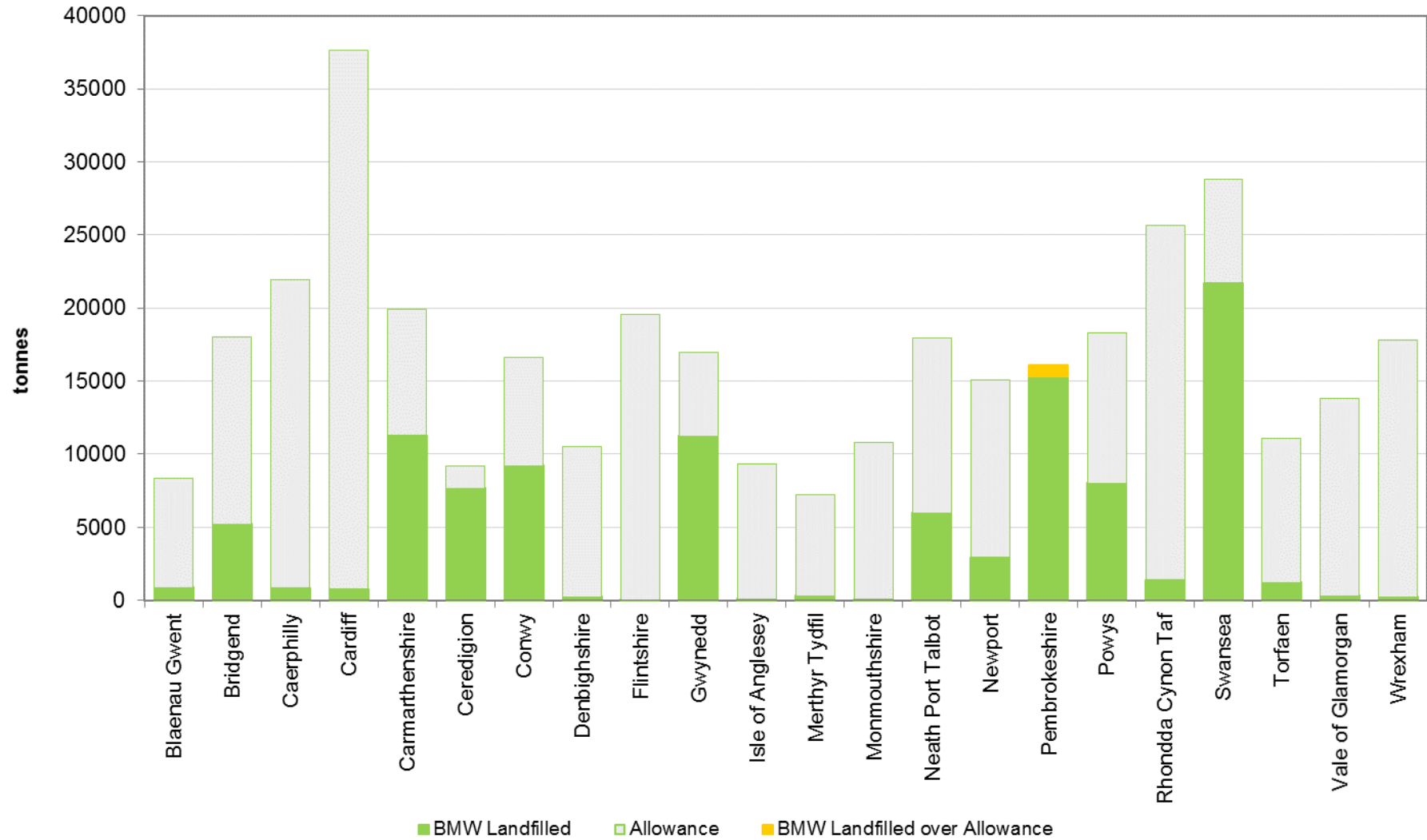
Annex 2 – Local authority compliance against targets

Table 3. LAS Performance for 2017/18

Authority	LAS Allowance (tonnes) 2017/18	BMW landfilled (tonnes)	% of LAS 2017/18 allowance used
Blaenau Gwent	8,369	862	10.3%
Bridgend	18,049	5,201	28.8%
Caerphilly	21,934	832	3.8%
Cardiff	37,627	759	2.0%
Carmarthenshire	19,920	11,263	56.5%
Ceredigion	9,160	7,671	83.7%
Conwy	16,615	9,223	55.5%
Denbighshire	10,525	228	2.2%
Flintshire	19,563	49	0.3%
Gwynedd	16,978	11,248	66.2%
Isle of Anglesey	9,361	95	1.0%
Merthyr Tydfil	7,230	315	4.4%
Monmouthshire	10,795	77	0.7%
Neath Port Talbot	17,940	5,972	33.3%
Newport	15,108	2,936	19.4%
Pembrokeshire	15,348	16,070	104.7%
Powys	18,293	8,025	43.9%
Rhondda Cynon Taf	25,683	1,415	5.5%
Swansea	28,832	21,714	75.3%
Torfaen	11,061	1,238	11.2%
Vale of Glamorgan	13,832	303	2.2%
Wrexham	17,777	234	1.3%
Wales	370,000	105,728	28.6%
			Under 90%
			Between 90-100%
			Over 100%

Natural Resources Wales maintain a register of LAS performance for local authorities since inception of the scheme in 2004. This register can be found at <https://naturalresources.wales/guidance-and-advice/environmental-topics/waste-management/landfill-allowance-scheme/?lang=en>

Figure 1. Amount of BMW landfilled compared to allowance for local authorities in Wales 2017/18



Annex 3 – Reporting of Local Authorities

Reporting deadlines for local authorities and landfill operators (see Table 4) are set out in the LAS Regulations. Both local authorities and landfill operators have to submit municipal waste returns to Natural Resources Wales⁸ within one month of the end of that period.

Table 4. Statutory LAS reporting deadlines

Quarter	Period	Reporting deadlines
1	Data from 1 April - 30 June	31 July
2	Data From 1 July - 30 September	31 October
3	Data from 1 October - 31 December	31 January
4	Data from 1 January - 31 March	30 April

In 2008/09, Natural Resources Wales produced the 'LAS Guidance on reporting and notices' which sets out the more detailed timetable for local authorities and landfill operators to meet their obligation to provide timely and accurate data under the LAS Regulations.

Local Authorities

The LAS regulations require local authorities to submit their municipal waste data to Natural Resources Wales for validation within one month of the quarter end. Figure 2 shows the level of compliant data reporting by local authorities in Wales during 2017/18.

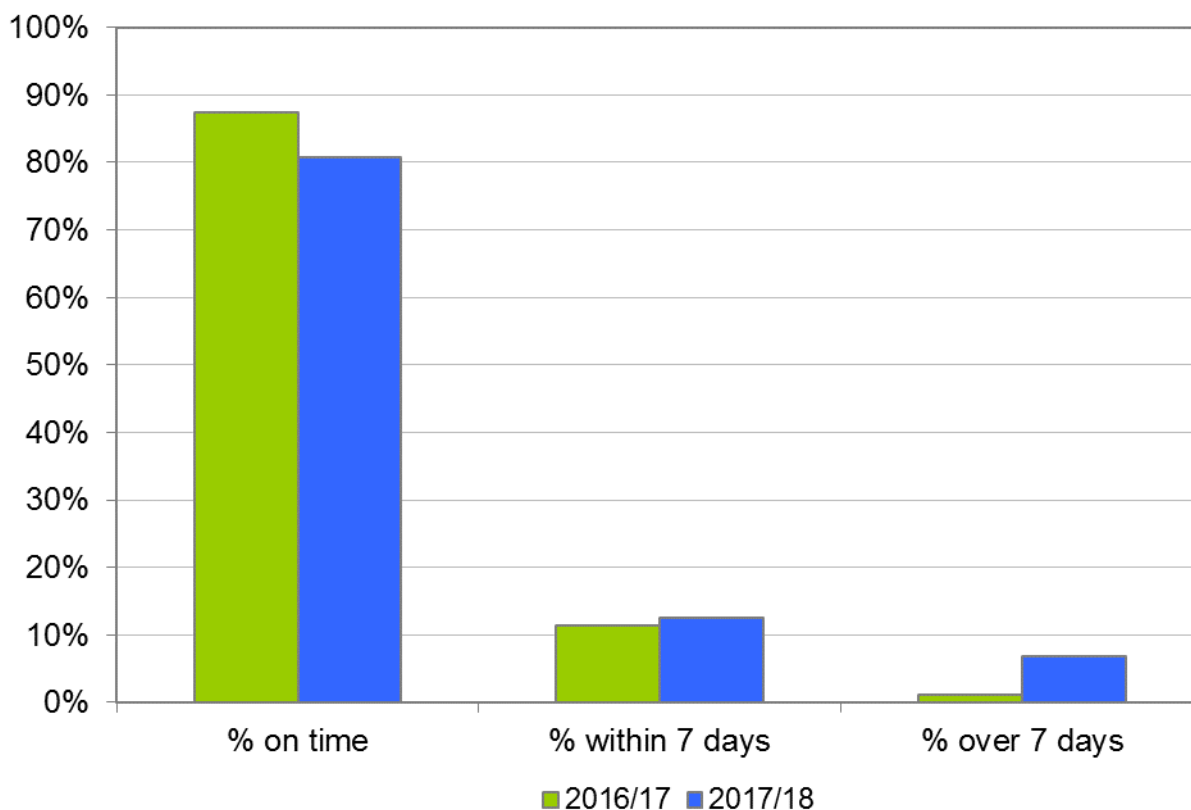
The level of prompt reporting in Wales in 2017/18 is slightly worse than in the previous year. Thirteen local authorities consistently reported on time throughout the year (a decrease of two from 2016/17).

The main reasons for local authorities reporting after the deadline included:

- technical issues;
- staffing and resource issues at local authorities;
- delay in local authorities receiving data from contractors; or
- extra time taken sourcing data for other reporting requirements.

⁸ Under the LAS Regulation, the 'Environment Agency' is listed as the Monitoring Authority, however, in Wales it was administered by Environment Agency Wales. The Natural Resources Body for Wales (Functions) Order 2013 transferred the Welsh devolved functions of the Environment Agency to the Natural Resources Body for Wales.

Figure 2. Proportion of local authorities reporting promptly in 2017/18 compared to 2016/17



NRW reports local authority compliance with the reporting deadlines to the Welsh Government. Table 5 on the following page provides more information on local authority reporting in 2017/18.

Landfill Operators

Landfill operators are required to report the amount of municipal waste received by their sites within one month of the quarter end. Following reporting in WDF, 44 landfill sites in England and Wales were identified as receiving local authority municipal waste originating in Wales in 2017/18 – 12 in Wales and 32 in England. Waste landfilled abroad after incineration was also reported in WDF. The total number of reported landfills has decreased from 46 to 44 in England and Wales.

Table 5. Compliance with WDF data reporting deadlines by local authorities

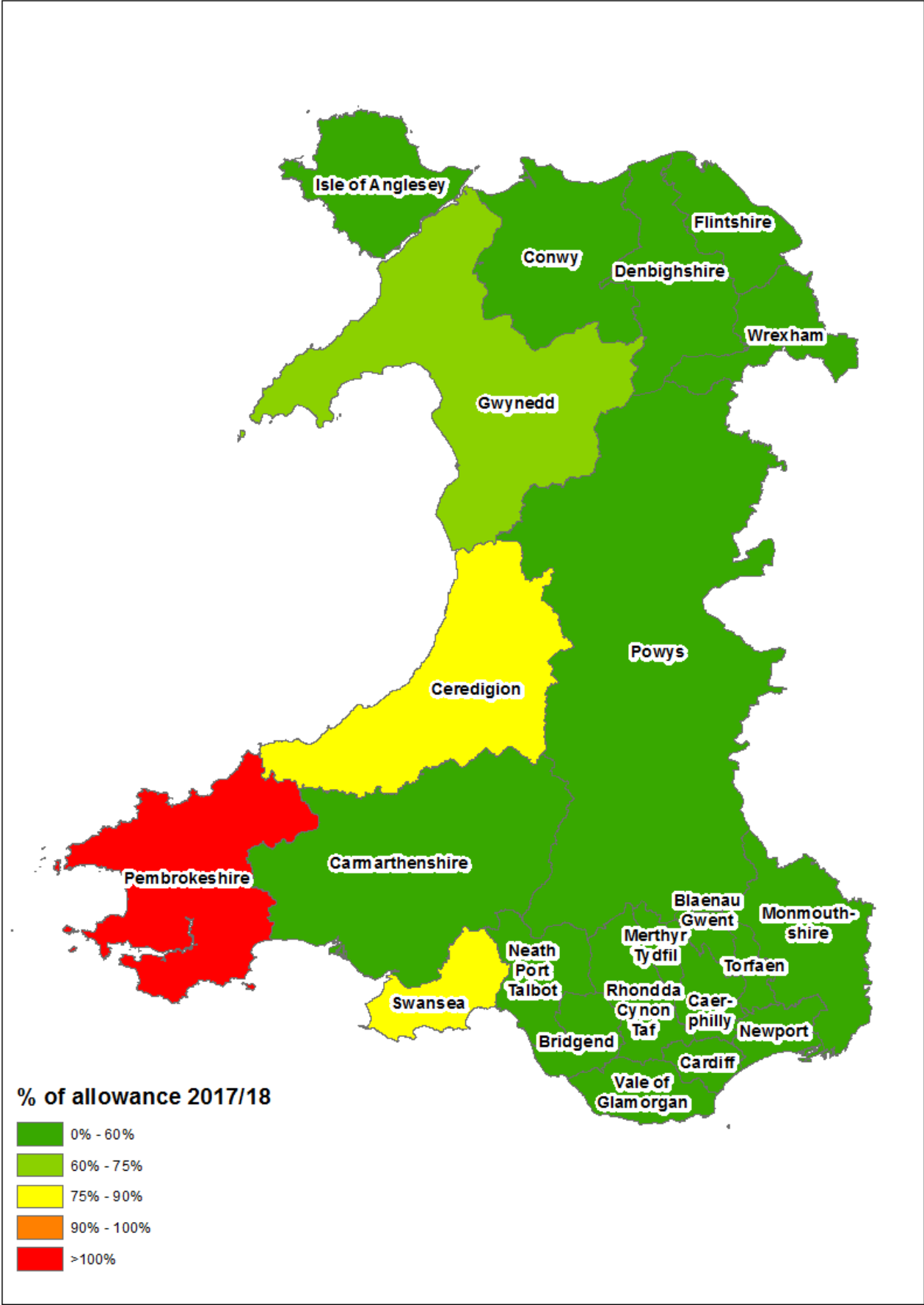
Local Authority	Apr-Jun 2017	Jul-Sep 2017	Oct-Dec 2017	Jan-Mar 2018
Blaenau Gwent	On time	On time	On time	On time
Bridgend	On time	On time	On time	On time
Caerphilly	On time	On time	On time	On time
Cardiff	On time	Over 7 days	Over 7 days	Over 7 days
Carmarthenshire	On time	Within 7 days	On time	On time
Ceredigion	On time	On time	On time	Within 7 days
Conwy	On time	On time	On time	On time
Denbighshire	Within 7 days	Over 7 days	Within 7 days	Over 7 days
Flintshire	On time	On time	On time	On time
Gwynedd	On time	On time	On time	On time
Isle of Anglesey	On time	On time	On time	On time
Merthyr Tydfil	On time	On time	On time	On time
Monmouthshire	On time	On time	On time	On time
Neath Port Talbot	On time	Within 7 days	Within 7 days	On time
Newport	On time	On time	On time	On time
Pembrokeshire	On time	On time	Within 7 days	On time
Powys	On time	On time	Over 7 days	Within 7 days
Rhonda Cynon Taf	On time	On time	On time	On time
Swansea	Within 7 days	On time	On time	On time
Torfaen	On time	On time	On time	On time
Vale of Glamorgan	On time	On time	On time	On time
Wrexham	Within 7 days	Within 7 days	On time	On time

N.B. Deadlines may be extended due to weekends/bank holidays, technical issues or if agreed with an authority for extenuating circumstances. An extension of 1 week was also provided to all authorities for quarter 3 (Oct-Dec) returns to allow for the service question data to be updated.

Key

	on time
	within 7 days
	over 7 days

Annex 4 – Local Authority Compliance Summary Map



Key Quality Information

1. Natural Resources Wales has six weeks to validate the data. Validation involves a procedure of checking that all relevant WasteDataFlow questions have been completed by the local authorities and any discrepancies in calculations between entered inputs and outputs are identified. Any anomalies are then communicated to the individual local authorities and remedial action is taken to resolve them. Post validation, Natural Resources Wales also request local authorities to provide evidence in relation to their waste data, which is an ongoing process throughout the scheme year.
2. There may be some inconsistencies in the measurement of total waste since the waste is weighed when collected and again when it is sent for treatment. In addition, there may also be loss in weight through various treatment processes. Natural Resources Wales validate all local authority returns and require that the difference between the amount collected and the amount sent for treatment must not differ by more than 10 per cent or 100 tonnes in any quarter (whichever is the greatest figure), unless a valid explanation can be given. Natural Resources Wales has also placed more emphasis on authorities providing more evidence in relation to their waste statistics since 2012-13.
3. WasteDataFlow is subject to continual improvement and development that can impact on the way that data is entered and introduce new data reports based on new data requirements. Some changes can be complex in nature producing impacts in reporting that may not be fully realised initially. All changes to the system are carefully monitored for any discrepancies between data entry and reporting. In the event that discrepancies arise, the WasteDataFlow system is adjusted and any previously published data is revised or caveated accordingly.
4. The accuracy of the data reported to WasteDataFlow is entirely dependant on the measurement, data management and reporting by local authorities and waste operators. While Natural Resources Wales carry out validation in accordance with the Regulations, the validation of WasteDataFlow and the cross checks with other available waste data is limited to the accuracy of those reporting.

Glossary

Biodegradable

Capable of being degraded by plants and animals.

Biodegradable Municipal Waste (BMW)

The component of Municipal Solid Waste capable of being degraded by plants and animals. Biodegradable Municipal Waste includes paper and card, food and garden waste, and a proportion of other wastes, such as textiles.

Diversion (from landfill)

A term referring to avoiding sending waste to landfill where it can be sent to an alternative waste management option that is better for the environment. The waste hierarchy is set out at Article 4 of the revised Waste Framework (Directive 2008/98/EC). This gives top priority to preventing waste in the first place. When waste is created, it gives priority to preparing it for re-use, then recycling, then recovery, and last of all disposal (e.g. landfill).

Green house Gas

A term given to those gas compounds in the atmosphere that reflect heat back toward earth rather than letting it escape freely into space. Several gases are involved, including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), ozone (O₃), water vapour (H₂O) and some of the chlorofluorocarbons (CFCs).

Incineration

The controlled thermal treatment of waste by burning, either to reduce its volume or toxicity. Energy recovery from incineration can be made by utilising the calorific value of the waste to produce heat and/or power.

Landfill Allowances Scheme (LAS)

The purpose of the Landfill Allowances Scheme is to ensure diversion of biodegradable municipal waste (BMW) from landfill. Welsh Government allocate statutory limits on the amount of BMW waste that local authorities in Wales can landfill. Welsh Government can apply financial penalties to Welsh local authorities for exceeding allowances and failure to comply with reporting requirements.

As monitoring authority for the scheme, Natural Resources Wales validates waste data submitted from Welsh local authorities and determines the amount of BMW sent to landfill by each local authority.

Landfill sites

Any areas of land in which waste is deposited. Landfill sites are often located in disused mines or quarries. In areas where they are limited or no ready-made voids exist, the

practice of landraising is sometimes carried out, where waste is deposited above ground and the landscape is contoured.

List of Waste (European Waste Catalogues)

Serves as a common encoding of waste characteristics in a broad variety of purposes like classification of hazardous wastes. Assignment of waste codes has a major impact on the transport of waste, installation permits (which are usually granted for the processing of specific waste codes), decisions about recyclability of the waste or as a basis for waste statistics.

Local authority municipal waste

Includes household and non-household waste that is collected and disposed of by local authorities. It includes regular household collections, specific recycling collections, special collections of bulky items, waste received at civic amenity sites and waste collected from non-household sources.

Local Authority Recovery Targets (LART)

The Local Authority Recovery Targets were set under the Waste (Wales) Measure 2010 by Welsh Government and are intended to promote higher levels of recycling and to realise associated wider sustainability benefits.

Mass Balance Approach

The mass balance formula is applied quarterly to calculate the biodegradable content of landfilled local authority municipal waste for each local authority. Welsh Government have deemed Welsh local authority municipal waste to be 61% biodegradable. The formula uses the data reported to WasteDataFlow to adjust this percentage based on the biodegradability of waste diverted for recycling, reuse and composting. This adjusted percentage is used to calculate the biodegradable content of landfilled waste.

WasteDataFlow (WDF)

Since 2004-05, waste data for the amount and type of local authority waste collected and how it is disposed of are collected through an online reporting system called WasteDataFlow (www.wastedataflow.org). In Wales this is managed by Natural Resources Wales.