

Upgrading the UK to Digital Phone Lines

The Water Industry

Water is essential, both for life itself and life as we know it. We rely on safe drinking water in our homes and on sewage systems that protect the environment from pollution. There are many different organisations and processes involved in ensuring the smooth running of the water industry - something that, despite its importance, we can often take for granted.

What many people don't realise is that all of the organisations involved in keeping the UK's water supply running rely on the telephone network to do so. The network allows the water industry to use telemetry to monitor water levels, manage flood and storm water, and drive the decisions made at pumping stations.

Real-time monitoring and control of water storage, treatment works, flood defence networks, and pumping and booster stations are critical to the successful operation of the industry, and currently rely on 25,000 PSTN lines to function. In remote areas, where there's no other power source available, the Remote Telemetry Units (RTUs) are driven solely by the power coming through the PSTN lines.

The analogue phone lines also allow companies to use broadband services to manage Industrial Control Systems (ICS) in real-time.

Because of these factors, the Digital Phone Line upgrade raises some key challenges for the water industry, especially as there'll be no like-for-like replacement for traditional phone lines. While new connectivity products like Ultrafast Full Fibre broadband will be available for much of the UK, that may not be the case in remote areas – which are often the site of water industry equipment, such as pumping stations.

One potential solution is SoTAP, but that will be limited to certain lines. Finding a new solution for providing local power to a router will be one of the key challenges facing the industry.

Potential issues with moving to Digital Phone Lines



The new router will require a battery back up



Current hardware may be incompatible with Digital Phone Lines. The necessary replacements may be expensive



A hardware replacement programme will be complex and would take a number of years to complete



Water companies operate in 5-year investment cycles and some – or all – may not have budgeted for this upgrade



The provision of an Analogue Telephone Adapter (ATA) port on the router will be up to individual CPs



A loss of support for high speed Dual Tone Multi Frequency (DTMF) signalling



Many equipment sites are more than 10 km from local exchanges and may not have Digital Phone Lines available

Supply Chain

The water companies buy the hardware and then plug it into an Openreach master socket.

In many cases they'll use the 50 Volts from the analogue phone line as their power source.

Key Stakeholders

The key stakeholders include the 11 water companies operating in the UK, as well as OFWAT, DEFRA, the Environment Agency, the Internal Drainage Board, the Drinking Water Inspectorate, Natural Resources Wales, and the Water Industry Commission for Scotland (WICS).

Hardware Providers

The main hardware providers include

- Brodersen
- Cisco
- Digi
- MetaspHERE
- Ovarro
- Schneider Electric
- Westermo
- Xylem