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Llyr Gruffydd MS
Chair, Climate Change, Environment & Infrastructure Committee
Welsh Parliament
Cardiff Bay
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By email: seneddclimate@senedd.wales

21st February 2025

Annwyl Llyr,

Thank you for the invitation to give evidence to the Senedd's Climate Change, Environment and Infrastructure Committee on the impact of Storms Bert and Darragh. In advance of our oral evidence, we provide the following written submission and would be happy to address any further points Members may wish to raise at the evidence-gathering session on 6th of March 2025.

Over the course of two weeks in late 2024, Storm Bert and Storm Darragh hit Wales, with communities experiencing flooding, landslides, and severe wind. As a company which provides an essential service to over three million people in Wales and parts of England, we have an extensive asset base with over 27,600km of water mains, 36,600km of sewers, 834 wastewater treatment plants, 64 water treatment works and 92 reservoirs. Such periods of heavy rain and wind will inevitably impact on our operations and our focus under these conditions is ensuring we do everything we can to maintain our services to our customers while also minimising our impact on the environment. While we successfully maintained our water and wastewater services to over 99% of customers in Storm Bert and Storm Darragh, these storms did present us with some of the most extensive operational challenges that we have faced in recent times as detailed below.

While water companies cannot control the weather, we do seek to manage and mitigate the impacts of extreme weather events on customers through how we plan for and respond to those extreme weather events.

With an increase in the frequency and intensity of named storms in recent years, we have an established process for preparing for such events. This involves significant and coordinated preparedness activity across our operational and support teams which often starts in autumn and includes the creation of winter plans, a

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large-scale winter preparedness exercise across operational teams to validate these plans and weekly preparedness meetings which is presented to our Executive Team.

Weather forecasts from the Met Office are monitored closely and when the Met Office issues a weather warning, we review the level of the warning in line with the incident triggers within our Incident Response Manual, which will then necessitate the formation of either the Gold or Silver incident team to provide the appropriate level of command and control with regard preparedness, response and recovery. Such an approach is fundamental to ensure the effective implementation of incident management and business continuity strategies.

We also work closely with the Local Resilience Forums across Wales during periods of stormy weather, bringing together Local Authorities, emergency services and other agencies during challenging times.

As part of this preparation, the key activities we undertake in advance of any potential weather event includes:

- moving sites (water and waste) proactively on to standby generator
- installing of flood defences at sites which may be at risk
- Health & Safety briefings held across all teams
- checking of standby generator fleet in readiness for deployment
- ensuring full resource availability across water and waste teams (including electricians) as well as supporting services
- checking resilient communications (including Sat Phones)
- cancelling any planned work to preserve resources in readiness to respond to expected increase in reactive activity 24/7 and outside of normal shift patterns
- preparing resource plans for our contact centre to respond to any increase in contact
- confirming resource and plant availability across main supply chain and specialist contract partners
- proactively raising reports for regulatory reporting
- deploying resources to specific sites ahead of the warning to ensure quick response to any potential issues

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- scaling back any planned IT updates across the weekend to ensure key IT systems remain in place
- proactively checking all dams across the supply area and plans in place to revisit to assess for any damage when safe to do so
- providing updates to key stakeholders around the level of preparedness ahead of the Storm e.g. Welsh Government
- preparing any customer communications materials that are needed in advance of an incident e.g. providing advice to customers about which organisations is responsible for different services during an emergency

Storm Bert

Despite this extensive level of level of preparation as detailed above, Storm Bert had a significant impact on our services. The weather led to extensive power outages and given that we are one of the largest energy users in Wales, power is needed to maintain our extensive network. This affected a number of our treatment works and wider networks where pumps are often used to push the water along our network, especially in more rural areas with hilly topography.

During Storm Bert, we experienced power supply interruptions to 50 of our 64 water treatment works but managed to mitigate the impact of this by ensuring that we had taken precautions by moving generators – where possible - to our sites to allow us to ensure the treatment of drinking water, and provision of services, remained uninterrupted. Some treatment works are, however, too big to be run from a generator and therefore any power supply interruptions require urgent attention to restore power and restart the treatment process (which can take many hours) before the amount of water stored in our service reservoirs run dry. In those areas where our telemetry had indicated that our assets such as pumping stations had 'tripped' due to power outages or power surges, we sent our operatives to investigate and restart those assets. During the storm we experienced twice the normal number of 'alarms' expected, with 3,458 alarms at our clean water sites to warn of issues with our assets.

The flooding caused by Storm Bert also had an impact on the quality of raw water, as heavy rainfall affects the quality of run-off into reservoirs e.g. more surface water runoff including more pollutants etc. When raw water quality deteriorates, additional processes may be required to remove these contaminants and compounds at treatment works. When this process is further impacted by power outages as experienced during Storm Bert, it compounds the challenges we faced when trying to maintain our services.

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Comprehensive preparatory work was undertaken prior to the floods to ensure that we were in the best possible position prior to the heavy rain that was forecast. Pumping stations were checked to see that they were working as designed, wastewater networks were checked to ensure they were clear from blockages and problem flooding hotspots were inspected.

A number of our wastewater assets flooded in the Taff valley including Cynon Wastewater Treatment Works and four river crossings to our sites were washed away. We worked closely with Rhondda Cynon Taff Council and Natural Resources Wales in mutual support around flooding in the Pontypridd area. We assisted a number of customers who suffered repeat flooding following Storm Dennis.

The vast majority of these incidents did not impact on the services we provided to customers and were dealt with, fixed, or worked around by colleagues working 24/7 in often dangerous conditions.

The main effect of Storm Bert on our operation was the issuing of a precautionary Boil Water Notice for the area supplied by Tynywaun Water Treatment Works. The weather gauge at Tynywaun measured the second highest rainfall in the UK on Saturday 23rd and Sunday 24th of November and the heavy rain resulted in a significant amount of flooding on site, with surface water running from the hill onto the drinking water storage tank. Our monitoring activity and temporary elevated levels of turbidity suggested that the tank may have experienced water ingress. As a result, a precautionary Boil Water Notice was issued to 12,402 properties (28,525 people) in the affected area. A Gold Command structure was established on Saturday evening and remained in place until 6 December once the boil water notice had been lifted.

This was the first major Boil Notice that we have issued in over 15 years and not a decision that was taken lightly. We have therefore conducted an extensive review of the incident at Tynywaun looking at our operational response as well as commissioning customer research of those living in the affected area, conducted by an independent research specialist company, Blue Marble. The research consisted of a survey of over 500 customers living in the affected area, focus groups and 1-2-1 interviews with stakeholders and vulnerable groups. The research concluded that 80% of customers were satisfied with how Welsh Water responded to the incident, but provided a very valuable insight into the challenges faced – especially those who identify as vulnerable but are not registered on our Priority Service Register (for example, in order to received bottled water delivered to their properties) and also the complexities of communicating an urgent message (i.e. to boil water before using it) at scale, over a weekend – no customer will see every message, and some customers won't see any messages regardless of the channels used. We are happy to share the full report with the Committee if desired.

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This incident highlights how we need to protect our assets from the direct impacts of climate change such as flooding. While relatively rare, they have an unacceptable impact upon service and the environment. We have completed flood defence works at several key assets in recent years, such as Mayhill Water treatment Works in Monmouth in 2022 following the flooding caused by Storm Dennis. Over the next five years we will be focussing work on flood protection for ten of our assets. Five of these are at locations involved with the production of drinking water, Bryncrug Water Treatment Work, Crai WTW, Llyswen WTW, Talybont WTW and Nantgaredig Low Lift Water Pumping Station. Work will be done at five sites that treat waste water, at Mold, Gowerton, Merlins Bridge, Flint and Hereford Eign.

Storm Darragh

Storm Darragh followed Bert with a Red weather warning for strong winds and rain falling on already wet ground. What was unprecedented, about Storm Darragh, was that it covered most of our operating area making the potential impact on our services far greater and more difficult to plan for as our resources could be needed across the entire area. Furthermore, as the storm quickly followed Storm Bert (and the incident at our Tynywaun treatment works) our teams and resources had not fully recovered before needing to respond again to a major incident.

We continued our Gold incident management into Darragh from Bert, moving seamlessly from one to the other. The preparation involved expending considerable resources across the company. Darragh had more of an impact on our operations than Bert, as this impact was across a wider geographical area, but it was largely mitigated by the preparatory work that was undertaken. Whilst Darragh created numerous problems for our operating teams, there was only a relatively small impact on our customers, and we didn't see a major incident similar to Tynywaun.

Mobile generators were deployed in advance to clean water and waste water sites with prioritisation based on the risk of loss of water supply and the number of customers served by those assets. Additional generators were also brought in through the supply chain to support further impacted sites which required a power supply.

During the storm mains power was lost to hundreds of our assets, with each requiring a response from our teams on the ground. During this period, we had more than 400 Sewage Pumping Stations or Waste Treatment Works without power. Twenty-two (out of a total of 64) of our water treatment works that supply clean water to customers, remained on standby generators following the storm due to lack of mains power availability. We lost around 200 of our water pumping stations due to loss of power, which is almost 40% of all of our pumps.

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During the storm 13,769 alarms sounded at waste water works, warning of potential problems at the sites over a period of 5 days. More than 800 of these alarms linked to power outages. At sites producing drinking water we saw four times the usual volume of alarms warning of issues with our assets. The power loss was prolonged across many parts of Wales for a period of over 4 days. Some more rural parts of west Wales saw an extended period of 6-7 days without power.

There were around 62 more prolonged interruptions to water supplies, mainly across villages in southwest Wales, as well as some small communities in mid Wales. The total number of properties affected by the interruptions was around 4,000 (out of a total of approx. 1.3 million). The loss of power and the geographical spread of these supply interruptions made it difficult for us to restore supply quickly.

The work to keep our assets online was made significantly more challenging by closed roads due to flooding or fallen trees, closed bridges due to wind, and intermittent power supplies due to the wider power recovery efforts. For example, many of our treatment works are in remote locations and when road access to Pontsticill Water Treatment Works was impacted by the storm, it took eight hours to clear the road. We have an extensive tanker fleet (one of the largest across all water companies) and these tankers were used to either feed directly into the distribution system or at Service Reservoirs to maintain water supply. The customers who did experience a loss of supply were supported by bottled water deliveries, including any customers on our Priority Services Register.

Whilst most of the focus is on our operational assets such as treatment works and pumping stations, the impact on our wider estate should not be underestimated. For example, such storms have a considerable impact on our recreational sites and visitor centres which close during such extreme weather and do not fully re-open until it is safe for customers and visitors to attend. In the Elan Valley for example, over 30,000 trees were destroyed during Storm Darragh which will impact the local environment, amenity and commercial return from forestry.

Summary

Power loss is a problem that has an impact on our ability to operate during storms. Giving priority to water companies when it comes to reconnection to the electricity grid would assist us in getting our assets back online and avoiding water supply outages and impact on our customers, businesses and vital public services.

Although work is being done on a National Power Outage Plan, there is scope also to consider more regional plans to deal with power issues. If each of the four Local Resilience Forums in Wales had regional plans in

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place, this could provide a focus on power response, given loss of water supply risk which then leads to communities having no water and no power. Bringing the water and power companies closer together, and aligning their approach to restoration of power, would assist us during times when assets are offline.

Whilst the water sector has been under considerable scrutiny in recent years, one element that is often overlooked is the amount of effort that goes unseen to maintain services in sometimes very extreme and challenging conditions. The professionalism, expertise and dedication of our front-line colleagues ensures that such adverse customer impact is kept to a minimum and issues are resolved as quickly as possible. Whilst any interruption to customer supply is regrettable, often it is the manual and mundane human interventions when technology fails – such as having to make quarter turns of a valve every quarter of an hour, by hand, outdoors for many hours, throughout Storm Darragh, due to power outages preventing automatic operation – that is keeping our customers in supply. I would like to put on record my thanks to these teams across Welsh Water – and other utility and emergency services – for their incredible efforts throughout the recent storms.

With such storms undeniably happening more frequently and with greater intensity, it is inevitable that services will be impacted by such storms in the future. We will continue to mitigate such risks through continued investment, prioritising our resilience investment on a risk-based approach, but this will have to be balanced by the affordability of such investment by our customers.

Thank you for giving this matter your consideration. We hope that this has been helpful, and we look forward to the opportunity to discuss this further in the oral evidence session in March.

Yours sincerely,

Ian Christie

Managing Director Water, Asset Planning and Capital Delivery