

Offtake Meter Performance Report –2023/24

Wales & West Utilities
July 2024



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WWU Offtake Meter Performance

Wales & West Utilities (WWU) operates and maintains several exit points or offtakes from the National Transmission System (NTS) where offtake flow is measured and validated in accordance with the UNC, The Gas (Calculation of Thermal Energy) Regulations and The Gas Safety (Management) Regulations.

Report to the Performance Assurance Committee 25th July 2024.

Requirements

1. Number and magnitude of Meter Error reports.
2. Network Meter Performance.
3. Annual ME2 Meter Validation report.

Introduction

This document has been written to demonstrate that instrumentation and equipment associated with measurement systems for the calculation of mass, volume or energy flow rate of gas are functioning correctly. The ME2 Part 3 Work Procedure for Flow Weighted Average Calorific Value (FWACV) Offtakes is used to ensure metering equipment at the offtakes are validated and maintained correctly, thus ensuring that the complete metering system continues to perform within the uncertainty requirements.

WWU Network

WWU operates and maintains 3 Local Distribution Zones (LDZs), each LDZ has offtake points associated with them where the gas taken from the National Transmission System (NTS) is monitored, measured, and treated before entering the LDZs.

Each offtake has either duty and standby metering streams or one duty stream. WWU uses 2 types of gas metering; ultrasonic (USM) or turbine meters and utilises gas chromatography for Calorific Value (CV) determination and Pressure, Temperature, and Density (PTZ) for volume flow correction.

WWU Offtakes	Southwest (SW) LDZ		Wales North (WN) LDZ		Wales South (WS) LDZ	
	Aylesbeare	USM x 2	Maelor	USM x 2	Dowlais	USM x 2
Choakford	Turbine x 2			Dyffryn Clydach	USM x 2	
Cirencester	Turbine x 2			Gilwern	USM x 2	
Coffinswell	USM x 2					
Easton Grey	USM x 2					
Evesham	Turbine x 2					
Fiddington	USM x 2					
Ilchester	USM x 2					
Kenn	USM x 2					
Littleton Drew	Turbine x 1					
Pucklechurch	Turbine x 2					
Ross SW	Turbine x 2					
Seabank	USM x 2					

Table 1 – WWU Offtakes

ME2 Part 3 - FWACV Offtakes

The ME2 Part 3 Work Procedure sets out a number of tests and calibrations designed to ensure all aspects of flow metering such as flow computers, pressures and temperatures are setup and working within tolerances.

All sites must be validated annually with a maximum interval of twelve months between validations.

Meter Errors

The Offtake Arrangements Document (OAD) requires the offtake metering measurement equipment to be operating within its “Permitted Range” as indicated in the site specific “Supplemental Agreement”. If the measurement equipment is found to be operating outside its Permitted Range or with a systematic bias, it is classed to be a “Fault”.

The Measurement Error Notification Guidelines only require the notification of faults which are likely to result in a systematic bias to the measured quantity. They do not cover faults associated with equipment operating outside its permitted range when the mismeasurement is of a random nature.

Systematic bias is deemed to be a bias resulting from the measurement system, leading on average to biases in measurement which results in measured values being systematically too high or too low.

Reconciliation

On identification of a possible meter error the Distribution Network is required to supply corrected readings for reconciliation only when the fault identified has a systematic bias of over 0.1% of the total offtake flow during the period of the error. These corrected readings are supplied as part of the “Measurement Error Report (MER)” or the “Significant Measurement Error Report (SMER)”. Where a SMER will be an error estimated to exceed 50 GWh.

Null Reports

Should the magnitude of the total error be calculated at less than 0.1% of the total offtake flow during the period of the meter error then no reconciliation will be made for any day within the error duration and a null report written.

Requirements

1. Meter Error Reports

WWU reported 3 meter errors in the period of April 2023 to March 2024. Two errors were identified in the Southwest LDZ, and one error found in Wales North LDZ. Each of these errors required reconciliation as they were above the threshold of 0.1% total error.

- MER_WWU_WN004_Maelor (15th Mar 21 – 27th April 23)
Ultrasonic meter K-factors entered into flow computer incorrectly.
- MER_WWU_SW038_Easton Grey (15th Jun 20 – 18th April 23)
Ultrasonic meter K-factors entered into flow computer incorrectly.
- MER_WWU_SW039_Cirencester (9th Jan 23 – 9th Mar 23)
Data entry correction following flow signal failure.

Site	Total Error (%)	Volume (mscm)	Size of Error (GWh)	Reconciliation Required	Current Status
WN004 Maelor	0.156%	0.662	20.54	Y	Reconciled
SW038 Easton Grey	0.108%	0.226	5.49	Y	Reconciled
SW039 Cirencester	1.03%	0.199	2.17	Y	Reconciled

Table 2 – Reported Meter Errors

2. Network Meter Performance

The meter performance for offtake meters within the network operated and maintained by Wales & West Utilities in 2023/24. The following table shows the effect the above reported meter errors have had to the energy delivered though each LDZ and the WWU network as a whole.

LDZ – 2023/24	SW	WN	WS	Network Total
Total Energy (GWh)	25291	5627	18572	49490
Abs Error (GWh)	0.646	0.689	0.000	1.336
% Error	0.0013%	0.0014%	0.0000%	0.0027%

Table 3 - Meter Performance

3. Annual ME2 Meter Validations

ME2 maintenance activities for the period April 2023 to March 2024 as shown in Table 4.

Validation Summary

The WWU network consists of 33 individual metering streams across our 17 NTS Offtakes, these were inspected and tested following the ME2 Maintenance Work Procedure. However, due to scheduling constraints, 7 metering streams at 4 Offtakes were started slightly outside of the ME2 12-month validation window.

Any ME2 functional tests that failed to meet the required test tolerances, which may indicate the measurement systems are not performing correctly were corrected/recalibrated and investigated for potential meter errors.

Table 4 – Summary of ME2 Meter Validations – April 2023 to March 2024

Site Name	LDZ	Meter Type	Open Meter Error Report's	Last Validation End Date	Validation Start Date	Validation End Date	Started within 12 months of last?	Reconciliation Required?	Comments
Aylesbeare (MUA)	SW	Ultrasonic		08/03/2023	06/02/2024	16/02/2024	Yes	No	
Aylesbeare (MUB)	SW	Ultrasonic		08/03/2023	06/02/2024	16/02/2024	Yes	No	
Choakford (MRA)	SW	Turbine		09/03/2023	11/03/2024	20/03/2024	Overdue	No	Slight delay starting validation due to scheduling constraints.
Choakford (MRB)	SW	Turbine		09/03/2023	11/03/2024	20/03/2024	Overdue	No	Slight delay starting validation due to scheduling constraints.
Cirencester (MRA)	SW	Turbine		15/06/2022	12/06/2023	15/06/2023	Yes	No	
Cirencester (MRB)	SW	Turbine		15/06/2022	12/06/2023	15/06/2023	Yes	No	
Coffinswell (MRA)	SW	Ultrasonic		21/07/2022	01/06/2023	20/06/2023	Yes	No	
Coffinswell (MRB)	SW	Ultrasonic		21/07/2022	01/06/2023	20/06/2023	Yes	No	
Dowlais (MRA)	WS	Ultrasonic		13/07/2022	17/07/2023	18/07/2023	Overdue	No	Slight delay starting validation due to scheduling constraints.
Dowlais (MRB)	WS	Ultrasonic		13/07/2022	17/07/2023	18/07/2023	Overdue	No	Slight delay starting validation due to scheduling constraints.

Site Name	LDZ	Meter Type	Open Meter Error Report's	Last Validation End Date	Validation Start Date	Validation End Date	Started within 12 months of last?	Reconciliation Required?	Comments
Dyffryn Clydach (MRA)	WS	Ultrasonic		10/08/2022	31/07/2023	01/08/2023	Yes	No	
Dyffryn Clydach (MRB)	WS	Ultrasonic		10/08/2022	31/07/2023	01/08/2023	Yes	No	
Easton Grey (MUA)	SW	Ultrasonic		02/03/2023	05/03/2024	06/03/2024	Overdue	No	Slight delay starting validation due to scheduling constraints.
Easton Grey (MUB)	SW	Ultrasonic		02/03/2023	05/03/2024	06/03/2024	Overdue	No	Slight delay starting validation due to scheduling constraints.
Evesham (MRA)	SW	Turbine		20/04/2022	04/04/2023	14/04/2023	Yes	No	
Evesham (MRB)	SW	Turbine		20/04/2022	04/04/2023	14/04/2023	Yes	No	
Fiddington (MUA)	SW	Ultrasonic		19/08/2022	03/08/2023	24/08/2023	Yes	No	
Fiddington (MUB)	SW	Ultrasonic		19/08/2022	03/08/2023	24/08/2023	Yes	No	
Gilwern (MUA)	WS	Ultrasonic		22/08/2022	23/05/2023	24/05/2023	Yes	No	
Gilwern (MUB)	WS	Ultrasonic		22/08/2022	23/05/2023	24/05/2023	Yes	No	
Ilchester (MUA)	SW	Ultrasonic		18/05/2022	02/05/2023	18/05/2023	Yes	No	
Ilchester (MUB)	SW	Ultrasonic		18/05/2022	02/05/2023	18/05/2023	Yes	No	
Kenn (MRA)	SW	Ultrasonic		07/07/2022	29/06/2023	26/07/2023	Yes	No	

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Site Name	LDZ	Meter Type	Open Meter Error Report's	Last Validation End Date	Validation Start Date	Validation End Date	Started within 12 months of last?	Reconciliation Required?	Comments
Kenn (MRB)	SW	Ultrasonic		07/07/2022	29/06/2023	26/07/2023	Yes	No	
Littleton Drew (MRA)	SW	Turbine		13/07/2022	18/07/2023	31/07/2023	Overdue	No	Slight delay starting validation due to scheduling constraints.
Maelor (MUA)	WN	Ultrasonic		18/10/2022	07/09/2023	07/09/2023	Yes	No	
Maelor (MUB)	WN	Ultrasonic		18/10/2022	07/09/2023	07/09/2023	Yes	No	
Pucklechurch (MRA)	SW	Turbine		29/10/2022	06/10/2023	13/10/2023	Yes	No	
Pucklechurch (MRB)	SW	Turbine		29/10/2022	06/10/2023	13/10/2023	Yes	No	
Ross (SW) (MRA)	SW	Turbine		12/05/2022	02/05/2023	11/05/2023	Yes	No	
Ross (SW) (MRB)	SW	Turbine		12/05/2022	02/05/2023	11/05/2023	Yes	No	
Seabank (MUA)	SW	Ultrasonic		15/09/2022	12/09/2023	27/09/2023	Yes	No	
Seabank (MUB)	SW	Ultrasonic		15/09/2022	12/09/2023	27/09/2023	Yes	No	