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DOCUMENT TITLE:

Existing Utility Report

PROJECT:

Ardagh Metal Packaging Facility, Wrexham

CLIENT:

Ardagh Group

ENERGISING ENVIRONMENTS

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DOCUMENT CONTROL

Document Reference	Suitability Status
25283-DPL-XX-XX-RP-ME-0001	S2

Revision	Originator	Approved	Date	Purpose of Issue
P01	JC/TW	RL	24/03/2026	Issued for Information

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1.0 EXECUTIVE SUMMARY

Gas

The site is supplied with natural gas via a 150mm MDPE service connected to an existing Roots gas meter. Consumption data provided by TotalEnergies for November 2025 indicates a total monthly usage of 323,510 m^3, equivalent to approximately 3.59 GWh of energy. This corresponds to an average hourly energy demand of approximately 4,819 kWh. **These figures are based on averaging a single gas month bill, however there maybe peaks throughout the month and particularly during peak colder winter months (i.e. January, February).**

Confirmation received from Wales & West Utilities indicates that the maximum available capacity from the existing 150mm service is approximately 15,925 kWh (peak hourly demand). When compared with the recorded average hourly demand, this suggests that there is sufficient spare capacity within the existing gas infrastructure.

Based on the available data and assuming the gas load is constant across the day / month without significant variation or peaks, the existing gas supply is considered adequate to accommodate the proposed building extension and additional production line. The client has also confirmed that the new production line is not expected to significantly increase gas consumption, with only minor intermittent usage associated with the production line.

Water

The site is currently served by an 90mm MDPE (76mm copper) incoming mains cold water supply, which distributes water to multiple outlets and storage tanks across the facility. Consumption data provided by Severn Dee Water for November 2025 indicates a total monthly usage of 21,417 m^3, equivalent to an average flow rate of approximately 8.8 litres per second. This is based on the assumption that the supply is constant without any significant peaks.

Based on confirmation that the incoming supply pipe is 90mm (76mm copper), the calculated flow rate indicates that the existing pipework is undersized, resulting in high flow velocities within the supply. This suggests that the current infrastructure is already operating close to or beyond its optimal capacity.

To accommodate both existing demand and the anticipated increase in water consumption associated with a 50% production increase, it is recommended that the incoming mains supply and meter be upgraded to a 110mm MDPE pipe. This would provide sufficient capacity to support the current usage and the proposed future expansion of the facility.

A formal application will need to be made with Severn Dee Water for the upgrade of the existing water connection from the main that runs parallel with Bridge Road North. The anticipated cost for the new supply is in the region of £3,000 - £8,000 for a new supply. This is based on the assumption that main infrastructure within the main road will not require an upgrade. If this is required, this cost will be significantly more.

Electricity

The site is currently supplied at 11kV with a declared capacity of 6.4MVA. Based on recent demand data provided by Scottish Power Energy Networks, peak demand in 2025 reached 6.182MVA, indicating limited spare capacity within the existing supply.

The proposed 50% increase in production is expected to increase electrical demand to approximately 9.3MVA, which is close to the practical upper limit for supplies at 11kV. Informal discussions with SPEN suggest that the local 11kV distribution network is unlikely to have sufficient spare capacity to support this level of demand

without significant reinforcement. In addition, potential fault level constraints may limit the feasibility of simply increasing the existing supply capacity.

A formal network study by SPEN has been requested to determine the most appropriate method of providing the additional capacity. Based on discussions with SPEN, the likely outcome is the requirement for a new 33kV substation on site, typically incorporating two 20MVA 33/11kV transformers, with the site continuing to be supplied at 11kV. The indicative capital cost for this type of infrastructure is estimated to be £3 million to £7 million, with a potential delivery programme exceeding two years.

An alternative option may be to connect as a 33kV customer, with transformers and associated 11kV infrastructure provided by an Independent Distribution Network Operator (IDNO), which may offer programme advantages compared to the SPEN option. Further engagement with network providers will be required to confirm the most suitable approach.

2.0 INTRODUCTION

Davies Partnership were commissioned by TACP to undertake a survey of the production facility operated by Ardagh Metal Packaging at Bridge Road, Wrexham, LL13 9PS. The purpose of the survey was to review the existing utility infrastructure, identify the current site capacities, and assess the available spare capacity, if any.

The survey was carried out on Wednesday, 11 November. At the time of the visit, not all areas of the facility were accessible, and the findings presented in this report are therefore based on the areas that were available for inspection, together with information provided by the client and relevant utility providers.

The facility currently operates four production lines. A proposed building extension will accommodate an additional production line, increasing the total to five lines.

It has been reported that the existing four production lines collectively produce approximately 7 million cans per day. With the addition of the new production line, the client's objective is to increase production to in excess of 10 million cans per day, representing an approximate 50% increase in production capacity.

Davies Partnership have worked alongside DACI (utility engineering specialists) in gathering the information detailed within this report. DACI have engaged with the relevant utility providers confirming the available capacity and the peak demands available to the client for water, gas and electric.

3.0 MECHANICAL SERVICES

3.1 Gas Supply

The site is supplied with natural gas via a 150mm MDPE incoming main connected to an existing Roots gas meter (Model MRD1075A1S). Monthly total usage billing data provided by Total Energies details the gas consumption for November 2025.

The recorded meter readings and consumption for the month were as follows:

- Previous meter reading: 28,096,768 m^3
- Latest meter reading: 28,420,278 m^3
- Total gas consumption: 323,510 m^3

Based on a 31-day period, this equates to:

- Average daily consumption: 10,435 m^3
- Average flow rate:
    - 0.12 m^3/s
    - 432 m^3/hr
    - 120 litres/s

Additional energy data associated with the gas usage is summarised below:

- Calorific value: 39.9 MJ/m^3
- Total monthly energy consumption: 3,585,569 kWh
- Average daily energy consumption: 115,663 kWh
- Average hourly energy consumption: 4,819 kWh

Wales & West Utilities have confirmed that the maximum available load from the existing 6-inch (150mm) service is approximately 15,925 kWh, based on peak hourly demand.

When compared with the recorded average hourly consumption of approximately 4,819 kWh, the existing gas infrastructure appears to have sufficient spare capacity to support the proposed building extension and additional production line.

The client has also confirmed that no significant increase in gas demand is expected as a result of the additional production line. Although the new production line may occasionally require gas input, this demand is expected to be relatively minor and should not materially impact the overall site consumption.

The existing gas supply serves space heating within the production space as well as the processing. There will be an increase to the gas consumption say for January / February (colder months). The external temperature for Wrexham in November 2025 averaged at 7°C external temperature which compares to long term average of 6.7°C and the coldest month is January historically at 4.1°C. Based on these figures and an internal space heating temperature of 16°C, correcting for January, the heating gas demand would increase by approximately one third. Based on averages, this is still well within available gas load, assuming no unforeseen plant peaks.

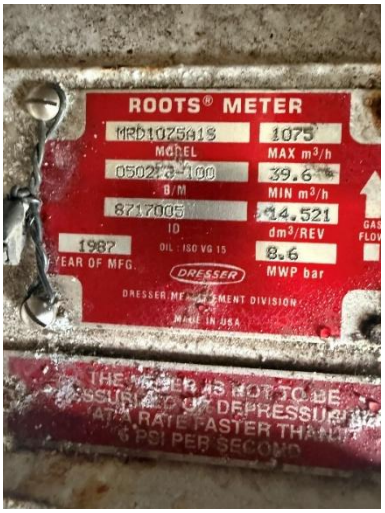


Image 1 – Existing gas meter model / reference



Image 2 – Gas meter reading (taken 23rd February 2026)

3.2 Water Supply

The site is currently served by an 90mm (76mm copper) incoming mains cold water supply, which distributes water to various outlets and storage tanks throughout the facility.

Billing information provided by Severn Dee Water details the site's water consumption for November 2025. The recorded usage is summarised below:

Previous meter reading: 287,393 m^3
Latest meter reading: 308,810 m^3
Total volume used: 21,417 m^3

Based on a 31-day period, this equates to:
Average daily usage: 764.9 m^3 (approximately 764,900 litres)
Average hourly usage: 31,870 litres per hour
Average flow rate: approximately 8.8 litres per second

Confirmation has been received from DACI that the incoming mains pipe diameter is 90mm (76 mm copper). Based on the calculated average flow rate, this pipe size would result in excessively high flow velocities, indicating that the existing incoming main is undersized for the current level of demand.

It is therefore recommended that the incoming mains supply and associated water meter be upgraded to a 110mm MDPE pipe. This upgrade would provide adequate capacity for the current site demand and accommodate the anticipated increase in water usage associated with the proposed additional production line, which is assumed to increase production by approximately 50%.

It has been assumed the 24 hour average water consumption for November is representative of the water demand for the plant throughout the year. If there are processes with a short duration and substantial peak above the average, this may result in the water supply being undersized.



Image 3 – Mains incoming water

4.0 ELECTRICAL SERVICES

4.1 Incoming Electrical Supply

The site is currently supplied at 11kV with a declared capacity of 6.4MVA. The supply terminates in the customer's 11kV switchboard, which in turn supplies several 11kV/400V transformers around the site.
Scottish Power Energy Networks (SPEN) has advised that the peak load recorded in 2025 was 6.182MVA, with an average maximum demand of 6.16MVA.

At this stage it has been assumed that the proposed 50% increase in production will result in a comparable increase in electrical demand. On this basis, the site supply capacity would need to increase to approximately 9.3MVA.

A demand of 9.3MVA is towards the upper limit of what is typically supplied at 11kV. From a cost, programme, and installation perspective, the most favourable outcome would be for the local 11kV distribution network to have sufficient spare capacity to accommodate the additional load. However, following informal discussions with SPEN, this is considered unlikely. The existing local network configuration is not expected to have sufficient spare capacity, and the prospective fault levels associated with reinforcing the network in this way may exceed acceptable limits due to the number of upstream sources involved.

Given the magnitude of the proposed increase in demand, SPEN are required to undertake a formal network study to determine how the additional capacity could be provided. This study is subject to a fee of £7,500 and may take up to 65 working days to complete. SPEN have been instructed to carry out the study and it is presently underway.

The most likely outcome of the study is the requirement to construct a new 33kV substation at the site. In line with SPEN's standard design approach, this would typically comprise two 20MVA 33/11 kV transformers. The site would continue to be supplied at 11kV, but from a single source, thereby avoiding unacceptable fault level increases.

The installation of such infrastructure could take in excess of two years to deliver. An order-of-magnitude capital cost for this solution is estimated to be in the range of £3 million to £7 million.

An alternative approach, suggested by utility Consultants, DACI, may be for the site to become a 33kV customer, with an Independent Distribution Network Operator (IDNO) installing and operating the new 33kV/11kV transformers and infrastructure. This option may provide a shorter delivery programme; however, this would need to be confirmed through further engagement with potential IDNO providers.

If the final solution includes the construction of a SPEN-owned substation, early engagement between the legal teams of both parties will be essential. In most cases, design, procurement, and construction activities cannot proceed until the necessary legal agreements are finalised, and this stage can often become a significant programme constraint.

5.0 CLARIFICATIONS & RECOMMENDATIONS

Clarifications

The following assumptions and limitations apply to the findings within this report:

No existing “as-installed” or M&E record drawings were available at the time of writing to support the assessment of the existing utility infrastructure.

Confirmation has not been received from the client or end users detailing which plant, equipment, or areas of the facility are served by the existing gas, water, and electrical supplies within the production, processing, or office areas.

No technical specification has been provided for the proposed new production line; therefore, the future gas, water, and electrical demands have been assessed based on assumptions derived from the anticipated increase in production.

No layout drawings for the proposed building extension were available at the time of the assessment.

Recommendations

It is recommended that the client undertake a dynamic flow and pressure test on the existing mains cold water supply to confirm the available flow rate and pressure. This would help validate the assumptions made within this report regarding the adequacy of the current supply.

This would involve temporary connection of a flow and pressure test rig to the water supply and gradually opening a test valve with water discharged to drain, measuring flow rate and pressure as the valve is opened. This is an instantaneous test and would only confirm flow and pressure at the time of the test. If there are other businesses connected to the same main with wide fluctuations in demand, this could give a false sense of security. This test should be carried out with the building and plant water supply turned off. Whilst short duration (maximum one hour) the implications of this would need to be reviewed with production.

Water consumption could be more accurately assessed by installing an ultrasonic data logger on the existing incoming service. Readings could be recorded with one minute sample intervals. The week of measurement needs to representative in terms of factory processes (evaporative cooling processes to be confirmed by the client).

Half-hourly gas consumption profiles could be recorded to identify the true peak demand, providing a more accurate basis for determining the maximum gas load. This approach is currently being investigated.

Gas could be measured in greater resolution by connection of a data logger to the gas meter pulse output (if available).