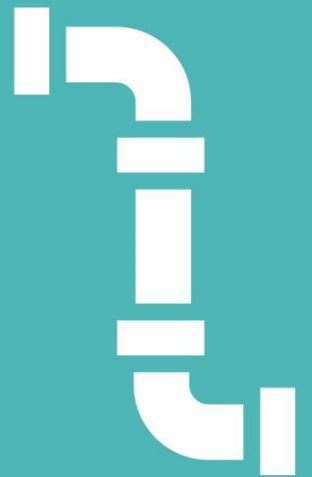




Appendix 130: Decarbonisation of industry



Legal Notice

This paper forms part of Wales & West Utilities Limited Regulatory Business Plan. Your attention is specifically drawn to the legal notice relating to the whole of the Business Plan, set out on the inside cover of The WWU Business Plan. This is applicable in full to this paper, as though set out in full here.

1 Introduction

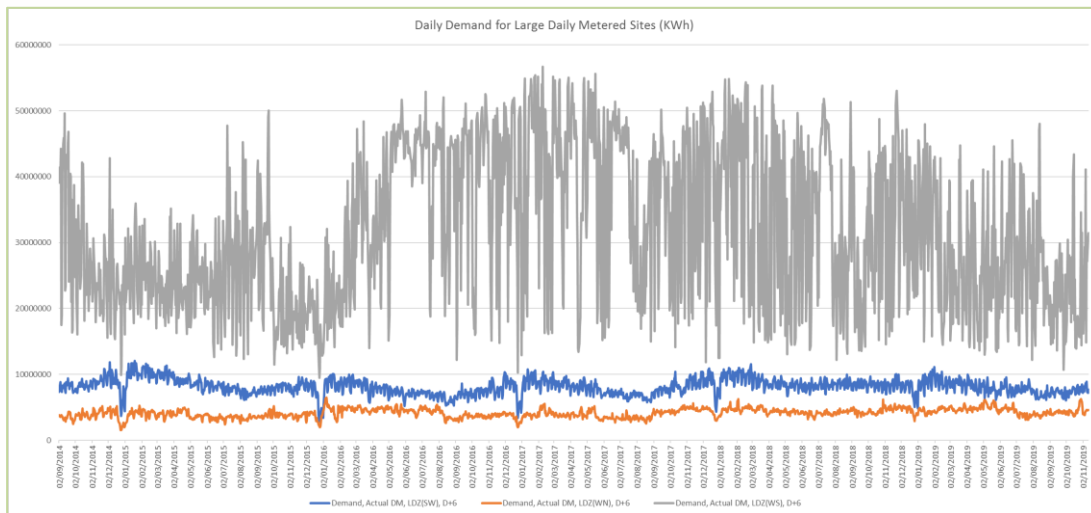
This appendix supports Chapter 13 of our business plan, which sets out our net zero ready vision for 2035.

As Appendix 13A outlined, since 2015 we have been undertaking a programme of engagement, research and analysis to drive forward our understanding of the future of energy debate and to identify low-cost, sustainable and reliable decarbonisation solutions.

This appendix provides information on our approach to the future requirements of industry in our region.

Our networks cover a diverse range of geographies including rural areas such as mid Wales (where there is very little use of gas), small towns and larger cities. Although we have industrial customers in most areas of our network, South Wales LDZ is one where the activities of our large industrial and power generation customers have the most impact on LDZ Demand and operation. Tata Steel and Severn Power, an 850 MW power station, are the most significant sites.

The graph below shows daily demand for our daily metered (DM) sites for the past few years. It clearly demonstrates the volatility of demand in South Wales when compared with the other LDZs.



Any reference to power generation in this appendix excludes the majority of flexible generation sites which are discussed in Chapter 13 of our business plan as they have a low annual demand and are non-daily metered.



2 Engagement processes

We will engage with a range of our daily metered sites via a number of different processes.

- Larger sites to be contacted annually as part of our long-term forecasting processes so that we can discuss any plans they have to change their use of gas and discuss decarbonisation plans.
- The largest 600 sites are contacted every year as part of our national emergency exercise to check contact details and provide an opportunity for dialogue.
- Where we identify constraints on our network we will contact specific sites as part of any interruption auction planning process in order to discuss whether interruption services are something they would be interested in bidding for.
- As new sites connect we liaise with developers to understand their likely impacts on the network to make sure that we can support their operations and plan our network configuration to ensure reliability is maintained.
- As part of our regional FES project this year we held a specific session on industrial loads to prompt discussion and gather information on likely trends.

In addition, our existing links to business groups such as Cardiff Capital Region, Business Council, SW Business Council and local CBI Councils will be utilised to maintain a much closer relationship with business and to facilitate their decarbonisation.

Separately we have specific arrangements for flexible generation sites, as was detailed in appendix 13I.

3 Initial position

There is no obvious trend of increase or decrease of peak actual demand data as shown in the earlier graph, although demands can vary significantly on a day to day basis. This is particularly evident in South Wales where the behaviour of Severn Power will frequently have a significant impact on the total DM load for that LDZ.

We see that demands are typically impacted by the requirement for gas generation, gas prices and holiday shutdowns particularly, over the Christmas period.

4 Trends

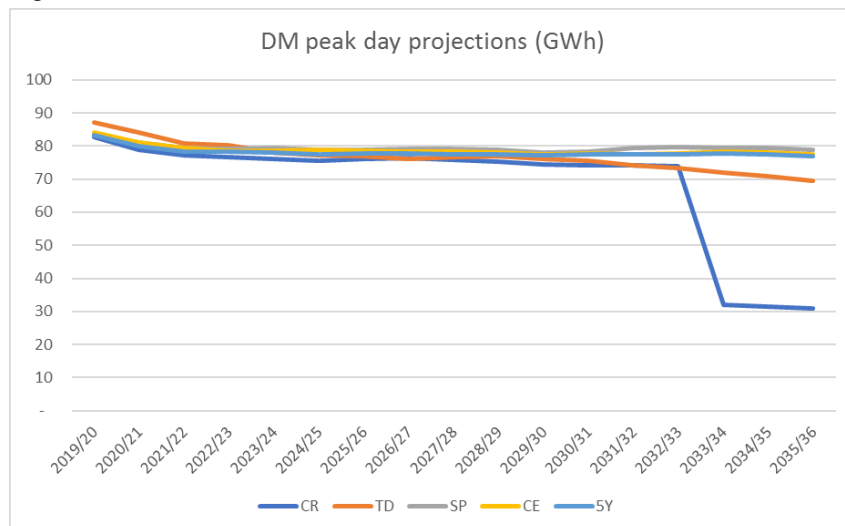
Noting the pattern of continued levels of usage for DM sites our demand forecasts for this category of sites and the uncertainty around how industrial customers may respond to the challenge of decarbonisation, our peak demand forecasts for industry have been set at a constant value for the next ten years.

This assumption takes on board discussions we have had as part of our annual forecasting engagement. We have received different feedback about the likely impacts of future operations through our engagement, but all our customers have confirmed the reliance they place on reliable firm supplies. Below is a selection of other feedback we have received from specific customers:

- A number recognise the value of gas for on-site CHP to ensure reliable electricity availability.
- One predicted a reduction of up to 5% demand as efficiency measures are implemented.
- One customer told us that flows at one of their sites were likely to decrease, but that they were likely to increase at another to compensate.
- One is keen to understand changes in gas quality specifications as a wider range of gases is transported.
- Most did not anticipate any change in their use of gas.



The LDZ projections we receive from National Grid for the four FES scenarios and a central five-year case show an element of reducing load. However, when we look at the data at an individual LDZ level there are also scenarios where loads increase. The significant reductions are often based on assumptions around specific site closure and only the Community Renewables scenario in the graph below shows a significant decline from 2033.



5 Future role in relation to net zero

We recognise that there are commercial sensitivities around discussions we have with sites around their use of gas. This is particularly true where this may imply significant changes to their site processes that could impact workforce requirements.

As part of our Regional FES engagements we included a specific session on future requirements for industry at the Cardiff event. This gave stakeholders the opportunity to engage in more general discussions on likely trends and opportunities around decarbonisation of industry. The key messages from the group are detailed below.

While some of the feedback is specifically related to industry in Wales, including comments around Welsh Government policy and the formation of an industrial cluster, we believe that most of the key insights are equally relevant for the South West:

- Industrial demand (particularly daily metered sites) in Wales is a really significant factor and it was agreed that a bespoke approach to the largest sites/sectors (i.e. metalworks) is required.
- There was agreement that the options to tackle industrial emissions are efficiency improvements, heat recovery and hydrogen in the long term.
- There was broad agreement with the FES trajectories (limited decrease in natural gas demand until 2035) but it was highlighted that there is actually the potential for demand to increase from industrial users, due to switching from coal to natural gas. This would result in a net carbon emission decrease but an increase in natural gas demand.
- There was agreement that fuel switching potential is relatively limited, as most industrial processes are designed for a certain fuel. Biomethane replacing natural gas (as a direct fuel) is unlikely to be applied to industrial properties on-site.
- There were discussions around hydrogen replacing natural gas in the South Wales industrial cluster – key area and consideration for Wales green gas and C&I analyses.
- The price of gas has a huge impact on large industrial users, and an increase (through more carbon taxation) could easily lead to industry simply moving overseas. There was strong feeling that the Welsh Government would not let this happen in any reasonable scenario. The method of hydrogen production needs to be considered in regard to this.



- In regard to waste heat – while the compliant scenarios are likely to see high levels of waste heat recapture and utilisation to increase process heat efficiency (10-15%), the remaining waste heat could potentially be used to heat commercial and domestic properties in the vicinity of the industrial user.

6 Conclusion

Through our engagement with large industrial users we understand the reliance they place on a reliable supply, particularly for high heat processes where disruption could have significant cost impacts on equipment and production. We also know that many businesses are increasing their use of CHP, and the role gas plays in providing a reliable source of electricity even where the electricity network is constrained.

We recognise the continuing challenges associated with decarbonisation and the uncertainty around whether this will result in increased or decreased gas usage at peak times. We therefore believe that working on a central case for industry demand is the most pragmatic approach. There is no investment associated with this requirement since the impacts of industry tend to be very localised and feeds tend to be from higher pressure tiers.

There may be an opportunity for us to avoid some forms of investment e.g. new pipelines to support flexible generation, if key industrial customers were to cease taking gas at peak. However, we have investigated this via specific communications around interruption services (at any price) and have been unsuccessful.

We will continue to engage with our industrial customers through a variety of methods as we have during the past few years. We are also due to be part of the Zero2050 project in South Wales which includes a specific work package looking at decarbonisation of industry.

